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GOVERNMENT OF PUERTO RICO
PUERTO RICO PUBLIC SERVICE REGULATORY BOARD
PUERTO RICO ENERGY BUREAU

IN RE:	**CASE NO. NEPR-MI-2021-0002**
REVIEW OF THE PUERTO RICO ELECTRIC POWER AUTHORITY'S 10-YEAR INFRASTRUCTURE PLAN-DECEMBER 2020	**SUBJECT: Motion Submitting Eleven (11) Amended FEMA Approvals of Projects and Thirteen (13) FEMA Approvals of Projects, Request for Confidential Treatment, and Supporting Memorandum of Law**

MOTION SUBMITTING ELEVEN (11) AMENDED FEMA APPROVALS OF PROJECTS AND THIRTEEN (13) FEMA APPROVALS OF PROJECTS, REQUEST FOR CONFIDENTIAL TREATMENT AND SUPPORTING MEMORANDUM OF LAW

TO THE PUERTO RICO ENERGY BUREAU:

COME NOW LUMA Energy, LLC, and **LUMA Energy ServCo, LLC**, (jointly referred to as "LUMA"), through the undersigned legal counsel and, respectfully submit the following:

I. Relevant Procedural Background

1. On March 26, 2021, this Honorable Puerto Rico Energy Bureau ("Energy Bureau") issued a Resolution and Order in the instant proceeding, ordering, in pertinent part, that the Puerto Rico Electric Power Authority ("PREPA") submit to the Energy Bureau the specific transmission and distribution projects ("T&D Projects" or "Projects") to be funded with Federal Emergency Management Agency ("FEMA") funds or any other federal funds at least thirty (30) calendar days prior to submitting these Projects to the Puerto Rico Central Office for Recovery, Reconstruction and Resiliency ("COR3"), FEMA or any other federal agency ("March 26th Order"). It also directed PREPA to continue reporting to the Energy Bureau and FEMA, within the next five years, on the progress of all ongoing efforts related to the approval of the submitted Projects that have

not yet been approved by the Energy Bureau.[1] The Energy Bureau thereafter determined that this directive should be applied to PREPA and LUMA. *See* Resolution and Order of August 20, 2021.

2. On July 8, 2021, LUMA filed a *Motion Submitting List of Projects and Twenty-Eight Scopes of Work* ("July 8th Motion"). In the July 8th Motion, LUMA submitted twenty-eight (28) scopes of work ("SOWs") for T&D Projects for the Energy Bureau's review and approval prior to submitting them to COR3 and FEMA. Among the twenty-eight SOWs, LUMA submitted the "Distribution Feeders – San Juan Short Term Group 1" SOW.

3. On August 20, 2021, the Energy Bureau issued a Resolution and Order ("August 20th Order") that determined that all of the SOWs for the T&D projects submitted by LUMA in the July 8th Motion were necessary to improve the system's reliability. Therefore, it approved all of the Projects presented in the July 8th Motion, including the "Distribution Feeders – San Juan Short Term Group 1" SOW. The Energy Bureau also ordered LUMA to submit a copy of the approval by COR3 and/or FEMA of each Project, which shall contain the costs obligated for each Project within ten (10) days of receiving such approval.

4. On August 30, 2021, LUMA filed a *Motion Requesting Clarification of a Portion of the Energy Bureau's Resolution and Order Entered on August 20, 2021, and Submitting Updated List of Transmission and Distribution Projects and Twenty-Nine Scopes of Work* ("August 30th Motion"). In the August 30th Motion, LUMA submitted twenty-nine (29) SOWs for T&D Projects for the Energy Bureau's review and approval prior to submitting them to COR3 and FEMA. Among the twenty-nine (29) SOWs, LUMA submitted the "38 kV Transmission Priority Poles and Structures Replacements", and the "Distribution Streetlighting" SOWs.

[1] On April 22, 2026, the Energy Bureau issued a Resolution and Order ("April 22nd Order"), in which it extended the March 26th Order's reporting period for an additional five (5) years. *See* April 22nd Order, p.2. The Energy Bureau stated that all the other provisions of the March 26th Order would remain in full force and effect. *Id*.

5. On September 22, 2021, the Energy Bureau issued a Resolution and Order ("September 22nd Order") that determined that most of the SOWs for T&D projects submitted by LUMA in the August 30th Motion were necessary to improve the system's reliability. Therefore, it approved most of the projects presented in the August 30th Motion, including the "38 kV Transmission Priority Poles and Structures Replacements", and the "Distribution Streetlighting" SOWs. The Energy Bureau also ordered LUMA to submit a copy of the approval by COR3 and/or FEMA of the Project, which shall contain the costs obligated for each project within ten (10) days of receiving such approval.

6. On July 29, 2022, LUMA filed a *Motion Submitting Four Scopes of Work and Updated List of Projects and Request for Confidentiality and Supporting Memorandum* whereby it submitted four (4) scopes of work for the Energy Bureau's review and approval prior to submitting them to COR3 and FEMA ("July 29th Motion"). The SOWs LUMA submitted included the "Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators" T&D Project.

7. On August 25, 2022, the Energy Bureau issued a Resolution and Order that determined that the SOWs for T&D projects submitted by LUMA in the July 29th Motion were necessary to improve the system's reliability ("August 25th Order"). Therefore, it approved all of the projects presented in the July 29th Motion, including the "Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators" T&D Project. The Energy Bureau also ordered LUMA to submit a copy of the approval by COR3 and/or FEMA of the Project, which shall contain the costs obligated for each project, within ten (10) days of receipt of such approval.

8. On April 24, 2023, LUMA submitted a *Motion Submitting Scope of Work and Request for Confidentiality and Supporting Memorandum of Law* whereby it submitted one (1) SOW for the Energy Bureau's review and approval prior to submitting it to COR3 and FEMA ("April 24th Motion"). LUMA submitted the SOW for the "Island-Wide Vegetation Clearing" T&D Project.

9. On May 5, 2023, the Energy Bureau issued a Resolution and Order in which it approved the "Island-Wide Vegetation Clearing" SOW and determined it necessary to improve the system's reliability ("May 5th Order"). Further, the Energy Bureau ordered LUMA to submit a copy of the approval by COR3 and/or FEMA of the projects, which shall contain the costs obligated for each project within ten (10) days of receiving such approval.

10. Then, on November 7, 2023, LUMA filed the *Motion Submitting One Scope of Work, Request for Confidentiality and Supporting Memorandum of Law* ("November 7th Motion"), whereby LUMA submitted the "Transmission and Distribution Automation Program Installation of Three Phase Reclosers, Single Phase Reclosers and Fault Circuit Indicators and Feeder Headend Protection Devices" SOW for the Energy Bureau's approval.

11. On November 27, 2023, the Energy Bureau issued a Resolution and Order ("November 27th Order"), whereby it approved the "Transmission and Distribution Automation Program Installation of Three Phase Reclosers, Single Phase Reclosers and Fault Circuit Indicators and Feeder Headend Protection Devices" SOW and ordered LUMA to submit a copy of the approval by COR3 and/or FEMA of the Project, which shall contain the costs obligated for each project within ten (10) days of receiving such approval.

12. The "38 kV Transmission Priority Poles and Structures Replacements" SOW is divided into individual projects per region, which include the "Transmission Priority Pole

Replacement Program Line 16500 Fajardo TC-Dos Marinas", and "TPole 5900 San Juan SP to Crematorio TO" T&D Projects.

13. The "Transmission and Distribution Automation Program Installation of Reclosers, Single Phase Reclosers and Fault Current Indicators" and the "Transmission and Distribution Automation Program Installation of Three Phase Reclosers, Single Phase Reclosers and Fault Circuit Indicators and Feeder Headend Protection Devices" SOWs were also divided into separate groups, which include the "FAASt [Automation Program Group 14] (TL/Distribution)", the "FAASt [Automation Program Group 18] (TL/Distribution)", the "FAASt [Automation Program Group 19] (Distribution)", the "FAASt [Automation Program Group 24] (TL/ Distribution)", the "FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)", the "FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)", the "FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)", the "FAASt [Automation Program Group 36] (TL / Distribution)", and the "FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)" T&D Projects.

14. The "Distribution Feeders – San Juan Short Term Group 1" SOW was also subdivided into separate groups and which includes the "FAASt [Feeder Rebuild # 1303-02] (Distribution)" T&D Project.

15. The "Distribution Streetlighting" SOW was further divided into individual projects, among them, the "FAASt [Guayanilla Streetlighting] (Distribution) (HM Cost alignment version)", and the "FAASt [Patillas Streetlighting] (Distribution)" T&D Projects.

16. Finally, the "Island-Wide Vegetation Clearing" SOW was also divided into separate projects by group, which include the "FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)", the "FAASt [San Juan Region 1 -

Feeder 2301-02] (Vegetation)", the "FAASt [Region 1 San Juan 38Kv – Non-sensitive] (Vegetation)", the "FAASt [Region 2 Arecibo Transmission 38kV - Non-Sensitive] (Vegetation)", the "FAASt [Region 3 Bayamon Transmission 38kV - Non-Sensitive] (Vegetation)", the "FAASt [38kV Transmission Line 1200 – Entire Line] (Vegetation)", the "FAASt [38kV Transmission Line 2200 – Entire Line] (Vegetation)", the "FAASt [38kV Transmission Line 3800 – Entire Line] (Vegetation)", the "FAASt [38kV Transmission Line 5400 – Entire Line] (Vegetation)", and the "FAASt [38kV Transmission Line 5600 – Entire Line] (Vegetation)" T&D Projects.

II. Submittal of Eleven Amended FEMA Approvals of Project

17. On September 20, 2024, LUMA filed a *Motion Submitting One FEMA Project Approval, Request for Confidential Treatment and Supporting Memorandum of Law* ("September 20th Motion"), whereby, in compliance with the August 25th Order, LUMA submitted a copy of the project approval issued by FEMA on September 18, 2024, for the "FAASt [Automation Program Group 18 (TL/Distribution)" T&D Project.

18. On February 11, 2025, LUMA filed a *Motion Submitting Seven FEMA Approvals of Projects, Request for Confidential Treatment and Supporting Memorandum of Law* ("February 11th Motion"), whereby, in compliance with the August 25th and November 27th Orders, LUMA submitted copies of the project approvals issued by FEMA on February 6, 2025, for the "FAASt [Automation Program Group 14 (TL/Distribution)", and the "FAASt [Automation Program Group 19] (Distribution)" T&D Projects.

19. On September 12, 2025, LUMA filed a *Motion Submitting Two FEMA Approvals of Projects, Request for Confidential Treatment and Supporting Memorandum of Law* ("September 12th Motion") whereby, in compliance with the September 22nd, August 25th, and November 27th Orders, LUMA submitted copy of the project approval issued by FEMA on September 3, 2025,

for the "FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Aligment)" T&D Project.

20. On September 26, 2025, LUMA filed a *Motion Submitting Eighteen FEMA Approvals of Projects, Request for Confidential Treatment and Supporting Memorandum of Law* ("September 26th Motion"), whereby, in compliance with the August 20th, September 22nd, August 25th and November 27th Orders, LUMA submitted a copy of the project approval issued by FEMA on September 17, 2025, for the "FAASt [Automation Program Group 24] (TL / Distribution)", "FAASt [Automation Program Group 35] (TL / Distribution)", the "FAASt [Automation Program Group 36] (TL / Distribution)", the "FAASt [Automation Program Group 37] (Distribution)", and the "FAASt * [San Juan Region 1 Line 36800 (115Kv) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)" T&D Projects.

21. On October 3, 2025, LUMA filed a *Motion Submitting Seven FEMA Approvals of Projects, Request for Confidential Treatment and Supporting Memorandum of Law* ("October 3rd Motion"), whereby, in compliance with the August 20th, September 22nd, August 25th, and November 27th Orders, LUMA submitted copies of the project approvals issued by FEMA on September 25, 2025, for the "FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)", and the "FAASt [Feeder Rebuild # 1303-02] (Distribution)" T&D Projects.

22. In compliance with the August 20th, August 25th, September 22nd, and November 27th Orders, LUMA hereby submits copies of the following eleven (11) amended approvals by FEMA, which state they were re-obligated on October 8, 2026:[2] "FAASt [Automation Program Group 14] (TL/Distribution)", "FAASt [Automation Program Group 18 (TL/Distribution)", "FAASt [Automation Program Group 19] (Distribution)", "FAASt [Automation Program Group

[2] The amended FEMA approvals are listed in the order they appear in **Exhibit 1**.

24] (TL/Distribution)", "FAASt [Automation Program Group 26] (TL/Distribution) (HM Cost Alignment)", "FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)", "FAASt [Automation Program Group 35] (Distribution) (HM Cost Alignment)", "FAASt [Automation Program Group 36] (TL/Distribution)", the "FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)", the "FAASt [Feeder Rebuild # 1303-02] (Distribution)", and the "FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)" T&D Projects. *See* Exhibit 1 to this Motion.[3]

23. As explained in prior motions,[4] FEMA has clarified how it processes certain Sub-FAASt transactions involving both positive and negative cost adjustments under Section 428 Public Assistance and Section 406 Hazard Mitigation. Because FEMA's system cannot process both adjustments in the same version, it processes the positive adjustment in the current version and the corresponding negative adjustment in a subsequent version. This procedure explains temporary discrepancies between project costs listed in the Consolidated Project List and amounts shown in individual FEMA versions. Most of the amended FEMA approvals discussed below reflect this subsequent-version process for negative adjustments. FEMA will address obligations that did not receive Section 406 funding in subsequent versions.

24. Version 1 of the "FAASt [Automation Program Group 14] (TL/Distribution)" and "FAASt [Automation Program Group 36] (TL / Distribution)" approved T&D Projects was created to capture the change in scope and cost as per the documentation provided by the Applicant. When obligated in Version 0, Group 14 had a total estimated cost of $1,848,791.85, or a net project cost

[3] Please note that **Exhibit 1** has digitalization and table format issues, which are found on the documents as issued by FEMA.

[4] *See*, i.e., *Motion Submitting Two (2) Amended FEMA Approvals of Project, Statement on New FEMA Guidance, Request for Confidential Treatment, and Supporting Memorandum of Law* filed by LUMA on September 1, 2026, in the present docket.

of $1,640,186.96 after the A&E deduction. Group 36 had a total estimated cost of $2,601,467.86, or a net cost of $1,703,712.83 after the A&E and E&M deductions. In Version 1, A&E costs are allocated to FAASt #335168 and E&M costs to FAASt #673691, and funding from the de-obligation of Version 0 is reconciled, resulting in no change in PA cost ($0). Since these versions include cost modifications for both 406 HMP and 428 PA costs, one with a positive amount and the other negative, the cost change cannot be processed in the same version due to a system limitation. Accordingly, the positive funds are obligated first, and the negative portion is captured in a later version. Version 2, on the other hand, was created as an administrative amendment because IFMIS (the finance system) cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. *See* **Exhibit 1** of this Motion, FEMA re-obligation for "FAASt [Automation Program Group 14] (TL/Distribution)", pp. 16, 54; and "FAASt [Automation Program Group 36] (TL / Distribution)", pp. 17, 54.

25. As to the "FAASt [Automation Program Group 18 (TL / Distribution)" approved T&D Project, Version 1 was created to capture the LUMA change in scope and cost of the project and request an amendment to the Scope of Work (SOW). In Version 0, the project had a total estimated cost of $528,125.23 when it was obligated. After the A&E deduction of $60,837.64 to FAASt #335168, the net project cost was $467,287.59. In Version 1, LUMA asks to: remove two poles from the scope (FID 12372279 and FID 12372282); align the scope with the 406 mitigation proposal FEMA approved under Project 746309 (Group 30); and add radio communication kits and Air Break Bypass Switches, which were not in the obligated project. Version 1 also changes the cost estimate to allocate A&E costs to FAASt #335168 and Equipment and Materials (E&M) costs to FAASt #673691. Version 0 was to be fully de-obligated so that Section 428 (Public

Assistance) costs could be reclassified and added to Section 406 (Mitigation) costs. This gave a Section 428 project total cost of $223,935.37 and a 406 Hazard Mitigation Proposal of $198,410.11. Version 2, on the other hand, was created at the request of Event Leadership to offset the CRC gross cost from the previous version, under the Sub-FAASt Transaction guidance. In Version 2, a positive amount of $243,352.22 was re-obligated to the CRC gross cost, which cancelled out the CRC gross cost from the prior version. As a result, only the Section 406 amount of $198,410.11 was net obligated. Version 3 was created to capture the LUMA change in project cost and request an amendment to the SOW. It reconciles Section 428 funding so that the A&E costs are accurately allocated to FAASt #335168 and E&M costs to FAASt #673691. Version 0 is fully de-obligated to reclassify the Section 428 Public Assistance costs that had been added to Section 406 in the previous version. Version 3 reflects a Section 428 project total cost of $223,935.37. It also reflects a negative change request of $243,352.22, for a total Federal share of $380,110.94 and a Fixed Cost of $422,345.48. *See* **Exhibit 1** of this Motion, FEMA re-obligation for "FAASt [Automation Program Group 18 (TL / Distribution)", pp. 13, 29, 38.

26. Regarding "FAASt [Automation Program Group 19] (Distribution)", "FAASt [Automation Program Group 24] (TL/Distribution)", and "FAASt [Feeder Rebuild # 1303-02] (Distribution)" approved T&D Projects, Version 1 was created to align the scope and cost in PA and HM. Since these versions include both 406 HMP and 428 PA costs, one with a positive amount and the other negative, FEMA will first process the positive funds, and in a later version FEMA will de-obligate the negative portion. Accordingly, Version 2 of these three projects was created as an administrative amendment because IFMIS (the finance system) cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes pending in the previous project versions. *See* **Exhibit 1**,

FEMA re-obligation for “FAASt [Automation Program Group 19] (Distribution)”, pp. 18, 52; “FAASt [Automation Program Group 24] (TL/Distribution)”, pp. 19, 64; “FAASt [Feeder Rebuild # 1303-02] (Distribution)”, pp. 16, 32.

27. As to the "FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)" and "FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)" approved T&D Projects, Version 1 of these projects was created to capture the change in scope and cost as per the documentation provided by the Applicant. Because the A&E and E&M amounts had been deducted in the previous version, Version 1 adds a positive value of the same amount to zero out those costs. Since these versions include both 406 HMP and 428 PA costs, one with a positive amount and the other negative, they cannot be processed in the same version, so two separate versions are required. Version 1 obligates the positive funds, and a Version 2 amendment will de-obligate the negative portion. In Version 0, Group 26 had a net project cost of $938,783.63 after the A&E and E&M deductions, which rose to $979,951.01 in Version 1. The Version 1 Fixed Cost Offer for Group 26 is $979,951.01. Group 37 had a net project cost of $1,596,192.73 in Version 0, which rose to $1,853,579.05 in Version 1, an increase of $257,386.32. *See* **Exhibit 1**, FEMA re-obligation for "FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)", p. 18; and "FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)”, p. 19.

28. Version 1 of the "FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)" approved T&D Project was created to capture changes to the scope of work and costs based on updated documentation provided by the Applicant, including LUMA's Project Amendment Request for Distribution Automation Group 33. In Version 0, the project had a net project cost of $1,888,928.21 after the A&E and E&M deductions. In Version 1, Version 0 is de-

obligated and the project cost estimate is revised to a work-to-be-completed cost of $1,812,309.75. A&E costs of $140,219.72 are allocated to FAASt #335168 and E&M costs of $177,223.12 to FAASt #673691, which leaves a Section 428 project total cost of $1,494,866.91. Group 33's negative cost change was processed directly in Version 1, and FEMA's review states that Version 1 "reflects the negative cost for PA reconciliation process". FEMA's review shows a change request of −$394,061.30 and a total Federal share of $1,345,380.22, to be transferred to PREPA's Donor Project. The Fixed Cost Offer is $1,494,866.91. *See* **Exhibit 1** FEMA re-obligation for "FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)", p. 19.

29. Version 1 of the "FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)" approved T&D Project was created to align the scope and cost in PA and HM, and the amendment request includes an updated cost estimate to reflect changes to the scope of work. In Version 0, the project was entirely Section 428, with a work-to-be-completed cost of $1,988,436.16. After deducting $245,359.86 in A&E costs to FAASt #335168 and $424,560.64 in E&M costs to FAASt #673691, the net project cost was $1,318,515.66. At that stage, the Recipient noted that the corresponding Section 406 mitigation allocation would have to be developed after obligation. In Version 1, the project cost estimate was revised to $1,381,904.04 under Section 428 and $872,984.52 under Section 406. Because the A&E and E&M amounts had been deducted in the previous version, Version 1 adds a positive value of the same amount to zero out those costs. The result is a Section 428 project total cost of $1,381,904.04, an increase of $63,388.38 over Version 0. Since the version includes both 406 HMP and 428 PA costs, one with a positive amount and the other negative, they cannot be processed in the same version. Version 1 therefore obligates the positive funds, and a Version 2 amendment will de-obligate the negative portion. FEMA's review states that HM will be reconciled in the next version. The Version 1 Fixed Cost Offer is

$1,381,904.04. *See* **Exhibit 1** FEMA re-obligation for "FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)", p. 18.

30. Finally, Version 1 of the "FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)" approved T&D Project was created to capture additional miles that LUMA identified as needing vegetation clearing, which LUMA submitted to FEMA for approval and obligation. Version 1 also aligns the Section 406 and Section 428 costs based on the cost split agreed between LUMA and FEMA, because Version 0 had been submitted as 100% Section 428 cost. FEMA's final review notes that Version 1 was created as an amendment at the request of Event Leadership (INC2129477). In Version 0, the project had a work-to-be-completed cost of $1,406,614.56, or a net project cost of $1,364,416.12 after the A&E deduction of $42,198.44 to FAASt #335168. Under Version 1, the Section 428 cost is limited to the vegetation clearance needed to carry out repairs, at $71,987.50 per mile, which gives a total Section 428 cost of $470,034.60. Version 1 shows no change in Public Assistance cost ($0.00), because it reconciles funding from the de-obligation of Version 0. Since the version includes cost changes for both 406 HMP and 428 PA costs, one positive and the other negative, the positive funds are obligated first and the negative portion is captured in a later version. Version 2 was created as an administrative amendment because IFMIS (the finance system) cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Version 2 reflects a Section 428 project total cost of $470,034.60, which is a change of −$894,381.52 from the $1,364,416.12 in Version 0. *See* **Exhibit 1** of this Motion, FEMA re-obligation for "FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)", pp. 11, 23.

III. Submittal of Thirteen FEMA Approvals of Projects

31. In compliance with the September 22nd and May 5th Orders, LUMA hereby submits copies of the following FEMA Cost Approvals for T&D Projects, which state that they were obligated on October 8, 2026: "FAASt [San Juan Region 1 – Feeder 2301-02] (Vegetation)", "FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)]",[5] "FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] (Transmission)",[6] "FAASt [Region 1 San Juan 38Kv – Non-sensitive] (Vegetation)",[7] "FAASt [Region 3 Bayamon 38Kv – Non-sensitive] (Vegetation)"[8], "FAASt [Region 2 Arecibo 38Kv – Non-sensitive] (Vegetation)"[9], "FAASt [Guayanilla Streetlighting] (Distribution) (HM Cost alignment version)"[10], "FAASt [Patillas Streetlighting] (Distribution)"[11], "FAASt [38kV Line 3800 – Entire Line] (Vegetation)", "FAASt [38kV Line 5400 – Entire Line] (Vegetation)", "FAASt [38kV Line 5600 – Entire Line] (Vegetation)", "FAASt [38kV Line 1200 – Entire Line] (Vegetation)", and "FAASt [38kV Line 2200 – Entire Line] (Vegetation)" T&D Projects. *See* **Exhibit 2**.[12] The document contains the FEMA approvals and includes the costs obligated for each project.

IV. Request for Confidential Treatment of Exhibits 1 and 2

32. LUMA is submitting herein redacted public versions of the amended FEMA approvals for the "FAASt [Automation Program Group 14] (TL/Distribution)", "FAASt [Automation Program Group 18 (TL/Distribution)", "FAASt [Automation Program Group 19

[5] The former FAASt number for this T&D Project was 811923; the current FAASt number is 1066730.
[6] The former FAASt number for this T&D Project was 753786; the current FAASt number is 1066980.
[7] The former FAASt number for this T&D Project was 740406; the current FAASt number is 1068640.
[8] The former FAASt number for this T&D Project was 740408; the current FAASt number is 1068642.
[9] The former FAASt number for this T&D Project was 740410; the current FAASt number is 1068647.
[10] The former FAASt number for this T&D Project was 724605; the current FAASt number is 1068665.
[11] The former FAASt number for this T&D Project was 724670; the current FAASt number is 1068669.
[12] Please note that **Exhibit 2** has digitalization and table format issues, which are found on the documents as issued by FEMA.

(Distribution)", "FAASt [Automation Program Group 24] (TL/Distribution)", "FAASt [Automation Program Group 26] (TL/Distribution) (HM Cost Alignment)", "FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)", "FAASt [Automation Program Group 35] (TL/Distribution) (HM Cost Alignment)", "FAASt [Automation Program Group 36] (TL/Distribution)", "FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)", "FAASt [Feeder Rebuild # 1303-02] (Distribution)", and "FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)" T&D projects (all of which are included in **Exhibit 1**) and the FEMA approvals for the "FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation)", "FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] (Transmission) (HM Cost alignment version)", "FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO] (Transmission) (Cost Alignment)", "FAASt [Region 1 San Juan 38Kv – Non-sensitive] (Vegetation)", "FAASt [Region 3 Bayamon 38Kv – Non-sensitive] (Vegetation)", "FAASt [Region 2 Arecibo 38Kv – Non-sensitive] (Vegetation)", "FAASt [Guayanilla Streetlighting] (Distribution) (HM Cost alignment version)", "FAASt [Patillas Streetlighting] (Distribution)", "FAASt [38kV Line 3800 – Entire Line] (Vegetation)", "FAASt [38kV Line 5400 – Entire Line] (Vegetation)", "FAASt [38kV Line 5600 – Entire Line] (Vegetation)", "FAASt [38kV Line 1200 – Entire Line] (Vegetation)", and "FAASt [38kV Line 2200 – Entire Line] (Vegetation)" T&D Projects (all of which are included in **Exhibit 2**) (collectively, the "FEMA Approvals") protecting confidential information associated with Critical Energy Infrastructure Information ("CEII"). As explained below, portions of the FEMA Approvals are protected from disclosure as CEII, *see, e.g.*, 6 U.S.C. §§ 671-674; 18 C.F.R. § 388.113 (2020), and pursuant to the Energy Bureau's Policy on Management of Confidential Information. *See* Energy Bureau's Policy on Management of Confidential

Information, CEPR-MI-2016-0009, issued on August 31, 2016, as amended by Resolution dated September 20, 2016.

V. Memorandum of Law in Support of Request for Confidentiality

A. Applicable Laws and Regulations to Submit Information Confidentially Before the Energy Bureau

33. The bedrock provision on the management of confidential information filed before this Energy Bureau is Section 6.15 of Act 57-2014, known as the "Puerto Rico Energy Transformation and Relief Act." It provides, in pertinent part, that: "[i]f any person who is required to submit information to the [Energy Bureau] believes that the information to be submitted has any confidentiality privilege, such person may request the [Energy Bureau] to treat such information as such …." 22 LPRA § 1054n (2026). If the Energy Bureau determines, after appropriate evaluation, that the information should be protected, "it shall grant such protection in a manner that least affects the public interest, transparency, and the rights of the parties involved in the administrative procedure in which the allegedly confidential document is submitted." *Id.* § 1054n(a).

34. Access to confidential information shall be provided "only to the lawyers and external consultants involved in the administrative process after the execution of a confidentiality agreement." *Id.* § 1054n(b). Finally, Act 57-2014 provides that this Energy Bureau "shall keep the documents submitted for its consideration out of public reach only in exceptional cases. In these cases, the information shall be duly safeguarded and delivered exclusively to the personnel of the [Energy Bureau] who needs to know such information under nondisclosure agreements. However, the [Energy Bureau] shall direct that a non-confidential copy be furnished for public review." *Id.* § 1054n(c).

35. Relatedly, in connection with the duties of electric power service companies, Section 1.10 (i) of Act 17-2019 provides that electric power service companies shall provide the information requested by customers, except for confidential information in accordance with the Rules of Evidence of Puerto Rico.

36. Moreover, the Energy Bureau's Policy on Management of Confidential Information details the procedures a party should follow to request that a document or portion thereof be afforded confidential treatment. In essence, the referenced Policy requires identifying confidential information and filing a memorandum of law explaining the legal basis and support for a request to file information confidentially. *See* CEPR-MI-2016-0009, Section A, as amended by the Resolution of September 20, 2016, CEPR-MI-2016-0009. The memorandum should also include a table that identifies the confidential information, a summary of the legal basis for the confidential designation, and why each claim or designation conforms to the applicable legal basis of confidentiality. *Id.* at ⁋ 3. The party who seeks confidential treatment of information filed with the Energy Bureau must also file both a "redacted" or "public version" and an "unredacted" or "confidential" version of the document that contains confidential information. *Id.* at ⁋ 6.

37. The Energy Bureau's Policy on Management of Confidential Information states the following with regard to access to validated CEII:

> Critical Energy Infrastructure Information ("CEII")
>
> The information designated by the [Energy Bureau] as Validated Confidential Information on the grounds of being CEII may be accessed by the parties' authorized representatives only after they have executed and delivered the Nondisclosure Agreement.
>
> Those authorized representatives who have signed the Non-Disclosure Agreement may only review the documents validated as CEII at the [Energy Bureau] or the Producing Party's offices. During the review, the authorized representatives may not copy or

> disseminate the reviewed information and may bring no recording device to the viewing room.

Id. at § D (on Access to Validated Confidential Information).

38. Regulation No. 8543, *Regulation on Adjudicative, Notice of Noncompliance, Rate Review, and Investigation Proceedings*, also includes a provision for filing confidential information in proceedings before this Energy Bureau. To wit, Section 1.15 provides that "a person has the duty to disclose information to the [Energy Bureau] considered to be privileged pursuant to the Rules of Evidence, said person shall identify the allegedly privileged information, request the [Energy Bureau] the protection of said information, and provide supportive arguments, in writing, for a claim of information of privileged nature. The [Energy Bureau] shall evaluate the petition and, if it understands [that] the material merits protection, proceed according to […] Section 6.15 of Act No. 57-2015, as amended." *See also* Energy Bureau Regulation No. 9137 on *Performance Incentive Mechanisms,* § 1.13 (addressing disclosure before the Energy Bureau of Confidential Information and directing compliance with Resolution CEPR-MI-2016-0009).

B. Request for Confidentiality

39. Portions of the FEMA Approvals included in **Exhibits 1 and 2** contain CEII that, under relevant federal law and regulations, are protected from public disclosure. LUMA stresses that the FEMA Approvals with CEII warrant confidential treatment to protect critical infrastructure from threats that could undermine the system and negatively affect electric power services to the detriment of the interests of the public, customers, and citizens of Puerto Rico.

40. This Energy Bureau has granted LUMA's requests for confidential treatment of portions of the FEMA Approvals submitted for approval in the present case. Notably, the Energy Bureau has granted LUMA's request for confidential treatment of portions of FEMA Approvals of Projects submitted for consideration and authorization. Furthermore, this Energy Bureau

designated portions of submitted FEMA Approvals of Projects as confidential CEII in its Resolution and Order of March 20, 2023; *see* Table 1 on pages 1-2.

41. As mentioned above, the Energy Bureau's Policy on Management of Confidential Information provides for the management of CEII. It directs that the parties' authorized representatives access information validated as CEII only after executing and delivering a Non-Disclosure Agreement.

42. CEII or critical infrastructure information is generally exempted from public disclosure because it involves assets and information that pose public security, economic, health, and safety risks. Federal Regulations on CEII, particularly, 18 C.F.R. § 388.113, state that:

> Critical energy infrastructure information means specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure that:
> (i) Relates details about the production, generation, transportation, transmission, or distribution of energy;
> (ii) Could be useful to a person in planning an attack on critical infrastructure;
> (iii) Is exempt from mandatory disclosure under the Freedom of Information Act, 5 U.S.C. 552; and
> (iv) Does not simply give the general location of the critical infrastructure.

Id.

43. Additionally, "[c]ritical electric infrastructure means a system or asset of the bulk-power system, whether physical or virtual, the incapacity or destruction of which would negatively affect national security, economic security, public health or safety, or any combination of such matters." *Id.* Finally, "[c]ritical infrastructure means existing and proposed systems and assets, whether physical or virtual, the incapacity or destruction of which would negatively affect security, economic security, public health or safety, or any combination of those matters." *Id.*

44. The Critical Infrastructure Information Act of 2002, 6 U.S.C. §§ 671-674 (2020), part of the Homeland Security Act of 2002, protects critical infrastructure information ("CII").[13] CII is defined as "information not customarily in the public domain and related to the security of critical infrastructure or protected systems . . . ." 6 U.S.C. § 671(3).[14]

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[13] Regarding protection of voluntary disclosures of critical infrastructure information, 6 U.S.C. § 673, provides in pertinent part, that CII:

(A) shall be exempt from disclosure under the Freedom of Information Act;
(B) shall not be subject to any agency rules or judicial doctrine regarding ex parte communications with a decision-making official;
(C) shall not, without the written consent of the person or entity submitting such information, be used directly by such agency, any other Federal, State, or local authority, or any third party, in any civil action arising under Federal or State law if such information is submitted in good faith;
(D) shall not, without the written consent of the person or entity submitting such information, be used or disclosed by any officer or employee of the United States for purposes other than the purposes of this part, except—
(i) in furtherance of an investigation or the prosecution of a criminal act; or
(ii) when disclosure of the information would be--
(I) to either House of Congress, or to the extent of matter within its jurisdiction, any committee or subcommittee thereof, any joint committee thereof or subcommittee of any such joint committee; or
(II) to the Comptroller General, or any authorized representative of the Comptroller General, in the course of the performance of the duties of the Government Accountability Office
(E) shall not, be provided to a State or local government or government agency; of information or records;
(i) be made available pursuant to any State or local law requiring disclosure of information or records;
(ii) otherwise be disclosed or distributed to any party by said State or local government or government agency without the written consent of the person or entity submitting such information; or
(iii) be used other than for the purpose of protecting critical Infrastructure or protected systems, or in furtherance of an investigation or the prosecution of a criminal act.
(F) does not constitute a waiver of any applicable privilege or protection provided under law, such as trade secret protection.

[14] CII includes the following types of information:

(A) actual, potential, or threatened interference with, attack on, compromise of, or incapacitation of critical infrastructure or protected systems by either physical or computer-based attack or other similar conduct (including the misuse of or unauthorized access to all types of communications and data transmission systems) that violates Federal, State, or local law, harms interstate commerce of the United States, or threatens public health or safety;
(B) the ability of any critical infrastructure or protected system to resist such interference, compromise, or incapacitation, including any planned or past assessment, projection, or estimate of the vulnerability of critical infrastructure or a protected system, including security testing, risk evaluation thereto, risk management planning, or risk audit; or

45. Portions of the FEMA Approvals in **Exhibits 1 and 2** qualify as CEII because each of these documents contains the express coordinates and physical addresses to power transmission and distribution facilities (18 C.F.R. § 388.113(iv)), and these specific coordinates and addresses could potentially be helpful to a person planning an attack on the energy facilities listed as part of this FEMA approval. The information is not common knowledge and is not made publicly available. Therefore, it is respectfully submitted that, on balance, the public interest in protecting CEII weighs in favor of protecting the relevant portions of the FEMA Approvals with CEII in **Exhibits 1 and 2** from disclosure, given the nature and scope of the details included in those portions of the Exhibits.

46. Based on the above, LUMA respectfully submits that portions of the FEMA Approvals should be designated as CEII. This designation is a reasonable and necessary measure to protect the specific location of the energy facilities listed or discussed in the FEMA approvals in **Exhibits 1 and 2**. Given the importance of ensuring the safe and efficient operation of the generation assets and the T&D System, LUMA respectfully submits that these materials constitute CEII that should be maintained confidentially to safeguard their integrity and protect them from external threats.

C. Identification of Confidential Information

47. In compliance with the Energy Bureau's Policy on Management of Confidential Information (CEPR-MI-2016-0009), below, find a table summarizing the portions of the FEMA approval for which we present this request for confidential treatment.

(C) any planned or past operational problem or solution regarding critical infrastructure or protected systems, including repair, recovery, construction, insurance, or continuity, to the extent it is related to such interference, compromise, or incapacitation.

Document	Name	Pages in which Confidential Information is Found, if applicable	Summary of Legal Basis for Confidentiality Protection, if applicable	Date Filed
Exhibit 1	FAASt [Automation Program Group 14] (TL/Distribution)	Pages 1, 3–9, 16, 19, 21–43, 46, 54, 57, 59-81, 84	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Program Group 18 (TL/Distribution)	Pages 1, 3-5, 13, 15-18, 21, 29-30, 38, 40-42, 46	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Program Group 19 (Distribution)	Pages 1, 3-11, 18, 20-41, 43, 52, 54, 56-75, 78	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Program Group 24] (TL/Distribution)	Pages 1, 3-11, 19, 23-24, 26-39, 41-48, 53, 64, 66, 68-75, 78	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Program Group 26] (TL/Distribution) (HM Cost Alignment)	Pages 1, 3-10, 18, 20, 22-25, 28	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026

Document	Name	Pages in which Confidential Information is Found, if applicable	Summary of Legal Basis for Confidentiality Protection, if applicable	Date Filed
Exhibit 1	FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)	Pages 1, 3-5, 7-11, 19, 21-27, 30	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Program Group 35] (TL/Distribution) (HM Cost Alignment)	Pages 1, 3-10, 18, 20-26, 29	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Program Group 36] (TL/Distribution)	Pages 1, 3-9, 17, 20, 22-29, 31-34, 36, 38-42, 45, 54, 56-75, 78	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Automation Group 37] (Distribution) (HM Cost Alignment)	Pages 1, 3-11, 19, 21, 23-33, 36	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 1	FAASt [Feeder Rebuild # 1303-02] (Distribution)	Pages 1-2, 16-17, 21, 24, 32-33, 36, 40	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026

Document	Name	Pages in which Confidential Information is Found, if applicable	Summary of Legal Basis for Confidentiality Protection, if applicable	Date Filed
Exhibit 1	FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)	Pages 1-2, 4, 11, 13, 23, 25	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [San Juan Region 1 – Feeder 2301-02] (Vegetation)	Pages 1-2	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] (Transmission) (HM Cost alignment version)	Pages 1-3, 5, 7, 12	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] (Transmission) (HM Cost alignment version)	Pages 1–2, 4, 8	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [Region 1 San Juan 38Kv -	Pages 1, 3	Critical Energy Infrastructure Information, 18	October 16, 2026

Document	Name	Pages in which Confidential Information is Found, if applicable	Summary of Legal Basis for Confidentiality Protection, if applicable	Date Filed
	Non-Sensitive] (Vegetation)		C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	
Exhibit 2	FAASt [Region 3 Bayamon 38Kv - Non-Sensitive] (Vegetation)	Pages 1, 3	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [Region 2 Arecibo 38Kv - Non-Sensitive] (Vegetation)	Pages 1, 3	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [Guayanilla Streetlighting] (Distribution) (HM Cost alignment version)	Pages 1, 4, 6	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [Patillas Streetlighting] (Distribution)	Pages 1, 8, 11	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [38kV Line 3800 - Entire Line] (Vegetation)	Pages 1–2	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113;	October 16, 2026

Document	Name	Pages in which Confidential Information is Found, if applicable	Summary of Legal Basis for Confidentiality Protection, if applicable	Date Filed
			6 U.S.C. §§ 671-674.	
Exhibit 2	FAASt [38kV Line 5400 - Entire Line] (Vegetation)	Pages 1, 3	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [38kV Line 5600 - Entire Line] (Vegetation)	Pages 1, 3	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [38kV Line 1200 - Entire Line] (Vegetation)	Pages 1, 3	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026
Exhibit 2	FAASt [38kV Line 2200 - Entire Line] (Vegetation)	Pages 1–2	Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674.	October 16, 2026

WHEREFORE, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned; **accept** the copies of the Amended FEMA approvals attached herein as **Exhibit**

1; accept the copies of the FEMA Approvals attached herein as **Exhibit 2**; and **grant** the request for confidential treatment of **Exhibits 1 and 2**.

RESPECTFULLY SUBMITTED.

We hereby certify that we filed this Motion using the electronic filing system of this Energy Bureau. We will send an electronic copy of this Motion to PREPA via Alexis Rivera, alexis.rivera@prepa.pr.gov, and through its counsel of record, Natalia Zayas Godoy, nzayas@gmlex.net, Richard Cruz Franqui, rcruzfranqui@gmlex.net, and Mirelis Valle Cancel, mvalle@gmlex.net, to Genera PR LLC, through its counsel of record, Jorge Fernández-Reboredo, jfernandez@ecija.com, José J. Díaz Alonso, jdiaz@ecija.com, and Ernesto R. Ramos Maldonado, eramos@ecija.com.

In Guaynabo, Puerto Rico, on this 16th day of October 2026.

DLA Piper (Puerto Rico) LLC
B-7 Tabonuco St.
Suite 1501
Guaynabo, PR 00968
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/s/ Emmanuel Porro González
Emmanuel Porro González
RUA NÚM. 23,704
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Exhibit 1

(public version, confidential version to be filed under seal of confidentiality)

v0

General Info

Project #	745856 **P/W #** 107956	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 14] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374348; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders ARECIBO 8404- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374348

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

Introduction

This document is to submit for approval a Detailed Scope of Work ("SOW"), to COR3 and FEMA, for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installsadvanced technology equipment (*i.e.*, reclosers and communicating fault current indicators) to reduce service interruptions to the electrical

grid caused by disaster-related damage. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The strategy is to deploy full automation equipment to the transmission and to the distribution systems. While the individual projects are interconnected and enhance each other, each can also be implemented independent of each other, and each confers benefits independently. The Program includes multiple projects being implemented across the island on both systems. Automation is one of several initiatives to complete final restoration of the transmission and distribution systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 745856 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the reclosers and communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damages for upcoming occurrences. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 8404-03 and 8404-04.

Key components of this project are (1) pole replacement, (2) the installation of three-phase and single-phase reclosers, and (3) the installation of communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and it also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If the pole cannot maintain structural integrity, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. Therefore, LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compound structural demands and spacing prerequisites, and ensure the resilience and reliability of the electrical grid infrastructure.

Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single phase reclosers on a distribution feeder.

Three-Phase Reclosers: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damages in future disasters.

Single-Phase Reclosers: A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on the distribution feeder and distribution lines branching from the feeder. It is a protection device that is used on a single-phase or a two- phase distribution feeder. Single-phase reclosers are used on feeders with three-phases if fault currents are low at the location. A single-phase recloser is a single device with one switch that can open to interrupt fault currents and automatically reclose to restore power.

Communicating Fault Current Indicators

Install communicating fault current indicators (“cFCI”) at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independent of the feeder reclosers. cFCI help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure models. That data is used by the grid operator to make decisions on operations, management and restoration. The cFCI can be programmed to send automatic notification/alarms based on user set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event which saves. Installation of the three-phase reclosers and associated hardware, the communicating fault current indicators (communications ready) are critical for the Energy Management System (“EMS”) and associated components to function with full capabilities and to mitigate the loss of service and potential damages in future disasters.

This project is distinguishable from projects where the reclosers are installed on microgrids, such as those in Vieques and Culebra. Microgrids require extremely fast communications that fiber optics can provide; other advanced technology such as Phasor Measurement Units may also require such high speed/bandwidth communications. That speed/bandwidth is not required on a standard feeder and would significantly increase the cost. LUMA has developed this scope for reclosers and their associated hardware only. CFCIs and reclosers can communicate through a few different modes of communications, so the lack of fiber optics in this scope of work does not prevent or limit the monitoring capabilities of reclosers and cFCIs or the automation capabilities of reclosers. Furthermore, it does not prohibit the incorporation of fiber optics at a later date.

Facilities Description

The facilities listed below are part of the electrical distribution system. All feeders originate from a substation (start) and serve customers along the route to various locations (end). The coordinates shown below represent the mainline backbone of each feeder. Please refer to the ***APPENDIX D – LUMA’s Active Projects*** to show no duplication of scope elements.

Facilities List

Name	Feeder Number	GPS Start	GPS End
Arecibo	8404-03	[redacted]	[redacted]
Arecibo	8404-04	[redacted]	[redacted]

Note: Please refer to **APPENDIX *C— Project Considerations* for a list of all GPS locations that this project will impact**.

Project Scope of Work:

Below is a list of the “Proposed 428 Public Assistance Scope of Work” proposed for Feeders in this project.

Proposed 428 Public Assistance Scope of Work

Feeder 8404-03

Pole FID	Coordinates Lat./ Long	Existing	Install	Scope of Work
21155837	[redacted]	(E-1-2-3) (F-1-3)	(REC-2-1) (E-1-2-3) (F-1-3) (K-5)	• Replace existing primary framing. • Install secondary framing. • Remove and dipose down guy. • Remove and dispose anchor. • Install (2) Down guys. • Install (2) anchors. • Install 1 kva transformer (7.62kv/120v) from source side. • Install (1) three- phase Recloser 8404-03A in existing 50’ S8 Steel pole.

Pole FID	Coordinates Lat./ Long	Existing	Install	Scope of Work
19656773	[redacted]	(40’ H3 CONCRETE POLE) (AC- CI) (STL-10) (E-2-1)	(50’ S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (REC-2-1) (K-6) (STL-10)	• Remove and dispose 40’ H3 Concrete pole • Replace with 50’ S8 12 Sided Galvanized Steel Pole. • Replace primary framing. • Replace streetlight. • Install 1 Kva transformer (7.62kv/120v) from source side. • Install (1) Three-Phase Recloser 8404-03B.
21155576	[redacted]	(STD-SC- VERTICAL 38KV FRAMING)	(CP-CG-XARM) (REC-2-1) (E-I—2-3) (F-I-3) (K-5)	• Replace primary framing. • Install down guy. • Install anchor. • Install 1 kva transformer (7.62kv/120v) from source side. • Install (1) Three Phase Recloser 8404-03C in existing 60’ H6 Concrete Pole.
1001153163	[redacted]	(CP-C6-XARM)	(CP-C6-XARM) (REC-3-C)	• Replace primary framing. • Reuse secondary framing. • Install (3) Single- Phase Recloser in existing 70’ Steel Pole.
1001153159	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 1001153182 (qty=3) due to single-phase recloser installatio
19582536	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 19582607 (qty=3) due to Single-phase recloser installation.

19583050	[redacted]	(50' C2 WOOD POLE) (AC-C1) (CP-C5-XARM) (ASSY-1509) (E-1-2-3) (F-1-3) (K-5) (STL-10)	(50' S8 STEEL POLE) (CP-C6- XARM) (CP-C5-XARM) (ASSY-1509) (E-1-2-3) (F-1-3) (K-5) (STL-10) (REC-3-C)	• Remove and dispose 50' C2 wood pole . • Replace with 50' S8 12 sided galvanized steel pole. • Replace primary framings. • Use existing secondary framing. • Replace downguy. • Replace anchor. • Replace streetlight. • Install (3) Single- Phase recloser.
19585342	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove fuse and dispose fid: 19585360 (qty=3) due to single-phase recloser installatio

Pole FID	Coordinates Lat./ Long	Existing	Install	Scope of Work
32071682	[redacted]	(CP-C6-XARM) (CP-CS-ARM) (ASSY- 1509) (FUSE REMOVAL (QTY=3))	(CP-C6-XARM) (CP-CS-XARM) (REC-3-C)	• Replace primary framings. • Use existing secondary framing. • Remove fuse fid: 32071704 (qty=3) • Install (3) Single-Phase- Recloser in existing 50' S8 Steel Pole.
32080734	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 32080748 (qty=3) due to single-phase recloser installation.
32083926	[redacted]	(45' S3 STEEL POLE)(CP-C6-XARM)(CP- A5)(T1)(K-7-4)	(50' S8 12-SIDED STEEL POLE) (CP-C6-VERT) (CP-A5) (K-7-4) (T-1) (REC-3-C-VERT)	• Remove and dispose 45' S3 steel pole. • Replace with 50' S8 12-sided galvanized steel pole. • Replace primary framings. • Transfer secondary framing. • Replace streetlight. • Transfer transformer. • Install (3) Single-phase reclosers.
21158750	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 32072816 (qty=3) due to single-phase recloser installatio
32080820	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 32086124 (qty=3) due to single-phase recloser installatio
N/A	[redacted]	N/A	(LABOR, cFCI) (QTY=3)	• Labor to install communicating fault curren indicators on Segment Id 22102694
N/A	[redacted]	N/A	(LABOR, cFCI) (QTY=3)	• Labor to install communicating fault curren indicators on Segment ID 21157976.

Feeder 8404-04

Pole FID	Coordinates Lat./ Long	Existing	Install	Scope of Work
6317810	[redacted]	(50' H4 CONCRETE POLE) (CP-C6) (STL- 10) (E-1-2-3) (F-1-3)	(50' S8 12 SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (STL-10) (REC-2) (K-7-4)	• Remove and dispose 50' H4 concrete pole • Replace with 50' S8 12- sided Galvanized Steel pole. • Replace primary framing. • Replace secondary framing. • Use existing triplex from source side due t three phase recloser **8404-04A.** • Replace streetlight. • Remove and disposes downguy. • Remove and dispose anchor. • Install (1) Three-phase recloser 8404-04A.
6317799	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 100160086((qty=3) due to three phase recloser **8404- 04A** installation.
1001655999	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose fuse fid: 15600995 (qty=3) due to three phase recloser **8404-04A** installation.
12221060	[redacted]	(45' CLASS 3 WOOD POLE) (CP- C1) (CP-C1-XARM) (STL- 10)	(60' S8 12 SIDED GALVANIZED STEEL POLE) (CP-C1) (CP-C6-XARM) (STL-10) (K- 6) (REC-2-1)	• Remove and dispose 45' class 3 wood pole • Replace with 60' S8 12- sided Galvanized Steel pole. • Replace primary framings. • Replace secondary framing. • Replace streetlight. • Install two (2) 1 kva transformer (7.62kv/120v) from source side and load side. • Install (1) Three-phase recloser 8404-04B.
17458278	[redacted]	(45' H4 CONCRETE POLE) (CP-C12- XARM) (K-5) (STL-10) (E-1-2-3) (FUSE REMOVAL (QTY=3))	(50' S8 12 SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2) (K-5) (STL-10) (E-1-2-3) (3/0TPX(QTY= 180FT)	• Remove and dispose 45' H4 concrete pole • Replace with 50' S8 12 Sided Galvanized steel pole. • Replace primary framing. • Replace secondary framing. • Install triplex from source side pole fid: 17458269. • Replace streetlight. • Replace downguy. Remove fuse fid: 29541626 (qty=3). • Re attach riser. • Install (1) Three-Phase Recloser 8404-04C

Pole FID	Coordinates Lat./ Long	Existing	Install	Scope of Work

17458661	[redacted]	(45' H4 CONCRETE POLE) (CP-C6-XARM) (E-1-2-3)	(50' S8 12 SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (K-5) (3/0TPX(QTY= 200FT) (REC-2)	• Remove and dispose 45' H4 Concrete pole • Replace with 50' S8 12 sided Galvanized steel pole. • Replace primary framing. • Install secondary framing. • Install triplex from source side pole fid: 17458269. • Install Three-Phase Recloser 8404-04D.
17458269	[redacted]	N/A	(K-6)	• Install secondary framing due to three-phase reclosers **8404-04C & 8404-04D**
N/A	[redacted]	N/A	(LABOR, cFCI) (QTY=3)	• Labor to install communicating Fault Current indicator on Segment id 22102697.

For more detailed information about the scope of work please refer to the ***APPENDIX B- LUMA Project Cost Estimate.***

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and APPENDIX C – Project Considerations.

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing poles at the same location. Refer to APPENDIX C – Project Considerations, column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft of the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. The brushing of vegetation will be limited to a 10 ft radius that surrounds the surface of the pole without exceeding the width of the right-of-way. No tree removal will occur as part of this scope. Refer to **APPENDIX C- Project Considerations** for locations where vegetation brushing is anticipated. The vegetation removal process will be managed according to applicable federal and state regulations.

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, disposed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right- of-way.

2) Debris will be separated and taken to an approved waste disposal facility in compliance with applicable federal and local regulations.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired.

All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. The warehouse assigned is the Arecibo Regional Warehouse, whose address is 681 Street KM0.1, Islote Ward, Arecibo, PR. Coordinates are [redacted]. Refer to document *Warehouse Locations*

5) Fill, Gravel, and Sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manlift, 120- ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform*. **Vegetation** will be removed utilizing a *machete, chainsaw, electric pruner, telescopic pole pruner, bucket truck, and/or chipper*. All equipment used will comply with Tier 4 EPA Emission Standard, if available.

7) Specific List of **Permits Required**:

a. Department of Transportation and Public Works - ("DTOP") Endorsements & Municipality Notifications
b. Excavation and Demolition Notification in the DTOP

c) LUMA will provide proof of all permits.

Project Cost Estimate: (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and may be subject to change. LUMA has allocated 10% of the project cost to mitigate potential known risks. For more details, refer to **APPENDIX B- Detailed Cost Estimate.**

TOTAL PROJECT COST ESTIMATE			
COST ELEMENT	428	406	PROJECT TOTAL
PLANNING	$129,374.39	-	$129,374.39
MANAGEMENT	$79,230.50	-	$79,230.50
DISTRIBUTION AUTOMATION GROUP 14 DAR ARECIBO 8804 FY24	$1,358,561.50	-	$1,358,561.5
GENERAL CONDITIONS	$87,195.23	-	$87,195.23
CONTINGENCY	$194,430.23	-	$194,430.23
COST TOTALS	$1,848,791.85	-	$1,848,791.8
DEDUCTIONS	TOTAL INSURANCE PROCEEDS RECEIVED		$0
FAASt ALLOCATIONS	FAASt Project # 745856 TOTAL		$1,640,186.96
	FAASt A&E # 335168 TOTAL		$208,604.89

Project Cost Summary, Version 0:

Work to be Completed (WTBC): $1,848,791.85

A&E Deduction (Global A&E FAASt 335168): -$208,604.89

Project Total Cost: $1,640,186.96

Project Notes:

1. Refer to the detailed SOW provided in document 745856 - DSOW Group 14 - DAR - ARECIBO 8404 -Rev 2.pdf
2. For Appendix A through D, refer to the following files:

APPENDIX A - Initial Scope of Work : 745856-DR4339PR-APPENDIX A- Initial Scope of Work.pdf

APPENDIX B - LUMA Project Cost Estimate : 745856-DR4339PR-APPENDIX B-DETAILED COST ESTIMATE- Rev 002.xlsx

APPENDIX C - Project Considerations : 745856-DR4339PR-APPENDIX C-PROJECT CONSIDERATIONS Rev 02.xlsx

APPENDIX D - LUMA Active Project : 745856-DR4339PR-APPENDIX D -LUMA's Active Projects.xlsx

3. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAASt PREPA work (see project: 335168 - FAASt A&E PREPA).

4. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

5. The permanent staging area will be located at LUMA's Regional Warehouse. The warehouse assigned is the Arecibo Regional Warehouse, whose address is 681 Street KM0.1, Islote Ward, Arecibo, PR. Coordinates are [redacted] [redacted]

406 HMP Scope

406 HMP SCOPE

406 Hazard Mitigation measures were not requested by the subrecipient for this project in Version 0. However, the mitigation opportunities will be applied in a future version (V1) of the Permanent Work Project. The project is ready for Insurance completion

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,848,791.85	Uncompleted
3510	1	Lump Sum	($208,604.89)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,640,186.96
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,640,186.96
Federal Share (90.00%)	$1,476,168.27
Non-Federal Share (10.00%)	$164,018.69

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

8/31/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo PR

4/20/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 14] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 14] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out. d. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning the borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.

- Puerto Rican Boa (Chilabothrus inornatus) 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harm&#65533;s way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6). 5.For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive),relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior.
- 6.If any PR or VI boa (dead or alive) is found within the Action Area and on harm' s way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested)at least1kmfrom the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start sand sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7.Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. &#65533;Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boa shave sheltered within engine compartments or other areas of the heavy machinery. Ifa PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. &#65533;The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. &#65533;In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. &#65533;If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. &#65533;Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Service&#65533;s Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at:Mobile: 305-304-1386 Office phone: 786-244-0081 Office Direct Line: 939-320-3120 Email: Caribbean_es@fws.gov or jose_cruz-burgos@fws.gov
- Buteo platypterus brunnescens and Amazona vittata 9. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside the breeding season no nest surveys are required, but if a nest is encountered, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: &#65533; Puerto Rican parrot: February-June. &#65533; Puerto Rican broad-winged hawk: December-June. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the . For questions, the Point of Contact (POC) is José Cruz-Burgos, Endangered Species Program Coordinator, and can be contacted at: USFWSCaribbeanEcological ServicesField OfficeatCaribbean_es@fws.gov. For questions, the Point of Contact (POC) is José Cruz-Burgos, Endangered SpeciesProgramCoordinator, and canbe contacted at: Mobile: 305-304-1386 Office phone: 786-244-0081 Office Direct Line: 939-320-3120 Email: jose_cruz-burgos@fws.gov
- Puerto Rican harlequin butterfly (Atlantea tulita) 34. The Puerto Rican harlequin butterfly (Atlantea tulita) is endemic to Puerto Rico, occurring in the western portion of the island, in the northern karst region, and in the west-central volcanic-serpentine region. The following measures apply to the Puerto Rican harlequin butterfly through its current range: a. The contractor must inform all personnel about the potential presence of the Puerto Rican harlequin butterfly and its host plant, prickly bush (Oplonia spinosa), in the project areas. A pre-work meeting should inform all project personnel about the need to avoid harming this butterfly and its occupied host plant. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. Educational material (e.g., posters, flyers, or signs with photos or illustrations of all the life stages of the Puerto Rican harlequin butterfly (i.e., eggs, caterpillar, chrysalids, and adult, and its host plant) should be prepared and available to all personnel for reference. b. Before starting any project activity, including removal of vegetation and earth movement, the contractor must clearly delineate the boundaries of the working area in the field to avoid unnecessary habitat impacts. Once the project areas are clearly marked, and before any work activity, including site preparation, personnel with knowledge and ability to identify the Puerto Rican harlequin butterfly (all life stages) and the prickly bush must survey the areas where the work will be performed for the presence of the species and its host plant. It is important to note that the Puerto Rican harlequin butterfly can be observed year-round in all life stages; thus, oviposition (egg-laying) may occur at any time during the year. c. If the

prickly bush is present on the project site, try to avoid cutting the plant, even if no eggs, caterpillars, or chrysalids are present. d. If there is no prickly bush within the project area, but the butterfly is observed flying within the project area, do not harass, harm, pursue, wound, kill, trap, capture, collect, or attempt to engage in any such conduct, the species. e. Adult butterflies are often observed flying near the host plant as part of their mating behavior and for laying eggs. Project-related activities must stop if the prickle bush is found in the project area and the Puerto Rican harlequin butterfly is observed flying in that same area. A temporary 50-meter (164 feet) buffer zone of no activity or human disturbance should be established and clearly marked around that prickly bush until the butterfly moves out on its own.

- f. Once the Puerto Rican harlequin butterfly has moved away, within a period of 24 to 36 hours, a search of the prickly bush that has been buffered should be conducted to determine the presence of any eggs, caterpillars, or chrysalids of the butterfly on the plant. The contractor or the Applicant should send a report of the observation and its findings to caribbean_es@fws.gov after the 36-hour search is concluded. g. If, after the initial search or after the 24 to 36-hour search, any life stage of the Puerto Rican harlequin butterfly is found in the prickly bush, take the following actions: o Clearly mark the host plant with flagging tape. o Establish a 10-meter (32-foot) buffer zone around the bush for its protection. o Eggs are typically found on the prickly bush's newly grown, tender branches. Once the egg hatch, the caterpillar moves and feeds throughout the bush. Therefore, avoid cutting off the prickly bush within the project site even if no eggs, caterpillars, or chrysalids are present. o Work within the 10-meter buffered area may resume when no signs of any live life stage of the butterfly are detected, which usually takes approximately 60 to 120 days. h. For all Puerto Rican harlequin butterfly sightings (all life stages), the time and date of the sighting and the specific location where the butterfly was found must be recorded. Data should also include a photo of the butterfly (if possible) and the habitat where it was observed, site GPS coordinates, and comments on how the butterfly was detected and its behavior. All Puerto Rican harlequin butterfly sighting reports should be sent to the Service&#65533;s Caribbean Ecological Service Field Office at caribbean_es@fws.gov. j. For questions regarding the Puerto Rican harlequin butterfly, the Point of Contacts are: o José Cruz-Burgos, Endangered Species Coordinator:  Mobile: 305-304-1386  Office phone: 786-244-0081  Office Direct Line: 939-320-3120  Email: jose_cruz-burgos@fws.gov o Carlos Pacheco, Fish and Wildlife Biologist  Mobile: 786-847-5951  Office Direct Line: 939-320-3113  Email: carlos_pacheco@fws.gov
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBsinto the environment. If damaged equipment or materialstorage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant' s permanent files.
- Additional staging areas and/or work pads within work site area haven&#65533;t been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 14] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 12/31/2024 4:23 PM PDT

Review Comments

Project has been reviewed, found eligible and reasonable. Subrecipient is responsible for complying with all grants and subgrant conditions. - CLG 12.31.24

Recipient Review

Reviewed By Salgado, Gabriel **Reviewed On** 01/14/2025 1:25 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

General Info

Project #	745856 **P/W #** 107956	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 14] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374348; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders ARECIBO 8404- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374348

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

********** VERSION 1 **********

Version 1 has been created to capture change in scope and cost as per Applicant provided documentation. Refer to documents labeled: "745856-DR4339PR- DSOW Group 14 Revision 005- V1.pdf", "745856-DR4339PR-APPENDIX A- DETAILED COST ESTIMATE- Rev 005.xlsx". and "745856 - DR4339PR - Project Amendment Request Letter Group 14 .pdf".

SOW from previous version has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

5.0 Introduction:

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs,including drawings and cost estimates. FEMA also recognizes that, generally, architects and/ or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and notlimit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 745856 Automation Program Group14 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds

6.0 Project Description:

As part of the electrical grid rebuild, **LUMA**developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment *(i.e.,* reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will beimplemented through multiple projects across the island on both T&D systems. Themultiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 745856 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 8404-03 and 8404-04.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles *(i.e.,* poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, **LUMA** is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults-whether due to independent failures or breakdowns-and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing eight three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of forty single-phase reclosers.

(3) Communicating Fault Current Indicators

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic notification/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber

optics at a later date.

7.0 FACILITIES LIST:

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

7.2 FACILITIES LIST - OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 14 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Arecibo	8404-03	[redacted]	[redacted]
		[redacted]	[redacted]
Arecibo	8404-04	[redacted]	[redacted]

Note: Please refer to *APPENDIX 8- Project Considerations* for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Arecibo Warehouse, whose address is #681 Street, 0.1 KM, Islote Ward, Arecibo, PR. The warehouse coordinates are [redacted] 66.705015. The staging area will be in Manati Warehouse which coordinates are [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION:

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK:

The proposed type of work for this project:

Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of eight (8) damaged poles.
- Install seven (7) Three Phase Reclosers.
- Install twelve (12) Single Phase Reclosers, remove fuses and close jumpers.
- Install five (5) 1 kVA transformers.
- Install nine (9) communicating fault indicators.

LUMA requests the alignment of the scope and cost of Project 745856 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on the feeder backbone and the additional cost (delta) for the replacement of fuse cutouts for a single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of lkVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

This DSOW includes new pole installations and aligns the scope of these poles with a 406 mitigation proposal approved by FEMA.

As detailed in Appendix A of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Radio Communications Kit:
  - LUMA originally planned to transmit data to and from Three-Phase Reclosers using fiber optic cable, which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS).
- Air Break Bypass Switches
  - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.
- Due to engineering changes to the feeders in the project, this DSOW now includes thirteen (13) poles that were not part of Version O of the project.
  - Three (3) new pole installations at new locations.
  - Ten (10) poles to be removed and replaced as part of the revised design.
  - These changes align the scope with the 406 Mitigation proposal approved by FEMA, where applicable.

For more information, refer to the amendment letter of this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder 8404-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
21155837	[redacted]	(E-1-2-3)	(E-1-2-3)	Remove, dispose and replace existing primary
	[redacted]	(F-1-3)	(F-1-3)	framing on existing pole.
			(K-5)	Install secondary framing.
			(ABS-3-XARM QTY=3)	Remove, dispose and replace downguy.
				Remove, dispose and replace anchor.
				• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
19656773	[redacted]	(40' H3 CONCRETE POLE)	(SO' ROUND TAPERED PO L E)	• Remove and dispose 40' H3 concrete pole and replace with 50ft galvanizedround tapered pole.
	[redacted]	(AC- CI)	(CP-C6- XARM)	
		(STL-10)	(K-6)	• Remove, dispose and replace primary framing.
		(E-2-1)	(STL-10)	• Remove, dispose and replace streetlight (LED Streetlight)
			(ABS-3-XARM QTY=3)	• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
21155576	[redacted]	(STD-SC- VERTICAL38KV FRAMING)	(CP-CG-XARM) (E-I-2_3)	•Remove, dispose and replace primary framing on existing pole.
			(F-I-3)	•Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them. Install down guy.
			(K-5) (ABS-3-XARM QTY=3)	•Install anchor.
1001153163	[redacted]	(CP-C6-XARM)	(CP-C6-XARM)	• Remove, dispose and replace primary framings.
	[redacted]			• Reuse Secondary framing
NEW POLE	[redacted]	NONE	(50 ROUND POLE)	•Install a new 50ft galvanized round tapered pole.
	[redacted]		(CP-C6-XARM) (K-1)	•Install primary framing. •Install secondary framing. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
1001153159	[redacted]	(FUSE REMOVAL (QTY=3))	(FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts
	[redacted]	(LABOR ONLY)		
19582536	[redacted]	(FUSE REMOVAL (QTY=3))	N/A	• Remove and dispose (3) of Fuse Cutouts.
	[redacted]	(LABOR ONLY)		

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
19583050 Segment FID 19583175	[redacted]	(SO'C2 WOOD POLE) (AC-CI) (CP-CS-XARM) (ASSY-1509) (E-1-2-3) (F-1-3) (K-5) (STL-10)	(50' ROUND TAPERED PO L E) (CP-C6-XARM) (CP-CS-XARM) (ASSY-1509) (E-1-2-3) (F-1-3) (K-5) (STL-10)	• Remove and dispose 50' C2 wood pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings • Use existing secondary framing. • Remove, dispose and replace downguy. • Remove, dispose and replace anchor. • Remove, dispose and replace streetlight (LED Type)
19585342	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	(FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts.
32071682	[redacted]	(CP-C6-XARM) (CP-CS-ARM) (ASSY- 1509) (FUSE REMOVAL (QTY=3))	(CP-C6-XARM) (CP-CS-XARM)	• Remove, dispose, and replace primary framing on an existing pole. • Transfer existing secondary framing. • Remove, dispose and replace (3) Fuse Cutouts.
32080734	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose (3) Fuse Cutouts.
32083926	[redacted]	(45' 53 STEEL POLE) (CP-C6-XARM) (CP-AS)(TI)(K-7-4)	(50' ROUND TAPERED POLE) (CP-C6-VERT) (CP-AS) (K-7-4) (T-1)	• Remove and dispose 45' 53 steel pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Transfer secondary framing. • Remove, dispose and replace streetlight (LED Type). • Transfer existing transformer.
21158750	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	(FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts.
32080820	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose (3) Fuse Cutouts.
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (CP-C6-XARM	• Install a new 50ft galvanized round tapered pole. • Install primary framing.
21156574	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
				Cutouts. • Labor to close jumpers.
19656796	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose stand-off bracket assembly. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.

24637074	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=3))	(40 ROUND TAPERED POLE) (E-2-1) (E-1-2-3(QTY=2)) (F-1-3(QTY=2))	• Install downguy on an existing pole. • Install 40ft galvanized round tapered stub pole at coordinates [redacted] • Install downguy and anchor for stub pole. • Remove, dispose and replace primary framing. • Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers. • Install spanguy.
Segment FID 32080794	[redacted]	(WOOD POLE) (K-7-2 FIG. A) (WEDGE (QTY=2)) (E-1-2-3) (F-1-3)	(4S'ROUND TAPERED POLE) (CP-C6-XARM) (K-7 FIG. B) (WEDGE (QTY=2)	• Remove and dispose wood pole and replace with 45ft galvanized round tapered pole. • Install primary framing. • Remove, dispose and replace secondary framing. • Remove, dispose and replace (2) anchors. • Remove and dispose downguy.
19583878	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS (QTY=2))	• Remove and dispose (2) Fuse Cutouts. • Labor to close jumpers.
19583925	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=I))	(LABOR TO CLOSE JUMPERS (QTY=I))	• Remove and dispose (1) Fuse Cutouts. • Labor to close jumpers.
19583051 Segment FID 19583187	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS (QTY=2))	• Remove and dispose crossarm. • Remove and dispose (2) Fuse Cutouts. • Labor to close jumpers.
32081307	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose crossarm. • Remove and dispose (3) Fuse Cutouts. • Labor to close jumpers.
100125433* Segment FID 22102694	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
19657124 Segment FID 21157976	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.

*** 1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.**

Feeder 8404-04

POLE FID	Coordinates Lat, Long	Existing	Install	Scope of work
6317810	[redacted]	(50' H4 CONCRETE POLE)	(50' ROUND TAPERED POLE)	• Remove and dispose 50' H4 concrete pole and replace with 50ft round tapered galvanized steel pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type) • Remove and dispose downguy. • Remove and dispose anchor. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
	[redacted]	(CP-C6)	(CP-C6-XARM)	
		(STL- 10)	(STL-10)	
		(E-1-2-3)	(K-7-4)	

		(F-1-3)	(ABS-3-XARM QTY=3)	
6317799	[redacted]	(FUSE REMOVAL	N/A	• Remove and dispose (3) Fuse Cutouts.
	[redacted]	(QTY=3))		
		(LABOR ONLY)		
12221060	[redacted]	(45' CLASS 3 WOOD	(50' ROUND TAPERED POLE)	• Remove and dispose 45' Class 3 wood pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Remove, dispose and replace secondary framing. • Remove, dispose and replace streetlight (LED Type). •Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
	[redacted]	POLE)	(CP-CI)	
		(CP- CI)	(CP-C6-XARM)	
		(CP-CI-XARM) (STL-10)	(STL-10)	
			(K- 6)	
			(ABS-3-XARM QTY=3)	
17458278	[redacted]	(45' H4 CONCRETE POLE)	(50' ROUND TAPERED POLE)	• Remove and dispose 45' H4 concrete pole and replace with 50ft galvanized round tapered pole • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framing. • Install triplex from source side pole FID: 17458269. • Remove, dispose and replace streetlight (LED Type).
	[redacted]	(CP-C12- XARM)	(CP-C6-XARM)	
		(K-5)	(K-5)	
		(STL-10)	(STL-10)	
		(E-1-2-3)	(E-1-2-3)	
		(FUSE REMOVAL	(3/0TPX(QTY= 180FT)	
		(QTY=3))	(ABS-3-XARM QTY=3)	

POLE FID	Coordinates Lat, Long	Existing	Install	Scope of work
				•Remove, dispose and replace downguy. • Remove and dispose (3) Fuse Cutouts. • Reattach riser to the new pole. • Install and connect three (3) sets of Air Break Bypass Disconnecting Switch (ABS-3-XARM) and the framing hardware to support them.

17458661	[redacted]	(45' H4 CONCRETE POLE) (CP-C6-XARM) (E-1-2-3)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (K-5) (3/0TPX(QTY= 200FT) (ABS-3-XARM QTY=3)	• Remove and dispose 45' H4 Concrete pole and replace with 50ft galvanized round tapered pole. ? Install and connect three (3) sets of Air Break Bypass Disconnecting Switch (ABS-3-**XARM)** and the framing hardware to support them. • Remove, dispose and replace primary framing. • Install secondary framing. • Install triplex from source side pole FID: 17458269.
17458269	[redacted]	NONE	(K-6)	• Install secondary framing on existing pole.
17458703	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose (3) of Fuse Cutouts. • Labor to close jumpers.
20390180	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose (3) Fuse Cutouts. • Labor to close jumpers.
6317831 **Segment FID** 29544053	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
1001254333* **Segment FID** 22102697	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
6317790	[redacted]	(40 FT C2 WOOD POLE) (CP-A6) (E-1-2-3) (F-1-3) (ASSY 1509 QTY=I)	(45'ROUND TAPERED POLE) (CP-A6) (E-1-2-3) (F-1-3)	• Remove and dispose 40' C2 wood pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary framing.

POLE FID	Coordinates Lat, Long	Existing	Install	Scope of work
				•Remove, dispose and replace downguy and anchor. • Remove, dispose and replace **(1)** Fuse Cutout.
1001655999	[redacted]	(50 FT H4 CONCRETE POLE) (S-6) (CP-B5-XARM) (FUSE REMOVAL (QTY=3)) (LABOR ONLY)	(50' ROUND TAPERED POLE) (S-6) (CP-B5-XARM) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Remove and dispose 50' H4 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framing. • Install (2) downguys and (2) anchors. • Remove and dispose (3) fuse cutouts.
6321853	[redacted]	(40 FT H3 CONCRETE POLE) (E-1-2-3) (F-1-3)	NONE	• Remove and dispose 40'H3 concrete pole. • Remove and dispose of crossarm. • Remove and dispose downguy and anchor.
6321854	[redacted]	(CROSSARM)	NONE	• Labor to top-off to secondary height. • Remove and dispose crossarm.

6317831 Segment FID 29544052	[redacted]	(45 FT H4 CONCRETE) (CP-CI) (CP-C5-XARM) (STL-10) (K-7 FIG.A) (WEDGES QTY=2) (E-2-1) (ASSY 1509 QTY=3	(50 ROUND TAPERED POLE) (CP-CI) (CP-C5-XARM) (K-7 FIG. A) (WEDGES QTY=2) (STL-10) (40 FT ROUND TAPERED POLE) (E-2-1) (E-1-2-3(QTY=2)) (F-1-3(QTY=2))	• Remove and dispose 45' H4 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install 40ft galvanized round tapered pole on Coordinates [redacted] for new stub pole for new span guy. • Replace spanguy. • Remove, dispose and replace downguy for existing pole. • Install (2) downguys for stub pole. • Install (2) anchors for stub pole.
17458529	[redacted]	45 FT H4 CONCRETE POLE) (CP-CI) (STL-10)	(45' ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (Fuse Qty=3)	• Remove and dispose 45'H concrete pole and replace with 45ft galvanized round tapered pole. • Remove dispose and replace primary framing.
				•Remove, dispose and replace Streetlight (LED/Type). • Install (3) Fuse Cutouts.
12219159	[redacted]	(40 FT C4 WOOD POLE) (CP-CI)	(45FT GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	• Replace and dispose 40' C4 wood pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary framing.
6569234	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.
NEW POLE	[redacted]	NONE	(45 ROUND TAPERED'POLE) (CP-A6)	• Install a new 45ft galvanized round tapered pole. • Install primary framings.
12220124	[redacted]	(ASSY 1509 QTY=I)	(LABOR TO CLOSE JUMPERS (QTY=I))	• Remove, dispose and replace (1) Fuse Cutout. • Labor to close jumpers
20390449	[redacted]	(40 FT H3 CONCRETE POLE) (CP-C6-XARM) (K7 FIG. B) (WEDGES QTY=I) (E-1-2-3) (F-1-3) (STL-10)	(45'ROUND TAPERED POLE) (CP-C6-XARM) (K-7 FIG. B) (WEDGES QTY=I) (E-1-2-3) (F-1- 3) (STL-10)	• Remove and dispose 40' H3 concrete pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace downguy and anchor. • Remove, dispose and replace Streetlight (LED Type).
20390337	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3)) (FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.

6569208	[redacted]	(35 FT H3 CONCRETE POLE) (CP-A6) (K-6) (K-5)	(45' ROUND TAPERED POLE) (CP-A12) (K-6) (K-5)	• Remove and dispose 35' H3 concrete pole and replace with 45ft galvanized round tapered pole, 20 feet to the west (from [redacted] to [redacted]. • Remove, dispose and replace primary and secondary framing. • Install stand-off bracket assembly. • Install Fuse Cutout assembly.

*1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the tables above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes,

Specifications, and Standards for Public Assistance.
E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL

10.1 § 406 HAZARD MITIGATION OPPORTUNITY

FEMA's § 428 Alternative Procedures Guide for Permanent Work in Puerto Rico (v.3) states that FEMA will "encourage the concepts of regional infrastructure resiliency" and "provide mitigation

opportunities that leverage innovative and renewable technologies."1 The § 428 Alternative Procedures are intended to allow subrecipients and FEMA "to prioritize the provision of funding for eligible permanent work in ways that best meet the recovery needs of impacted communities" and provide "flexibility in the use of funds."2 The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."3 FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."4

LUMA proposes to add feeder reclosers (single and three-phase) and communication fault current indicators ("cFCI") to this project to improve the resiliency of the T&D systems against future hurricane damage and its effects. The Distribution Automation program will add approximately a total of 4,000 three-phase reclosers, 15,000 single-phase reclosers, and 11,000 cFCIs across the island. The addition of feeder reclosers and cFCIs will reduce the potential for widespread loss of service during a disaster event and prevent physical damage, mitigating the negative effects of a future, similar disaster.

Feeder reclosers will improve system resiliency. LUMA requests 406 hazard mitigation funding for eight (8) three-phase reclosers, eight (8) radio communication kits for those reclosers, and forty (40) single-phase reclosers, as described in the table below:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
8404-03	Three-Phase Recloser Radio Communication Kit	1	21155837	[redacted]
8404-03	Three-Phase Recloser Radio Communication Kit	1	19656773	[redacted]
8404-03	Three-Phase Recloser Radio Communication Kit	1	21155576	[redacted]
8404-03	Three-Phase Recloser Radio Communication Kit	1	New Pole Segment FID 32071694	[redacted]
8404-03	Single-Phase Recloser	3	1001153163	[redacted]
8404-03	Single-Phase Recloser	3	19583050	[redacted]
8404-03	Single-Phase Recloser	3	32071682	[redacted]
8404-03	Single-Phase Recloser	3	32083926	[redacted]
8404-03	Single-Phase Recloser	3	New Pole Segment FID 21156575	[redacted]
8404-03	Single-Phase Recloser	3	19656796	[redacted]
8404-03	Single-Phase Recloser	3	24637074	[redacted]
8404-03	Single-Phase Recloser	3	New Pole Segment FID 32080794	[redacted]

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long

8404-04	Three-Phase Recloser Radio Communication Kit	1	6317810
8404-04	Three-Phase Recloser Radio Communication Kit	1	12221060
8404-04	Three-Phase Recloser Radio Communication Kit	1	17458278
8404-04	Three-Phase Recloser Radio Communication Kit	1	17458661
8404-04	Single-Phase	1	6317790
8404-04	Single-Phase	2	1001655999
8404-04	Single-Phase	3	6317831
8404-04	Single-Phase	3	17458529
8404-04	Single-Phase	3	12219159
8404-04	Single-Phase	1	New Pole Segment FID 29543598
8404-04	Single-Phase	3	20390449

Feeder reclosers have microprocessors that monitor the voltage and current on a feeder line to determine whether the recloser should take action to protect the function of that feeder. They

protect the feeder line by stopping temporary line faults from causing an extended outage. An example of a temporary line fault is vegetation touching a power line for a brief period of time. When a feeder recloser detects this type of fault it automatically opens the circuit (briefly stopping the flow of electricity to allow the disturbance to resolve) and then rapidly recloses to restore power. It has been observed that approximately 70% of faults are temporary. This action reduces the frequency, duration, and breadth of disaster-related outages, protecting the public safety. Feeder reclosers prevent temporary line faults from turning into an outage, which speeds restoration after a storm or disaster.

When used on a looped circuit, the reclosers can also contain a power outage to a localized area. The two reclosers nearest the fault will open the circuit (briefly stopping the flow of electricity between them) so the outage is contained to a segment of the customers between the two reclosers. Meanwhile, power continues to reach the remaining customers on the feeder line. See illustration below where the yellow lightning bolt is the fault, and the red squares are the reclosers that have opened to contain the outage to the customers in red.

IMAGE IN PAGE 23 IN FILE: "*800286-DR4339PR-DSOW- Group 36- Rev 002- To Include 406HM Scope v2.pdf*".

In the same scenario without the reclosers, a larger portion - and potentially all - of the customers served by the feeder would lose power until the fault could be repaired. Thus, feeder reclosers mitigate outages similar to what was experienced during Hurricane Maria by localizing an outage area and preventing cascading outages that can extend the outage time. Power is a critical lifeline. Extended power outages caused by disaster damage like the one after Hurricane Maria have devastating effects on public health and safety. Mitigation measures that reduce the likelihood of extended, wide-ranging outages will also reduce the life-safety risk of disaster damage.

Feeder reclosers will be installed across the distribution feeder system, providing the operations center with outage and loading information across a wide area. The operations center can use this information to prioritize outage restoration across that area. This can reduce customer outage time and consequently decrease the risk of harm to the public and property. The operations center has the ability to remotely control the reclosers, opening and closing specific reclosers, so as to re-energize the greatest number of customers and localize the outage to the customers on a feeder segment between two reclosers. In contrast, under the current system a feeder that experiences a fault will lose power back to the circuit breaker, at the substation, until the cause of the fault is cleared. Until the fault is cleared all customers on the feeder have no power. The fault needs to be identified by visual inspection. Visual inspection takes much longer than clearing a fault remotely. During a disaster, when numerous feeders experience permanent faults, the ability to localize the outage and re-energize the non-damaged segments in minutes instead of hours or days is a significant reduction of risk to public health and safety.

Reclosers also prevent physical damage to the infrastructure by preventing short circuit currents on a fault getting to the main breaker of a feeder. Reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur. Un isolated electrical faults lead to sustained arcing, causing extensive equipment and property damage. Prolonged faults create fire and critical public safety risks.

These reclosers are part of a larger system of protection to be implemented through the Distribution Automation program. In addition to the critical facilities, Distribution Automation will protect the electrical grid as a whole, a critical facility that spans all of Puerto Rico. Electrical faults can cause outages that cascade across multiple facilities, regions, or even the entire island, disrupting service for customers and other critical facilities far from any specific distribution circuit. Additionally, faults and outages can cause frequency deviations and increased wear and tear on all components of the grid, including generation, transmission, and distribution facilities, without geographic limitation. Without reliable infrastructure at all stages of electrical generation, transmission, and distribution, Puerto Ricans will be at heightened and increasing risks of sustained outages with severe impacts on public health and safety. Ultimately, localized grid resilience investments benefit all customers, because the interconnected grid as a whole - not any specific distribution or transmission line - serves Puerto Rico. In other words, a recloser in the San Juan region could mitigate the cascading effects that would cause an outage at a hospital or fire station in Arecibo, and vice versa. DHS recognizes the importance of incorporating resilience into critical infrastructure projects, including "identifying key dependencies and interdependencies and ways in which this critical infrastructure asset, system, or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors" and "mapping potential cascading effects from potential infrastructure disruptions." See DHS Supplemental Tool: Incorporating Resilience into Critical Infrastructure Projects, https://www.cisa.gov/sites/default/files/publications/NIPP-2013-Supplement- Incorporating-Resilience-into-CI-Projects-508.pdf. Puerto Rico's generation, transmission, and distribution systems must function as a single integrated system to deliver power.

Poles will improve system resiliency. Luma requests 406 hazard mitigation for the following poles:

Feeder 8404-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft 58.5 12-sided galvanized steel pole	1	19656773	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	19583050	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	32083926	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]

40ft 55.7 12-sided galvanized steel pole	1	24637074	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	Segment FID 32080794	[redacted]

Feeder 8404-04

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft 58.5 12-sided galvanized steel pole	1	6317810	[redacted]
60ft 58.5 12-sided galvanized steel pole	1	12221060	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	17458278	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	17458661	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	6317790	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	1001655999	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	6317831 Segment FID 29544053	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	17458529	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	12219159	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	NEW POLE	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	20390449	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	6569208	[redacted]

Higher poles will improve system resiliency. Replacement poles provide the strength required to carry the reclosers and related

hardware and withstand hurricane wind speeds. The 428 PA recovery solution includes the replacement of the existing poles (wood/concrete) by new galvanized round steel poles, and for 406 HM the round poles will be replaced with 12-sided galvanized steel poles, as identified in tables §§9.1 and 10.2. LUMA selected the poles for replacementafter performing an electrical analysis of the feeder line and applying best design practices for reclosers.

A 12-sided galvanized steel pole is proposed as replacement for existing wood poles, as it is capable of supporting the load of the reclosers and withstanding the forces generated by 160 mph winds.

None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests §406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

Additional information to justify these poles are included in *APPENDIX D - Pole Height Increase*

.Justification.

LUMA considered mitigation percentages in situations where it is necessary to increase pole height in increments of five feet up to a maximum difference of 15 feet. Average percentages for each such scenario were applied. A table that presents such scenarios and percentages is included in the HM Pole Labor Worksheet tab of *APPENDIX A.*

Communicating fault circuit indicators ("cFCIs") improve system resiliency. LUMA requests 406 hazard mitigation funding for the following twelve (12) cFCIs:

Feeder	Quantity	FID	Coordinates Lat, Long
8404-03	3	Segment FID 22102694	[redacted]
			[redacted]
8404-03	3	Segment FID	[redacted]
		21157976	[redacted]
8404-04	3	Segment FID 221026697	[redacted]
			[redacted]

8404-04	3	Segment FID 29544053	[redacted]
			[redacted]
Total cFCIs	**12**		

cFCI's allow the operator to locate circuit faults (i.e., outages) faster than the current method, and provides the central monitoring system ("Energy Management System" or "EMS") information it can use to prevent further damage and to prioritize restoration efforts. While reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur, cFCIs offer a fundamentally proactive approach to damage prevention. By detecting incipient (i.e., emerging) faults in their early stages, and enabling timely intervention, cFCIs can prevent the fault from ever fully materializing, thereby directly eliminating the potential for physical damage to system assets.

In the event a feeder line experiences a fault, cFCIs can identify the location of the fault along a feeder line and communicate it to the operator. Multiple cFCIs are located along a feeder and its branches. Determining the placement location of cFCIs requires extensive engineering to ensure LUMA will gain maximum benefit from each sensor.5

This feeder does not have FCIs, therefore, repair crews would need to visually inspect the feeder line to locate the fault. In comparison, cFCIs will provide repair crews with information that narrows their search to an area between two cFCIs. Thus, the cFCI's information dramatically reduces search time. A smaller search area reduces customer outage time, and consequently, decreases harm to the public and property after a disaster. This feature provides a more specific location of the fault than what is provided by reclosers.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure. Note that on this specific project, the cFCIs in the HM scope of work are new. They are not replacing existing FCIs (FCIs are not present).

Benefits of cFCIs include:

- Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.
- Fault Location: cFCIs help quickly locate faults on the line (like short circuits or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.
- Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on

cables, breakers, and other components.

- Lightning and Surge Detection: cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis. Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action-preventing physical stress or failure.
- Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.
- Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion-allowing scheduled repairs before damage occurs.

Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:

- Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.

- Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components.
- Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing-reducing the impact area and protecting healthy parts of the system.
- Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

Stainless Steel Transformer. LUMA requests §406 hazard mitigation funding for (6) stainless steel transformers at the pole and coordinates noted in the table:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	6317810	[redacted]
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	12221060	[redacted]
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	17458278	[redacted]
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	17458661	[redacted]
8404-04	1 Kva Stainless Transformer (7.62kv/120v)	1	6317790	[redacted]

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

LUMA galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also prevent against debris impact better that galvanized steel. Transformer failure poses harm to the equipment and the public due to resulting loss of power. LUMA proposes that this measure be eligible for§ 406 hazard mitigation funding. In FAASt project no. 165226, stainless steel transformers more than 1 mile from the shoreline were granted 406 HM funding. In addition, the Fixed Cost Estimate was based on pole mounted transformers that are coated steel with a corrosion resistant cover band and not stainless-steel transformers.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall

strength, and corrosion resistance, therefore mitigating against damage in future disasters. Stainless steel is a high- strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

Additionally, existing transformers across the island suffer from corrosion, not just the ones close to the seashore. Stainless steel transformers offer superior resistance to corrosion. Corroded transformers have a higher likelihood of failure during a disaster due to debris impacts, fires, and significant water intrusion. Such failure can create unintended electrical paths outside the insulated circuits. This leads to short circuits, which can immediately disrupt transformer function and cause widespread power outages. Additionally, corrosion degrades insulation within the transformer, making it prone to electrical arcing, further increasing the risk of failure or potential for a fire. Oil leaking from a damaged transformer could lead to vegetation damage or groundwater contamination. A stainless-steel transformer is better able to withstand the corrosive effects of that exposure than a galvanized steel transformer. As a result, a stainless- steel transformer will be more resistant to the effects of a disaster like Hurricane Maria and help to protect life and property.

By upgrading to this material, LUMA will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure. LUMA requests that stainless steel galvanized transformers that are more than one mile from the seashore be eligible for§ 406 hazard mitigation funding equal to the difference in price between a stainless steel and galvanized steel transformer.

10.2 § 406 SCOPE OF WORK

Feeder 8404-03

428 Section			406 HM		
Pole FID	**Coordinates Lat, Long**	**Scope of Work**	**Pole FID**	**Coordinates Lat, Long**	**Scope of Work**
21155837	[redacted]	• Remove, dispose and replace existing primary framing on existing pole. • Install secondary framing. • Remove, dispose and replace downguy. • Remove, dispose and replace anchor. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-	21155837	[redacted]	• Install (1) Three-Phase Recloser 8404-03A existing 50' 58 galvanized steel pole. • Install (1) 1 kVA stainless steel transform (7.62kV/120V) from source side. • Install and commission radio communication kit for Three-Phase Recloser.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		XARM) and the framing hardware to support them.			
19656773	[redacted]	• Remove and dispose 40' H3 concrete pole and replace with SOft galvanized round tapered pole. • Remove, dispose and replace primary framing. • Remove, dispose and replace streetlight (LED Streetlight) • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.	19656773	[redacted]	• Replace 50ft round pole with 50ft S8.5 12-side galvanized steel pole. •Install (1) 1 kVA stainless steel transformer (7.62kV/120V) from source side. • Install (1) Three-Phase Recloser 8404-03B. • Install and commission radio communication kit for three-phase recloser.
21155576	[redacted]	•Remove, dispose and replace primary framing on existing pole. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them. •Install down guy. •Install anchor.	21155576	[redacted]	?Install (1) Three Phase Recloser 8404-03(on existing 60ft H6 concrete pole. ?Install (1) 1 kVA stainless steel transformer (7.62kv/120v) from source side. • Install and commission radio communication kit for three-phase recloser.
NEW POLE	[redacted]	•Install a new 50ft galvanized round tapered pole. •Install primary framing. •Install secondary framing. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with a 50ft S8.S 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 8404-03D. • Install and commission radio communication k for three-phase recloser. • Install (1) 1 kVA stainless steel transformer (4.80/7.62kV/120v) to feed recloser from sourc side.
1001153163	[redacted]	• Remove, dispose and replace primary framings. • Reuse Secondary framing.	1001153163	[redacted]	• Replace (3) Fuse Cutouts on FID 1001153159 with the Installation of (3)

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work

					Single-Phase Reclosers on FID 1001153163.
1001153159	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts			
19583050	[redacted]	• Remove and dispose 50ft C2 wood pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Use existing secondary framing. • Remove, dispose and replace downguy. • Remove, dispose and replace anchor. • Remove, dispose and replace streetlight (LED Type).	19583050	[redacted]	• Replace 50ft round pole with 50ft 58.5 12-sided galvanize steel pole. • Replace (3) Fuse Cutouts on FID 19585342 with the installation of (3) Single-Phase Recloser on FID 19583050.
19585342	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts			
32071682	[redacted]	• Remove, dispose and replace primary framings on existing pole. • Transfer existing secondary framing. • Remove, dispose and replace (3) Fuse Cutouts.	32071682	[redacted]	• Replace (3) Fuse Cutouts with the installation (3) Single-Phase-Recloser in existing 50' 58 pole.
32083926	[redacted]	• Remove and dispose 45ft 53 steel pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Transfer secondary framing. • Remove, dispose and replace streetlight (LED Type) • Transfer existing transformer.	32083926	[redacted]	• Replace round pole with 50ft 58.5 12-sided galvanized ste pole. • Replace (3) Fuse Cutouts on FID 21158750 with the installation (3) Single-phase reclosers on FID 32083926.

428 Section			406 HM		
Pole FID	**Coordinates Lat, Long**	**Scope of Work**	**Pole FID**	**Coordinates Lat, Long**	**Scope of Work**

21158750	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts.			
NEW POLE	[redacted]	• Install a new 50ft galvanized round tapered pole. • Install primary framing	NEW POLE	[redacted]	•Replace 50ft round tapered pole with a 50ft 58.5 12-sided galvanized steel pole. •Replace (3) Fuse Cutouts from FID 21156574 with the installation of (3) Single-Phase Reclosers 200a on the new pole Segment FID 21156575.
21156574	[redacted]	• Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			
19656796	[redacted]	• Remove and dispose stand-off bracket assembly. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.	19656796	[redacted]	•Replace (3) Fuse Cutouts with the installation of (3) Single Phase Reclosers 200a.
24637074	[redacted]	• Install downguy on existing pole. • Install a new 40ft galvanized round tapered stub pole at coordinates [redacted] - [redacted] • Install downguy and anchor • Remove, dispose and replace Primary framing. • Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.	24637074	[redacted]	• Replace 40ft round pole with a 40ft 55.7 12-sided galvanized steel pole Stub Pole at coordinat [redacted] • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Reclosers 200a.
Segment FID 32080794	[redacted]	• Remove and dispose wood pole and replace with 45ft galvanized round tapered pole. • Install primary framing. • Remove, dispose and replace secondary framing. • Remove, dispose and replace (2) anchors. • Remove and dispose	Segment FID 32080794	[redacted]	• Replace 45ft galvanized round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts from FID 19583050 with the installation of (3) Single-Phase Reclosers 200 A capacity on Segment FID 32080794.

428 Section	406 HM

Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		downguy,			
19583050	[redacted]	• Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			
1001254333* Segment FID 22102694	[redacted]	• Install (3) Fault Current Indicators.	Segment FID 22102694	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
19657124 Segment FID 21157976	[redacted]	• Install (3) Fault Current Indicators.	Segment FID 21157976.	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

*1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.

Feeder 8404-04

	428 Section			406 HM	
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
6317810	[redacted]	• Remove and dispose 50ft H4 concrete pole and replace with 50ft round tapered galvanized steel pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type) • Remove and dispose downguy. • Remove and dispose anchor.	6317810	[redacted]	• Replace round pole with 50ft 58.512-sided tapered galvanized steel pole. • Use existing secondary triplex conductor to feed the recloser 8404-04A from source side. • Install (1) Three-Phase Recloser 8404-04A. • Install and commission radio communication kit for Three-Phase Recloser.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work

		• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.			
12221060	[redacted]	• Remove and dispose 45ft Class 3 wood pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Remove, dispose and replace secondary framing. • Remove, dispose and replace streetlight (LED Type). • Install and connect one **(1)** set of Air Break Bypass Switch (ABS-3-**XARM)** and the framing hardware to support them.	12221060	[redacted]	• Replace 50ft round pole with 60ft 58.5 12-sided galvanized steel pole. • Install (2) **1** kVA stainless steel transformers (7.62kV/120v) from source side and load side. • Install (1) Three-Phase Recloser 8404-04B. • Install and commission radio communication kit for Three-Phase recloser.
17458278	[redacted]	• Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framing. • Install triplex from source side pole FID: 17458269. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace downguy. • Remove and dispose (3) Fuse Cutouts. • Reattach riser to the new pole. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the	17458278	[redacted]	• Replace 50ft round pole with 50ft 58.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 8404-04C. • Install and commission radio communication kit for Three-Phase Recloser. • Use existing secondary triplex conductor to feed the recloser 8404-04C from source side.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		framing hardware to support them.			

17458661	[redacted]	• Remove and dispose 45ft H4 Concrete pole and replace with 50ft galvanized round tapered pole. • Install and connect one **(1)** set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.. • Remove, dispose and replace primary framing. • Install secondary framing. • Install triplex from source side pole FID: 17458269.	17458661	[redacted]	• Replace 50ft round pole with 50ft 58.5 12-sided tapered galvanized steel pole. • Install (1) Three-Phase Recloser 8404-04D on FID17458661. • Install and commission radio communication kit for Three-Phase Recloser. • Use exiting secondary triplex conductor to feed the recloser 8404-04D from source side.
1001254333* Segment FID 22102697	[redacted]	• Install (3) Fault Current Indicators.	1001254333 Segment FID 22102697	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
6317831 Segment FID 29544053	[redacted]	• Install (3) Fault Current Indicators.	6317831 Segment FID 29544053	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
6317790	[redacted]	• Remove and dispose 40ft C2 wood pole and replace 45ft galvanized round tapered pole. • Remove, dispose and replace primary Framing. • Remove, dispose and replace downguy and anchor. • Remove, dispose and replace (1) Fuse Cutout.	6317790	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200a.
1001655999	[redacted]	• Remove and dispose 50ft H4 concrete pole and replace with 50ft galvanized round tapered pole.	1001655999	[redacted]	• Replace 50ft round pole with a 50ft 510 12-sided galvanized pole. • Replace **(2)** Fuse Cutout with the installation of **(2)** Single-Phase Recloser 200a.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		• Remove, dispose and replace primary framing. • Install (2) downguys and (2) anchors. • Install (2) fuse cutouts.			

6317831 Segment FID 29544053	[redacted]	• Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install 40ft galvanized round tapered pole on Coordinates [redacted], for new stub pole for new span guy. • Remove, dispose and replace downguy for existing pole. • Install (2) downguys for stub pole. • Install (2) anchors for stub pole.	6317831 Segment FID 29544053	[redacted]	• Replace 50ft round pole with a 50ft 58.5 12-sided galvanized steel Pole. • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a. • Replace 40ft Round stub pole with a 40ft 55.7 12-sided galvanized steel on Coordinates [redacted].
17458529	[redacted]	• Remove and dispose 45ft H concrete pole and replace with 45ft galvanized round tapered pole. • Remove dispose and replace primary framing. • Remove, dispose and replace Streetlight (LED/Type). • Install (3) Fuse Cutouts.	17458529	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.
12219159	[redacted]	• Replace and dispose 40ft C4 wood pole and replace with 45ft galvanized round pole. • Remove, dispose and replace primary framing.	12219159	[redacted]	• Replace 45ft round pole with 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts on FID6569234 with the installation of (3) Single-Phase Recloser 200a.

	428 Section			406 HM	
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
6569234	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			
NEW POLE	[redacted]	• Install a new 45ft galvanized round tapered pole. • Install primary framings,	NEW POLE	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (1) Fuse Cutout on FID 12220124 with the installation of **(1)** Single-Phase Recloser 200A capacity.

12220124	[redacted]	• Remove, dispose and replace (1) Fuse Cutout. • Labor to close jumpers			
20390449	[redacted]	• Remove and dispose 40ft H3 concrete pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace downguy and anchor. • Remove, dispose and replace Streetlight (LED Type).	20390449	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts on FID 20390337 with the installation of (3) Single-phase reclosers.
20390337	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.			
6569208	[redacted]	• Remove and dispose 35ft H3 concrete pole and replace with 45ft galvanized round tapered pole, 20 feet to the west (from [redacted] to [redacted]). • Remove, dispose and replace primary and secondary framing. • Install stand-off bracket assembly. • Install Fuse Cutout assembly.	6569208	[redacted]	? Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.

*1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

IX! **Ground disturbance outside of existing footprint.** If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- Poles - Refer to *APPENDIX 8- Project Considerations,* column C (soil area and depth impact), for the depths of the poles to be installed.

_ **Soil testing or boring to be performed as part of pre-construction activities.** If checked, provide a description, location, and dimensions of the testing/boring activities.

_ **Relocation of utilities.** If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent

and depth of associated ground disturbance.

|X| **Vegetative Removal.** If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project 727540 FAASt [Arecibo Group C] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

|X| **Demolition.** If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method are not yet available.

_ **Staging areas, landing areas for air transport, and access roads.** If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area:** All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that it will require.
- **Access Roads:** New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

__ **Fill material.** If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

_ Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__ **Facility is over 45 years old.** If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

_ **Known renovations to the facility.** If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__ Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A-LUMA Project Cost Estimate.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	$105,243.02	$60,761.48	$166,004.50

MANAGEMENT	$76,865.39	$46,349.13	$123,214.52
LPCE Distribution Automation Group 14	$1,414,896.66	$849,599.24	$2,264,495.90
GENERAL CONDITIONS	$74,008.68	$44,697.14	$118,705.82
COST TOTALS	**$1,671,013.75**	**$1,001,406.99**	**$2,672,420.74**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		$-
	DE-OBLIGATION TO FAASt IF APPLICABLE		$-
FAASt ALLOCATIONS	**FAAST PROJECT# 745856-**		$1,410,445.20
	FAAST PROJECT #745856-406 HM		$1,001,406.99
	FAAST PROJECT #745856 TOTAL		**$2,411,852.19**
	FAASt A&E # 335168 -		$112,272.97
	FAASt A&E # 335168 - 406 HM		$65,062.72
	FAASt A&E # 335168 T		**$177,335.69**
	FAASt E&M #673691 -		$148,295.58
	FAASt E&M #673691 - 406 HM		$442,571.92
	FAASt E&M #673691		**$590,867.50**

428 Project Summary, Version 1:

Work to Be Completed (WTBC): $1,671,013.75- $1,671,013.75= $0.00 (See project note #5)

E&M Deduction (#673691) 428: -$148,295.58+$148,295.58= $0.00 (See project note #5)

A&E Deduction (Global A&E FAASt 335168): -$112,272.97+$112,272.97= $0.00 (See project note #5)

Version 1 Project Total Cost: $0.00 (See project note #5)

VERSION SUMMARY OF KEY CHANGES:

V0: $1,848,791.85-$208,604.89 =$1,640,186.96 (WTBC, A&E Deduction)

V1: PA No Cost change $0 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: "*745856-DR4339PR- DSOW Group 14 Revision 005- V1.pdf" and "745856 - DR4339PR - Project Amendment Request Letter Group 14 .pdf".*

2. Refer to detailed cost estimate in document: *"745856-DR4339PR-APPENDIX A- DETAILED COST ESTIMATE- Rev 005.xlsx".*

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table

above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

5. This project version includes request for cost modification for both 406 HMP and 428 PA costs, one with positive amount and the other negative. The cost change cannot be pro-cessed in the same version due to system limitation. Thus, two separate versions are re-quired to capture cost change. The current version will obligate the positive funds (whether 406 HMP or 428), and the future version will capture the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: " SP 745856 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf".

13.0 ATTACHMENTS/APPENDICES

The following attachments and appendices are provided with this DSOW:

Item	Document Description or Filename
A	LUMA Project Cost Estimate
B	Project Considerations
C	LUMA's Active Projects
D	Pole Height Increase Justi?cation

406 HMP Scope

Project number: 745856; FAASt [Automation Program Group 14] (TL/Distribution)

Damage number: 1374348; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Arecibo, Puerto Rico

GPS Latitude/Longitude: Start: [redacted]; End: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 14 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a natural disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 8404-03 and 8404-04.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeders 8404-03 and 8404-04 is accomplished by replacing round galvanized steel poles with a 12-sided galvanized steel poles as it is stronger than the round poles; replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and replacing fuse cutouts and manual disconnect switches with a single-phase and three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the three-phase reclosers (wireless connection).

In order to minimize the damages and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a natural disaster.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for 20ea pole strengthening (pole class, concrete base, and additional guywire).

Pole Description:

a) 40ft S5.7 12-sided galvanized steel poles = 2ea

b) 45ft S5.7 12-sided galvanized steel poles = 7ea

c) 50ft S8.5 12-sided galvanized steel poles = 9ea

d) 50ft S10 12-sided galvanized steel poles = 1ea

e) *60ft S8.5 12-sided galvanized steel poles = 1ea

*As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for one pole:

a) Feeder 8404-04, 3PH-Recloser Installation – Pole FID 12221060: The proposed design scope includes the replacement of an existing 45-foot wood distribution pole with a new 60-foot S8.5 steel pole. This upgrade is intended to enhance structural capacity and accommodate additional electrical equipment.

The decision to utilize a 60-foot pole instead of the standard 50-foot alternative is driven by the need to meet vertical clearance requirements and structural design standards. This is particularly important due to the presence of two independent distribution circuits on a single pole structure, as well as the installation of a three phase (3PH) recloser on the lower circuit (Feeder 8404-04). The increased pole height ensures adequate phase separation, safe working clearances, and compliance with applicable utility standards.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with

three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 40ea fuse cutouts with **40ea** single-phase reclosers and the installation of **8ea** three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 12ea fault current indicators (FCIs) by **12ea** communicating fault current indicators (cFCIs).

Mitigation Measures *(Supplementary)*

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of **6ea** 1kVA stainless steel transformers.

2. Radio Communication Kit for Three-Phase Reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the three-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea three-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of **8ea** radio communication kit.

Hazard Mitigation Proposal (HMP) Cost:

Total Net Hazard Mitigation Cost (Base Cost) = $ 805,794.43

+ HM (Subrecipient A&E, Management & General Conditions) = $ 195,612.56

Hazard Mitigation Total Cost = **$1,001,406.99**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) = $ 442,571.92

Architecture and Engineering (A&E) = $ 65,062.72

Construction Cost = $ 493,772.35

Hazard Mitigation Total Cost = **$1,001,406.99**

-

HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$1,001,406.99 (Hazard Mitigation Total Cost)**. The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,848,791.85	Uncompleted
3510	1	Lump Sum	($208,604.89)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted

CRC Gross Cost	$1,640,186.96
Total 406 HMP Cost	$1,001,406.99
Total Insurance Reductions	$0.00
CRC Net Cost	$2,641,593.95
Federal Share (90.00%)	$2,377,434.56
Non-Federal Share (10.00%)	$264,159.39

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

8/31/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo PR

4/20/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 14] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 14] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 14] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/15/2026 12:26 PM PDT

Review Comments

[745856] FAASt [Automation Program Group 14] (TL/Distribution) consists of the following activities: Installation of smart reclosers with microprocessor-based controllers and the remote monitoring, communications ready and control capabilities in transmission and distribution lines, Installation of fault current indicators (communications ready) in strategic locations to improve the outage management and restoration process, specifically by decreasing the time required to detect and locate faults. Project has been reviewed, found eligible and reasonable. Subrecipient and its agents are responsible for complying with all grants and subgrant conditions including any applicable Federal, State and Local requirements CLG 07.15.26

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/29/2026 2:44 PM PDT

Review Comments

Recipient review completed. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion. This Version (1) project was created for cost changes and scope of work amendments, in the case of SOW changes, EHP shall review if the DOE Emergency Declaration applies. The project will be signed off by the recipient as is, REC can be reviewed and amended to version V2. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v2

General Info

Project #	745856 **P/W #** 107956	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 14] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374348; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders ARECIBO 8404- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374348

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

********** **Version 2** **********

Version 2 has been created as an administrative amendment due to limitations in IFMIS (The Finance system), which cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Refer to document: Sub-FAAST Transactions - allocation process.pdf

5.0 Introduction:

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/ or engineers do not include or delineate the information

needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and notlimit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 745856 Automation Program Group14 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds

6.0 Project Description:

As part of the electrical grid rebuild, **LUMA**developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment *(i.e.,* reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will beimplemented through multiple projects across the island on both T&D systems. Themultiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 745856 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 8404-03 and 8404-04.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles *(i.e.,* poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, **LUMA** is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-

circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults-whether due to independent failures or breakdowns-and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing eight three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of forty single-phase reclosers.

(3) Communicating Fault Current Indicators

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic notification/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

7.0 FACILITIES LIST:

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

7.2 FACILITIES LIST - OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 14 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Arecibo	8404-03	[redacted]	[redacted]
Arecibo	8404-04	[redacted]	[redacted]

Note: Please refer to *APPENDIX 8- Project Considerations* for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Arecibo Warehouse, whose address is #681 Street, 0.1 KM, Islote Ward, Arecibo, PR. The warehouse coordinates are [redacted]. The staging area will be in Manati Warehouse which coordinates are [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION:

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK:

The proposed type of work for this project:

Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of eight (8) damaged poles.
- Install seven (7) Three Phase Reclosers.
- Install twelve (12) Single Phase Reclosers, remove fuses and close jumpers.
- Install five (5) 1 kVA transformers.
- Install nine (9) communicating fault indicators.

LUMA requests the alignment of the scope and cost of Project 745856 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on the feeder backbone and the additional cost (delta) for the replacement of fuse cutouts for a single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of lkVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

This DSOW includes new pole installations and aligns the scope of these poles with a 406 mitigation proposal approved by FEMA.

As detailed in Appendix A of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Radio Communications Kit:
  - LUMA originally planned to transmit data to and from Three-Phase Reclosers using fiber optic cable, which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS).
- Air Break Bypass Switches
  - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.
- Due to engineering changes to the feeders in the project, this DSOW now includes thirteen (13) poles that were not part of Version O of the project.
  - Three (3) new pole installations at new locations.
  - Ten (10) poles to be removed and replaced as part of the revised design.
  - These changes align the scope with the 406 Mitigation proposal approved by FEMA, where applicable.

For more information, refer to the amendment letter of this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder 8404-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
21155837	[redacted]	(E-1-2-3)	(E-1-2-3)	Remove, dispose and replace existing primary
	[redacted]	(F-1-3)	(F-1-3)	framing on existing pole.
			(K-5)	Install secondary framing.
			(ABS-3-XARM QTY=3)	Remove, dispose and replace downguy.
				Remove, dispose and replace anchor.
				• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
19656773	[redacted]	(40' H3 CONCRETE POLE)	(SO' ROUND TAPERED PO L E)	• Remove and dispose 40' H3 concrete pole and replace with 50ft galvanizedround tapered pole.
	[redacted]	(AC- CI)	(CP-C6- XARM)	
		(STL-10)	(K-6)	• Remove, dispose and replace primary framing.
		(E-2-1)	(STL-10)	• Remove, dispose and replace streetlight (LED Streetlight)
			(ABS-3-XARM QTY=3)	• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
21155576	[redacted]	(STD-SC-VERTICAL38KV FRAMING)	(CP-CG-XARM) (E-I-2_3)	•Remove, dispose and replace primary framing on existing pole.
			(F-I-3)	•Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them. Install down guy.
			(K-5) (ABS-3-XARM QTY=3)	•Install anchor.
1001153163	[redacted]	(CP-C6-XARM)	(CP-C6-XARM)	• Remove, dispose and replace primary framings.
	[redacted]			• Reuse Secondary framing
NEW POLE	[redacted]	NONE	(50 ROUND POLE)	•Install a new 50ft galvanized round tapered pole.
	[redacted]		(CP-C6-XARM) (K-1)	•Install primary framing. •Install secondary framing. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
1001153159	[redacted]	(FUSE REMOVAL (QTY=3))	(FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts
	[redacted]	(LABOR ONLY)		
19582536	[redacted]	(FUSE REMOVAL (QTY=3))	N/A	• Remove and dispose (3) of Fuse Cutouts.
	[redacted]	(LABOR ONLY)		

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
19583050 Segment FID 19583175	[redacted]	(SO'C2 WOOD POLE) (AC-CI) (CP-CS-XARM) (ASSY-1509) (E-1-2-3) (F-1-3) (K-5) (STL-10)	(50' ROUND TAPERED PO L E) (CP-C6-XARM) (CP-CS-XARM) (ASSY-1509) (E-1-2-3) (F-1-3) (K-5) (STL-10)	• Remove and dispose 50' C2 wood pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings • Use existing secondary framing. • Remove, dispose and replace downguy. • Remove, dispose and replace anchor. • Remove, dispose and replace streetlight (LED Type)
19585342	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	(FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts.
32071682	[redacted]	(CP-C6-XARM) (CP-CS-ARM) (ASSY- 1509) (FUSE REMOVAL (QTY=3))	(CP-C6-XARM) (CP-CS-XARM)	• Remove, dispose, and replace primary framing on an existing pole. • Transfer existing secondary framing. • Remove, dispose and replace (3) Fuse Cutouts.
32080734	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose (3) Fuse Cutouts.
32083926	[redacted]	(45' 53 STEEL POLE) (CP-C6-XARM) (CP-AS)(TI)(K-7-4)	(50' ROUND TAPERED POLE) (CP-C6-VERT) (CP-AS) (K-7-4) (T-1)	•Remove and dispose 45' 53 steel pole and replace with 50ft galvanized round tapered pole. •Remove, dispose and replace primary framings. •Transfer secondary framing. •Remove, dispose and replace streetlight (LED Type). •Transfer existing transformer.
21158750	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	(FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts.
32080820	[redacted]	(FUSE REMOVAL (QTY=3)) (LABOR ONLY)	N/A	• Remove and dispose (3) Fuse Cutouts.
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (CP-C6-XARM	• Install a new 50ft galvanized round tapered pole. • Install primary framing.
21156574	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
				Cutouts. • Labor to close jumpers.
19656796	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose stand-off bracket assembly. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.

24637074	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=3))	(40 ROUND TAPERED POLE) (E-2-1) (E-1-2-3(QTY=2)) (F-1-3(QTY=2))	• Install downguy on an existing pole. • Install 40ft galvanized round tapered stub pole at coordinates [redacted] • Install downguy and anchor for stub pole. • Remove, dispose and replace primary framing. • Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers. • Install spanguy.
Segment FID 32080794	[redacted]	(WOOD POLE) (K-7-2 FIG. A) (WEDGE (QTY=2)) (E-1-2-3) (F-1-3)	(4S'ROUND TAPERED POLE) (CP-C6-XARM) (K-7 FIG. B) (WEDGE (QTY=2)	• Remove and dispose wood pole and replace with 45ft galvanized round tapered pole. • Install primary framing. • Remove, dispose and replace secondary framing. • Remove, dispose and replace (2) anchors. • Remove and dispose downguy.
19583878	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS (QTY=2))	• Remove and dispose (2) Fuse Cutouts. • Labor to close jumpers.
19583925	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=I))	(LABOR TO CLOSE JUMPERS (QTY=I))	• Remove and dispose (1) Fuse Cutouts. • Labor to close jumpers.
19583051 Segment FID 19583187	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS (QTY=2))	• Remove and dispose crossarm. • Remove and dispose (2) Fuse Cutouts. • Labor to close jumpers.
32081307	[redacted]	ASSY-1505 FIG. C) (ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose crossarm. • Remove and dispose (3) Fuse Cutouts. • Labor to close jumpers.
100125433* Segment FID 22102694	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
19657124 Segment FID 21157976	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.

*** 1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.**

Feeder 8404-04

POLE FID	Coordinates Lat, Long	Existing	Install	Scope of work
6317810	[redacted]	(50' H4 CONCRETE POLE) (CP-C6)	(50' ROUND TAPERED POLE) (CP-C6-XARM)	• Remove and dispose 50' H4 concrete pole and replace with 50ft round tapered galvanized steel pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type) • Remove and dispose downguy. • Remove and dispose anchor. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
	[redacted]	(STL- 10)	(STL-10)	
		(E-1-2-3)	(K-7-4)	

		(F-1-3)	(ABS-3-XARM QTY=3)	
6317799	[redacted]	(FUSE REMOVAL	N/A	• Remove and dispose (3) Fuse Cutouts.
	[redacted]	(QTY=3))		
		(LABOR ONLY)		
12221060	[redacted]	(45' CLASS 3 WOOD	(50' ROUND TAPERED POLE)	• Remove and dispose 45' Class 3 wood pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Remove, dispose and replace secondary framing. • Remove, dispose and replace streetlight (LED Type). •Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.
	[redacted]	POLE)	(CP-CI)	
		(CP- CI)	(CP-C6-XARM)	
		(CP-CI-XARM) (STL-10)	(STL-10)	
			(K- 6)	
			(ABS-3-XARM QTY=3)	
17458278	[redacted]	(45' H4 CONCRETE POLE)	(50' ROUND TAPERED POLE)	• Remove and dispose 45' H4 concrete pole and replace with 50ft galvanized round tapered pole • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framing. • Install triplex from source side pole FID: 17458269. • Remove, dispose and replace streetlight (LED Type).
	[redacted]	(CP-C12- XARM)	(CP-C6-XARM)	
		(K-5)	(K-5)	
		(STL-10)	(STL-10)	
		(E-1-2-3)	(E-1-2-3)	
		(FUSE REMOVAL	(3/0TPX(QTY= 180FT)	
		(QTY=3))	(ABS-3-XARM QTY=3)	

POLE FID	Coordinates Lat, Long	Existing	Install	Scope of work
				•Remove, dispose and replace downguy. • Remove and dispose (3) Fuse Cutouts. • Reattach riser to the new pole. • Install and connect three (3) sets of Air Break Bypass Disconnecting Switch (ABS-3-XARM) and the framing hardware to support them.

17458661	[redacted]	(45' H4 CONCRETE POLE) (CP-C6-XARM) (E-1-2-3)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (K-5) (3/0TPX(QTY= 200FT) (ABS-3-XARM QTY=3)	• Remove and dispose 45' H4 Concrete pole and replace with 50ft galvanized round tapered pole. ? Install and connect three (3) sets of Air Break Bypass Disconnecting Switch (ABS-3-**XARM)** and the framing hardware to support them. • Remove, dispose and replace primary framing. • Install secondary framing. • Install triplex from source side pole FID: 17458269.
17458269	[redacted]	NONE	(K-6)	• Install secondary framing on existing pole.
17458703	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose (3) of Fuse Cutouts. • Labor to close jumpers.
20390180	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose (3) Fuse Cutouts. • Labor to close jumpers.
6317831 **Segment FID** 29544053	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
1001254333* **Segment FID** 22102697	[redacted]	N/A	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
6317790	[redacted]	(40 FT C2 WOOD POLE) (CP-A6) (E-1-2-3) (F-1-3) (ASSY 1509 QTY=I)	(45'ROUND TAPERED POLE) (CP-A6) (E-1-2-3) (F-1-3)	• Remove and dispose 40' C2 wood pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary framing.

POLE FID	Coordinates Lat, Long	Existing	Install	Scope of work
				•Remove, dispose and replace downguy and anchor. • Remove, dispose and replace **(1)** Fuse Cutout.
1001655999	[redacted]	(50 FT H4 CONCRETE POLE) (S-6) (CP-B5-XARM) (FUSE REMOVAL (QTY=3)) (LABOR ONLY)	(50' ROUND TAPERED POLE) (S-6) (CP-B5-XARM) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Remove and dispose 50' H4 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framing. • Install (2) downguys and (2) anchors. • Remove and dispose (3) fuse cutouts.
6321853	[redacted]	(40 FT H3 CONCRETE POLE) (E-1-2-3) (F-1-3)	NONE	• Remove and dispose 40'H3 concrete pole. • Remove and dispose of crossarm. • Remove and dispose downguy and anchor.
6321854	[redacted]	(CROSSARM)	NONE	• Labor to top-off to secondary height. • Remove and dispose crossarm.

6317831 Segment FID 29544052	[redacted]	(45 FT H4 CONCRETE) (CP-CI) (CP-C5-XARM) (STL-10) (K-7 FIG.A) (WEDGES QTY=2) (E-2-1) (ASSY 1509 QTY=3	(50 ROUND TAPERED POLE) (CP-CI) (CP-C5-XARM) (K-7 FIG. A) (WEDGES QTY=2) (STL-10) (40 FT ROUND TAPERED POLE) (E-2-1) (E-1-2-3(QTY=2)) (F-1-3(QTY=2))	• Remove and dispose 45' H4 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install 40ft galvanized round tapered pole on Coordinates [redacted] for new stub pole for new span guy. • Replace spanguy. • Remove, dispose and replace downguy for existing pole. • Install (2) downguys for stub pole. • Install (2) anchors for stub pole.
17458529	[redacted]	45 FT H4 CONCRETE POLE) (CP-CI) (STL-10)	(45' ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (Fuse Qty=3)	• Remove and dispose 45'H concrete pole and replace with 45ft galvanized round tapered pole. • Remove dispose and replace primary framing.

				•Remove, dispose and replace Streetlight (LED/Type). • Install (3) Fuse Cutouts.
12219159	[redacted]	(40 FT C4 WOOD POLE) (CP-CI)	(45FT GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	• Replace and dispose 40' C4 wood pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary framing.
6569234	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.
NEW POLE	[redacted]	NONE	(45 ROUND TAPERED'POLE) (CP-A6)	• Install a new 45ft galvanized round tapered pole. • Install primary framings.
12220124	[redacted]	(ASSY 1509 QTY=I)	(LABOR TO CLOSE JUMPERS (QTY=I))	• Remove, dispose and replace **(1)** Fuse Cutout. • Labor to close jumpers
20390449	[redacted]	(40 FT H3 CONCRETE POLE) (CP-C6-XARM) (K7 FIG. B) (WEDGES QTY=I) (E-1-2-3) (F-1-3) (STL-10)	(45'ROUND TAPERED POLE) (CP-C6-XARM) (K-7 FIG. B) (WEDGES QTY=I) (E-1-2-3) (F-1- 3) (STL-10)	• Remove and dispose 40' H3 concrete pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace downguy and anchor. • Remove, dispose and replace Streetlight (LED Type).
20390337	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3)) (FUSES QTY=3)	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.

6569208	[redacted]	(35 FT H3 CONCRETE POLE) (CP-A6) (K-6) (K-5)	(45' ROUND TAPERED POLE) (CP-A12) (K-6) (K-5)	• Remove and dispose 35' H3 concrete pole and replace with 45ft galvanized round tapered pole, 20 feet to the west (from [redacted] to [redacted]). • Remove, dispose and replace primary and secondary framing. • Install stand-off bracket assembly. • Install Fuse Cutout assembly.

*1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the tables above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes,

Specifications, and Standards for Public Assistance.
E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL

10.1 § 406 HAZARD MITIGATION OPPORTUNITY

FEMA's § 428 Alternative Procedures Guide for Permanent Work in Puerto Rico (v.3) states that FEMA will "encourage the concepts of regional infrastructure resiliency" and "provide mitigation

opportunities that leverage innovative and renewable technologies."1 The § 428 Alternative Procedures are intended to allow subrecipients and FEMA "to prioritize the provision of funding for eligible permanent work in ways that best meet the recovery needs of impacted communities" and provide "flexibility in the use of funds."2 The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."3 FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."4

LUMA proposes to add feeder reclosers (single and three-phase) and communication fault current indicators ("cFCI") to this project to improve the resiliency of the T&D systems against future hurricane damage and its effects. The Distribution Automation program will add approximately a total of 4,000 three-phase reclosers, 15,000 single-phase reclosers, and 11,000 cFCIs across the island. The addition of feeder reclosers and cFCIs will reduce the potential for widespread loss of service during a disaster event and prevent physical damage, mitigating the negative effects of a future, similar disaster.

Feeder reclosers will improve system resiliency. LUMA requests 406 hazard mitigation funding for eight (8) three-phase reclosers, eight (8) radio communication kits for those reclosers, and forty (40) single-phase reclosers, as described in the table below:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
8404-03	Three-Phase Recloser Radio Communication Kit	1	21155837	[redacted]
8404-03	Three-Phase Recloser Radio Communication Kit	1	19656773	[redacted]
8404-03	Three-Phase Recloser Radio Communication Kit	1	21155576	[redacted]
8404-03	Three-Phase Recloser Radio Communication Kit	1	New Pole Segment FID 32071694	[redacted]
8404-03	Single-Phase Recloser	3	1001153163	[redacted]
8404-03	Single-Phase Recloser	3	19583050	[redacted]
8404-03	Single-Phase Recloser	3	32071682	[redacted]
8404-03	Single-Phase Recloser	3	32083926	[redacted]
8404-03	Single-Phase Recloser	3	New Pole Segment FID 21156575	[redacted]
8404-03	Single-Phase Recloser	3	19656796	[redacted]
8404-03	Single-Phase Recloser	3	24637074	[redacted]
8404-03	Single-Phase Recloser	3	New Pole Segment FID 32080794	[redacted]

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long

8404-04	Three-Phase Recloser Radio Communication Kit	1	6317810	[redacted]
8404-04	Three-Phase Recloser Radio Communication Kit	1	12221060	[redacted]
8404-04	Three-Phase Recloser Radio Communication Kit	1	17458278	[redacted]
8404-04	Three-Phase Recloser Radio Communication Kit	1	17458661	[redacted]
8404-04	Single-Phase	1	6317790	[redacted]
8404-04	Single-Phase	2	1001655999	[redacted]
8404-04	Single-Phase	3	6317831	[redacted]
8404-04	Single-Phase	3	17458529	[redacted]
8404-04	Single-Phase	3	12219159	[redacted]
8404-04	Single-Phase	1	New Pole Segment FID 29543598	[redacted]
8404-04	Single-Phase	3	20390449	[redacted]

Feeder reclosers have microprocessors that monitor the voltage and current on a feeder line to determine whether the recloser should take action to protect the function of that feeder. They

protect the feeder line by stopping temporary line faults from causing an extended outage. An example of a temporary line fault is vegetation touching a power line for a brief period of time. When a feeder recloser detects this type of fault it automatically opens the circuit (briefly stopping the flow of electricity to allow the disturbance to resolve) and then rapidly recloses to restore power. It has been observed that approximately 70% of faults are temporary. This action reduces the frequency, duration, and breadth of disaster-related outages, protecting the public safety. Feeder reclosers prevent temporary line faults from turning into an outage, which speeds restoration after a storm or disaster.

When used on a looped circuit, the reclosers can also contain a power outage to a localized area. The two reclosers nearest the fault will open the circuit (briefly stopping the flow of electricity between them) so the outage is contained to a segment of the customers between the two reclosers. Meanwhile, power continues to reach the remaining customers on the feeder line. See illustration below where the yellow lightning bolt is the fault, and the red squares are the reclosers that have opened to contain the outage to the customers in red.

IMAGE IN PAGE 23 IN FILE: "*800286-DR4339PR-DSOW- Group 36- Rev 002- To Include 406HM Scope v2.pdf*".

In the same scenario without the reclosers, a larger portion - and potentially all - of the customers served by the feeder would lose power until the fault could be repaired. Thus, feeder reclosers mitigate outages similar to what was experienced during Hurricane Maria by localizing an outage area and preventing cascading outages that can extend the outage time. Power is a critical lifeline. Extended power outages caused by disaster damage like the one after Hurricane Maria have devastating effects on public health and safety. Mitigation measures that reduce the likelihood of extended, wide-ranging outages will also reduce the life-safety risk of disaster damage.

Feeder reclosers will be installed across the distribution feeder system, providing the operations center with outage and loading information across a wide area. The operations center can use this information to prioritize outage restoration across that area. This can reduce customer outage time and consequently decrease the risk of harm to the public and property. The operations center has the ability to remotely control the reclosers, opening and closing specific reclosers, so as to re-energize the greatest number of customers and localize the outage to the customers on a feeder segment between two reclosers. In contrast, under the current system a feeder that experiences a fault will lose power back to the circuit breaker, at the substation, until the cause of the fault is cleared. Until the fault is cleared all customers on the feeder have no power. The fault needs to be identified by visual inspection. Visual inspection takes much longer than clearing a fault remotely. During a disaster, when numerous feeders experience permanent faults, the ability to localize the outage and re-energize the non-damaged segments in minutes instead of hours or days is a significant reduction of risk to public health and safety.

Reclosers also prevent physical damage to the infrastructure by preventing short circuit currents on a fault getting to the main breaker of a feeder. Reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur. Un isolated electrical faults lead to sustained arcing, causing extensive equipment and property damage. Prolonged faults create fire and critical public safety risks.

These reclosers are part of a larger system of protection to be implemented through the Distribution Automation program. In addition to the critical facilities, Distribution Automation will protect the electrical grid as a whole, a critical facility that spans all of Puerto Rico. Electrical faults can cause outages that cascade across multiple facilities, regions, or even the entire island, disrupting service for customers and other critical facilities far from any specific distribution circuit. Additionally, faults and outages can cause frequency deviations and increased wear and tear on all components of the grid, including generation, transmission, and distribution facilities, without geographic limitation. Without reliable infrastructure at all stages of electrical generation, transmission, and distribution, Puerto Ricans will be at heightened and increasing risks of sustained outages with severe impacts on public health and safety. Ultimately, localized grid resilience investments benefit all customers, because the interconnected grid as a whole - not any specific distribution or transmission line - serves Puerto Rico. In other words, a recloser in the San Juan region could mitigate the cascading effects that would cause an outage at a hospital or fire station in Arecibo, and vice versa. DHS recognizes the importance of incorporating resilience into critical infrastructure projects, including "identifying key dependencies and interdependencies and ways in which this critical infrastructure asset, system, or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors" and "mapping potential cascading effects from potential infrastructure disruptions." See DHS Supplemental Tool: Incorporating Resilience into Critical Infrastructure Projects, https://www.cisa.gov/sites/default/files/publications/NIPP-2013-Supplement- Incorporating-Resilience-into-CI-Projects-508.pdf. Puerto Rico's generation, transmission, and distribution systems must function as a single integrated system to deliver power.

Poles will improve system resiliency. Luma requests 406 hazard mitigation for the following poles:

Feeder 8404-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft 58.5 12-sided galvanized steel pole	1	19656773	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	19583050	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	32083926	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]

40ft 55.7 12-sided galvanized steel pole	1	24637074	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	Segment FID 32080794	[redacted]

Feeder 8404-04

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft 58.5 12-sided galvanized steel pole	1	6317810	[redacted]
60ft 58.5 12-sided galvanized steel pole	1	12221060	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	17458278	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	17458661	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	6317790	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	1001655999	[redacted]
50ft 58.5 12-sided galvanized steel pole	1	6317831 Segment FID 29544053	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	17458529	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	12219159	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	NEW POLE	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	20390449	[redacted]
45ft 55.7 12-sided galvanized steel pole	1	6569208	[redacted]

Higher poles will improve system resiliency. Replacement poles provide the strength required to carry the reclosers and related

hardware and withstand hurricane wind speeds. The 428 PA recovery solution includes the replacement of the existing poles (wood/concrete) by new galvanized round steel poles, and for 406 HM the round poles will be replaced with 12-sided galvanized steel poles, as identified in tables §§9.1 and 10.2. LUMA selected the poles for replacementafter performing an electrical analysis of the feeder line and applying best design practices for reclosers.

A 12-sided galvanized steel pole is proposed as replacement for existing wood poles, as it is capable of supporting the load of the reclosers and withstanding the forces generated by 160 mph winds.

None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests §406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

Additional information to justify these poles are included in *APPENDIX D - Pole Height Increase*

.Justification.

LUMA considered mitigation percentages in situations where it is necessary to increase pole height in increments of five feet up to a maximum difference of 15 feet. Average percentages for each such scenario were applied. A table that presents such scenarios and percentages is included in the HM Pole Labor Worksheet tab of *APPENDIX A.*

Communicating fault circuit indicators ("cFCIs") improve system resiliency. LUMA requests 406 hazard mitigation funding for the following twelve (12) cFCIs:

Feeder	Quantity	FID	Coordinates Lat, Long
8404-03	3	Segment FID 22102694	[redacted]
			[redacted]
8404-03	3	Segment FID	[redacted]
		21157976	[redacted]
8404-04	3	Segment FID 221026697	[redacted]
			[redacted]

8404-04	3	Segment FID 29544053	[redacted]
			[redacted]
Total cFCIs	**12**		

cFCI's allow the operator to locate circuit faults (i.e., outages) faster than the current method, and provides the central monitoring system ("Energy Management System" or "EMS") information it can use to prevent further damage and to prioritize restoration efforts. While reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur, cFCIs offer a fundamentally proactive approach to damage prevention. By detecting incipient (i.e., emerging) faults in their early stages, and enabling timely intervention, cFCIs can prevent the fault from ever fully materializing, thereby directly eliminating the potential for physical damage to system assets.

In the event a feeder line experiences a fault, cFCIs can identify the location of the fault along a feeder line and communicate it to the operator. Multiple cFCIs are located along a feeder and its branches. Determining the placement location of cFCIs requires extensive engineering to ensure LUMA will gain maximum benefit from each sensor.5

This feeder does not have FCIs, therefore, repair crews would need to visually inspect the feeder line to locate the fault. In comparison, cFCIs will provide repair crews with information that narrows their search to an area between two cFCIs. Thus, the cFCI's information dramatically reduces search time. A smaller search area reduces customer outage time, and consequently, decreases harm to the public and property after a disaster. This feature provides a more specific location of the fault than what is provided by reclosers.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure. Note that on this specific project, the cFCIs in the HM scope of work are new. They are not replacing existing FCIs (FCIs are not present).

Benefits of cFCIs include:

- Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.
- Fault Location: cFCIs help quickly locate faults on the line (like short circuits or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.
- Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on

cables, breakers, and other components.

- Lightning and Surge Detection: cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis. Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action-preventing physical stress or failure.
- Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.
- Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion-allowing scheduled repairs before damage occurs.

Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:

- Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.

- Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components.
- Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing-reducing the impact area and protecting healthy parts of the system.
- Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

Stainless Steel Transformer. LUMA requests §406 hazard mitigation funding for (6) stainless steel transformers at the pole and coordinates noted in the table:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	6317810	[redacted]
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	12221060	[redacted]
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	17458278	[redacted]
8404-03	1 Kva Stainless Transformer (7.62kv/120v)	1	17458661	[redacted]
8404-04	1 Kva Stainless Transformer (7.62kv/120v)	1	6317790	[redacted]

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

LUMA galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also prevent against debris impact better that galvanized steel. Transformer failure poses harm to the equipment and the public due to resulting loss of power. LUMA proposes that this measure be eligible for§ 406 hazard mitigation funding. In FAASt project no. 165226, stainless steel transformers more than 1 mile from the shoreline were granted 406 HM funding. In addition, the Fixed Cost Estimate was based on pole mounted transformers that are coated steel with a corrosion resistant cover band and not stainless-steel transformers.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall

strength, and corrosion resistance, therefore mitigating against damage in future disasters. Stainless steel is a high- strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

Additionally, existing transformers across the island suffer from corrosion, not just the ones close to the seashore. Stainless steel transformers offer superior resistance to corrosion. Corroded transformers have a higher likelihood of failure during a disaster due to debris impacts, fires, and significant water intrusion. Such failure can create unintended electrical paths outside the insulated circuits. This leads to short circuits, which can immediately disrupt transformer function and cause widespread power outages. Additionally, corrosion degrades insulation within the transformer, making it prone to electrical arcing, further increasing the risk of failure or potential for a fire. Oil leaking from a damaged transformer could lead to vegetation damage or groundwater contamination. A stainless-steel transformer is better able to withstand the corrosive effects of that exposure than a galvanized steel transformer. As a result, a stainless- steel transformer will be more resistant to the effects of a disaster like Hurricane Maria and help to protect life and property.

By upgrading to this material, LUMA will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure. LUMA requests that stainless steel galvanized transformers that are more than one mile from the seashore be eligible for§ 406 hazard mitigation funding equal to the difference in price between a stainless steel and galvanized steel transformer.

10.2 § 406 SCOPE OF WORK

Feeder 8404-03

428 Section			406 HM		
Pole FID	**Coordinates Lat, Long**	**Scope of Work**	**Pole FID**	**Coordinates Lat, Long**	**Scope of Work**
21155837	[redacted]	• Remove, dispose and replace existing primary framing on existing pole. • Install secondary framing. • Remove, dispose and replace downguy. • Remove, dispose and replace anchor. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-	21155837	[redacted]	• Install (1) Three-Phase Recloser 8404-03A existing 50' 58 galvanized steel pole. • Install (1) 1 kVA stainless steel transform (7.62kV/120V) from source side. • Install and commission radio communication kit for Three-Phase Recloser.

428 Section			406 HM		
Pole FID	**Coordinates Lat, Long**	**Scope of Work**	**Pole FID**	**Coordinates Lat, Long**	**Scope of Work**
		XARM) and the framing hardware to support them.			
19656773	[redacted]	• Remove and dispose 40' H3 concrete pole and replace with SOft galvanized round tapered pole. • Remove, dispose and replace primary framing. • Remove, dispose and replace streetlight (LED Streetlight) • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.	19656773	[redacted]	• Replace 50ft round pole with 50ft S8.5 12-side galvanized steel pole. •Install (1) 1 kVA stainless steel transformer (7.62kV/120V) from source side. • Install (1) Three-Phase Recloser 8404-03B. • Install and commission radio communication kit for three-phase recloser.
21155576	[redacted]	•Remove, dispose and replace primary framing on existing pole. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them. •Install down guy. •Install anchor.	21155576	[redacted]	?Install (1) Three Phase Recloser 8404-03(on existing 60ft H6 concrete pole. ?Install (1) 1 kVA stainless steel transformer (7.62kv/120v) from source side. • Install and commission radio communication kit for three-phase recloser.
NEW POLE	[redacted]	•Install a new 50ft galvanized round tapered pole. •Install primary framing. •Install secondary framing. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with a 50ft S8.S 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 8404-03D. • Install and commission radio communication k for three-phase recloser. • Install (1) 1 kVA stainless steel transformer (4.80/7.62kV/120v) to feed recloser from sourc side.
1001153163	[redacted]	• Remove, dispose and replace primary framings. • Reuse Secondary framing.	1001153163	[redacted]	• Replace (3) Fuse Cutouts on FID 1001153159 with the Installation of (3)

428 Section	406 HM

Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
					Single-Phase Reclosers on FID 1001153163.
1001153159	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts			
19583050	[redacted]	• Remove and dispose 50ft C2 wood pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Use existing secondary framing. • Remove, dispose and replace downguy. • Remove, dispose and replace anchor. • Remove, dispose and replace streetlight (LED Type).	19583050	[redacted]	• Replace 50ft round pole with 50ft 58.5 12-sided galvanize steel pole. • Replace (3) Fuse Cutouts on FID 19585342 with the installation of (3) Single-Phase Recloser on FID 19583050.
19585342	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts			
32071682	[redacted]	• Remove, dispose and replace primary framings on existing pole. • Transfer existing secondary framing. • Remove, dispose and replace (3) Fuse Cutouts.	32071682	[redacted]	• Replace (3) Fuse Cutouts with the installation (3) Single-Phase-Recloser in existing 50' 58 pole.
32083926	[redacted]	• Remove and dispose 45ft 53 steel pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Transfer secondary framing. • Remove, dispose and replace streetlight (LED Type) • Transfer existing transformer.	32083926	[redacted]	• Replace round pole with 50ft 58.5 12-sided galvanized ste pole. • Replace (3) Fuse Cutouts on FID 21158750 with the installation (3) Single-phase reclosers on FID 32083926.

428 Section	406 HM

Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
21158750	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts.			
NEW POLE	[redacted]	• Install a new 50ft galvanized round tapered pole. • Install primary framing	NEW POLE	[redacted]	•Replace 50ft round tapered pole with a 50ft 58.5 12-sided galvanized steel pole. •Replace (3) Fuse Cutouts from FID 21156574 with the installation of (3) Single-Phase Reclosers 200a on the new pole Segment FID 21156575.
21156574	[redacted]	• Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			
19656796	[redacted]	• Remove and dispose stand-off bracket assembly. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.	19656796	[redacted]	•Replace (3) Fuse Cutouts with the installation of (3) Single Phase Reclosers 200a.
24637074	[redacted]	• Install downguy on existing pole. • Install a new 40ft galvanized round tapered stub pole at coordinates [redacted] - [redacted] • Install downguy and anchor • Remove, dispose and replace Primary framing. • Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.	24637074	[redacted]	• Replace 40ft round pole with a 40ft 55.7 12-sided galvanized steel pole Stub Pole at coordinat [redacted] • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Reclosers 200a.
Segment FID 32080794	[redacted]	• Remove and dispose wood pole and replace with 45ft galvanized round tapered pole. • Install primary framing. • Remove, dispose and replace secondary framing. • Remove, dispose and replace (2) anchors. • Remove and dispose	Segment FID 32080794	[redacted]	• Replace 45ft galvanized round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts from FID 19583050 with the installation of (3) Single-Phase Reclosers 200 A capacity on Segment FID 32080794.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		downguy,			
19583050	[redacted]	• Remove and dispose crossarm. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			
1001254333* Segment FID 22102694	[redacted]	• Install (3) Fault Current Indicators.	Segment FID 22102694	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
19657124 Segment FID 21157976	[redacted]	• Install (3) Fault Current Indicators.	Segment FID 21157976.	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

*1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.

Feeder 8404-04

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
6317810	[redacted]	• Remove and dispose 50ft H4 concrete pole and replace with 50ft round tapered galvanized steel pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type) • Remove and dispose downguy. • Remove and dispose anchor.	6317810	[redacted]	• Replace round pole with 50ft 58.512-sided tapered galvanized steel pole. • Use existing secondary triplex conductor to feed the recloser 8404-04A from source side. • Install (1) Three-Phase Recloser 8404-04A. • Install and commission radio communication kit for Three-Phase Recloser.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.			
12221060	[redacted]	• Remove and dispose 45ft Class 3 wood pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose and replace primary framings. • Remove, dispose and replace secondary framing. • Remove, dispose and replace streetlight (LED Type). • Install and connect one **(1)** set of Air Break Bypass Switch (ABS-3-**XARM)** and the framing hardware to support them.	12221060	[redacted]	• Replace 50ft round pole with 60ft 58.5 12-sided galvanized steel pole. • Install (2) **1** kVA stainless steel transformers (7.62kV/120v) from source side and load side. • Install (1) Three-Phase Recloser 8404-04B. • Install and commission radio communication kit for Three-Phase recloser.
17458278	[redacted]	• Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framing. • Install triplex from source side pole FID: 17458269. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace downguy. • Remove and dispose (3) Fuse Cutouts. • Reattach riser to the new pole. • Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the	17458278	[redacted]	• Replace 50ft round pole with 50ft 58.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 8404-04C. • Install and commission radio communication kit for Three-Phase Recloser. • Use existing secondary triplex conductor to feed the recloser 8404-04C from source side.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work

		framing hardware to support them.			
17458661	[redacted]	• Remove and dispose 45ft H4 Concrete pole and replace with 50ft galvanized round tapered pole. • Install and connect one **(1)** set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.. • Remove, dispose and replace primary framing. • Install secondary framing. • Install triplex from source side pole FID: 17458269.	17458661	[redacted]	• Replace 50ft round pole with 50ft 58.5 12-sided tapered galvanized steel pole. • Install (1) Three-Phase Recloser 8404-04D on FID17458661. • Install and commission radio communication kit for Three-Phase Recloser. • Use exiting secondary triplex conductor to feed the recloser 8404-04D from source side.
1001254333* Segment FID 22102697	[redacted]	• Install (3) Fault Current Indicators.	1001254333 Segment FID 22102697	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
6317831 Segment FID 29544053	[redacted]	• Install (3) Fault Current Indicators.	6317831 Segment FID 29544053	[redacted]	• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
6317790	[redacted]	• Remove and dispose 40ft C2 wood pole and replace 45ft galvanized round tapered pole. • Remove, dispose and replace primary Framing. • Remove, dispose and replace downguy and anchor. • Remove, dispose and replace (1) Fuse Cutout.	6317790	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200a.
1001655999	[redacted]	• Remove and dispose 50ft H4 concrete pole and replace with 50ft galvanized round tapered pole.	1001655999	[redacted]	• Replace 50ft round pole with a 50ft 510 12-sided galvanized pole. • Replace **(2)** Fuse Cutout with the installation of **(2)** Single-Phase Recloser 200a.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		• Remove, dispose and replace primary framing. • Install (2) downguys and (2) anchors. • Install (2) fuse cutouts.			

6317831 Segment FID 29544053	[redacted]	• Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install 40ft galvanized round tapered pole on Coordinates [redacted], for new stub pole for new span guy. • Remove, dispose and replace downguy for existing pole. • Install (2) downguys for stub pole. • Install (2) anchors for stub pole.	6317831 Segment FID 29544053	[redacted]	• Replace 50ft round pole with a 50ft 58.5 12-sided galvanized steel Pole. • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a. • Replace 40ft Round stub pole with a 40ft 55.7 12-sided galvanized steel on Coordinates [redacted].
17458529	[redacted]	• Remove and dispose 45ft H concrete pole and replace with 45ft galvanized round tapered pole. • Remove dispose and replace primary framing. • Remove, dispose and replace Streetlight (LED/Type). • Install (3) Fuse Cutouts.	17458529	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.
12219159	[redacted]	• Replace and dispose 40ft C4 wood pole and replace with 45ft galvanized round pole. • Remove, dispose and replace primary framing.	12219159	[redacted]	• Replace 45ft round pole with 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts on FID6569234 with the installation of (3) Single-Phase Recloser 200a.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
6569234	[redacted]	• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			

NEW POLE	[redacted]	• Install a new 45ft galvanized round tapered pole. • Install primary framings, • Remove, dispose and replace (1) Fuse Cutout. • Labor to close jumpers	NEW POLE	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (1) Fuse Cutout on FID 12220124 with the installation of **(1)** Single-Phase Recloser 200A capacity.
12220124	[redacted]				
20390449	[redacted]	• Remove and dispose 40ft H3 concrete pole and replace with 45ft galvanized round tapered pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace downguy and anchor. • Remove, dispose and replace Streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers.	20390449	[redacted]	• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts on FID 20390337 with the installation of (3) Single-phase reclosers.
20390337	[redacted]				
6569208	[redacted]	• Remove and dispose 35ft H3 concrete pole and replace with 45ft galvanized round tapered pole, 20 feet to the west (from [redacted] to [redacted]). • Remove, dispose and replace primary and secondary framing. • Install stand-off bracket assembly. • Install Fuse Cutout assembly.	6569208	[redacted]	? Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.

*1001254333: Segment FID 22102694 is at the end of Feeder 8404-03 and at the beginning of Feeder 8404-04. The FCI/cFCIs for each feeder will be installed on different line segments of each feeder.

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

IX! **Ground disturbance outside of existing footprint.** If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- Poles - Refer to *APPENDIX 8- Project Considerations,* column C (soil area and depth impact), for the depths of the poles to

be installed.

_ **Soil testing or boring to be performed as part of pre-construction activities.** If checked, provide a description, location, and dimensions of the testing/boring activities.

_ **Relocation of utilities.** If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

IX| **Vegetative Removal.** If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project 727540 FAASt [Arecibo Group C] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

IXI**Demolition.** If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method are not yet available.

_ **Staging areas, landing areas for air transport, and access roads.** If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area:** All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that it will require.
- **Access Roads:** New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

__ **Fill material.** If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

_ Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__ **Facility is over 45 years old.** If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

_ **Known renovations to the facility.** If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__ Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A-LUMA Project Cost Estimate.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	$105,243.02	$60,761.48	$166,004.50
MANAGEMENT	$76,865.39	$46,349.13	$123,214.52
LPCE Distribution Automation Group 14	$1,414,896.66	$849,599.24	$2,264,495.90
GENERAL CONDITIONS	$74,008.68	$44,697.14	$118,705.82
COST TOTALS	**$1,671,013.75**	**$1,001,406.99**	**$2,672,420.74**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		$-
	DE-OBLIGATION TO FAASt IF APPLICABLE		$-
FAASt ALLOCATIONS	**FAAST PROJECT# 745856-**		$1,410,445.20
	FAAST PROJECT #745856-406 HM		$1,001,406.99
	FAAST PROJECT #745856 TOTAL		**$2,411,852.19**
	FAASt A&E # 335168 -		$112,272.97
	FAASt A&E # 335168 - 406 HM		$65,062.72
	FAASt A&E # 335168 T		**$177,335.69**
	FAASt E&M #673691 -		$148,295.58
	FAASt E&M #673691 - 406 HM		$442,571.92
	FAASt E&M #673691		**$590,867.50**

428 Project Summary, Version 2:

Work to Be Completed (WTBC): $1,671,013.75

E&M Deduction (#673691) 428: -$148,295.58

A&E Deduction (Global A&E FAASt 335168): -$112,272.97

Version 2 Project Total Cost: $1,410,445.20

VERSION SUMMARY OF KEY CHANGES:

V0: $1,848,791.85-$208,604.89 =$1,640,186.96 (WTBC, A&E Deduction)

V1: PA No Cost change $0 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

V2: $1,671,013.75 -$148,295.58 -$112,272.97 - $1,640,186.96 (WTBC V2, E&M DEDUCTION V2, A&E DEDUCTION V2, V0 WTBC DEDUCTION).

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: "*745856-DR4339PR- DSOW Group 14 Revision 005- V1.pdf" and "745856 - DR4339PR - Project Amendment Request Letter Group 14 .pdf".*

2. Refer to detailed cost estimate in document: *"745856-DR4339PR-APPENDIX A- DETAILED COST ESTIMATE- Rev 005.xlsx".*

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

5. **ATTACHMENTS/APPENDICES**

The following attachments and appendices are provided with this DSOW:

Item	Document Description or Filename
A	LUMA Project Cost Estimate
B	Project Considerations
C	LUMA's Active Projects
D	Pole Height Increase Justi?cation

406 HMP Scope

Project number: 745856; FAASt [Automation Program Group 14] (TL/Distribution)

Damage number: 1374348; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 14 DAR ARECIBO 8404- FY24]

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Arecibo, Puerto Rico

GPS Latitude/Longitude: Start: [redacted]; End: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 14 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a natural disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 8404-03 and 8404-04.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeders 8404-03 and 8404-04 is accomplished by replacing round galvanized steel poles with a 12-sided galvanized steel poles as it is stronger than the round poles; replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and replacing fuse cutouts and manual disconnect switches with a single-phase and three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the three-phase reclosers (wireless connection).

In order to minimize the damages and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a natural disaster.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for 20ea pole strengthening (pole class, concrete base, and additional guywire).

Pole Description:

a) 40ft S5.7 12-sided galvanized steel poles = 2ea

b) 45ft S5.7 12-sided galvanized steel poles = 7ea

c) 50ft S8.5 12-sided galvanized steel poles = 9ea

d) 50ft S10 12-sided galvanized steel poles = 1ea

e) *60ft S8.5 12-sided galvanized steel poles = 1ea

*As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for one pole:

a) Feeder 8404-04, 3PH-Recloser Installation – Pole FID 12221060: The proposed design scope includes the replacement of an existing 45-foot wood distribution pole with a new 60-foot S8.5 steel pole. This upgrade is intended to enhance structural capacity and accommodate additional electrical equipment.

The decision to utilize a 60-foot pole instead of the standard 50-foot alternative is driven by the need to meet vertical clearance requirements and structural design standards. This is particularly important due to the presence of two independent distribution circuits on a single pole structure, as well as the installation of a three phase (3PH) recloser on the lower circuit (Feeder 8404-04). The increased pole height ensures adequate phase separation, safe working clearances, and compliance with applicable utility standards.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and

visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 40ea fuse cutouts with **40ea** single-phase reclosers and the installation of **8ea** three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 12ea fault current indicators (FCIs) by **12ea** communicating fault current indicators (cFCIs).

Mitigation Measures *(Supplementary)*

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of **6ea** 1kVA stainless steel transformers.

2. Radio Communication Kit for Three-Phase Reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the three-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea three-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of **8ea** radio communication kit.

Hazard Mitigation Proposal (HMP) Cost:

Total Net Hazard Mitigation Cost (Base Cost) =	$ 805,794.43
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 195,612.56
Hazard Mitigation Total Cost =	**$1,001,406.99**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 442,571.92
Architecture and Engineering (A&E) =	$ 65,062.72
Construction Cost =	$ 493,772.35
Hazard Mitigation Total Cost =	**$1,001,406.99**

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HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$1,001,406.99 (Hazard Mitigation Total Cost)**. The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,848,791.85	Uncompleted
3510	1	Lump Sum	($208,604.89)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	($1,640,186.96)	Uncompleted
9001	1	Lump Sum	($148,295.58)	Uncompleted
3510	1	Lump Sum	($112,272.97)	Uncompleted
9001	1	Lump Sum	$1,671,013.75	Uncompleted

CRC Gross Cost	$1,410,445.20
Total 406 HMP Cost	$1,001,406.99
Total Insurance Reductions	$0.00
CRC Net Cost	$2,411,852.19
Federal Share (90.00%)	$2,170,666.98
Non-Federal Share (10.00%)	$241,185.21

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

8/31/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo PR

4/20/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 14] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 14] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out. d. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning the borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.

- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBsinto the environment. If damaged equipment or materialstorage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant' s permanent files.
- For FEEDER 8404-03 and 8404-04 Chilabothrus inornatus (Puerto Rican boa) a. Inform all project personnel about the potential presence of the PR boa in areas where the proposed work will be conducted. A pre-construction meeting should be conducted to inform all project personnel about the need to avoid harming the species as well as penalties for harassing or harming PR boas. An educational poster or sign with photo or illustration of the species should be displayed at the project site. b. Prior to any construction activity, including removal of vegetation and earth movements, the boundaries of the project and areas to be excluded and protected should be clearly marked in the project plan and in the field in order to avoid further habitat degradation into forested and conservation areas. c. Once areas are clearly marked, and prior to the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), a biologist or project personnel with experience on this species should survey the areas to be cleared to verify the presence of any PR boa within the work area. d. If a PR boa is found within any of the working or construction areas, activities should stop at that area and information recorded (see #e). Do not capture the boa. If boas need to be moved out of harm's way, designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for safe capture and relocation of the animal: (787) 999-2200 ext. 2911. If immediate relocation is not an option, project-related activities at that area must stop until the boa moves out of harm's way on its own. Activities at other work sites, where no boas have been found after surveying the area, may continue. e. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. PR boa data should also include a photo of the animal (dead or alive), site GPS coordinates, the time and date, and comments on how the animal was detected and its behavior.
- f. If a PR boa is captured by PRDNER personnel, record the name of that person and information on where the PR boa will be taken. This information should be reported to the Service. g. Measures should be taken to avoid and minimize PR boa casualties by heavy machinery or motor vehicles being used on site. Any heavy machinery left on site (staging) or near potential PR boa habitat (within 50 meters of potential boa habitat), needs to be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the equipment. If PR boas are found within vehicles or equipment, do not capture the animal, and let it move on its own or call PRDNER Rangers for safe capture and relocation of the animal (see #d). If not possible, the animal should be left alone until it leaves the vehicle on its own. h. PR boas may seek shelter in debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in debris piles as a result of project activities. Debris piles should be placed far away from forested areas. Prior to moving, disposing or shredding, debris piles should be carefully inspected for the presence of boas. If debris piles will be left on site, we recommend they be placed in areas that will not be disturbed in the future. i. If a dead PR boa is found, immediately cease all work in that area and record the information accordingly (see #e). If the PR boa was accidentally killed as part of the project actions, please include information on what conservation measures had been implemented and what actions will be taken to avoid further killings. A dead boa report should be sent by email to the Service at Caribbean_es@fws.gov, within 48 hours of the event. j. Projects must comply with all state laws and regulations. Please contact the PRDNER for further guidance.
- For FEEDER 8404-03 Atlantea tulita (Puerto Rican harlequin) The Puerto Rican harlequin butterfly (Atlantea tulita) is endemic to Puerto Rico, occurring in the western portion of the island, in the northern karst region, and in the west-central volcanic-serpentine region. The following measures apply to the Puerto Rican harlequin butterfly through its current range: a. The contractor must inform all personnel about the potential presence of the Puerto Rican harlequin butterfly and its host plant, prickly bush (Oplonia spinosa), in the project areas. A pre-work meeting should inform all project personnel about the need to avoid harming this butterfly and its occupied host plant. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. Educational material (e.g., posters, flyers, or signs with photos or illustrations of all the life stages of the Puerto Rican harlequin butterfly (i.e., eggs, caterpillar, chrysalids, and adult, and its host plant) should be prepared and available to all personnel for reference. b. Before starting any project activity, including removal of vegetation and earth movement, the contractor must clearly delineate the boundaries of the working area in the field to avoid unnecessary habitat impacts. Once the project areas are clearly marked, and before any work activity, including site preparation, personnel with knowledge and ability to identify the Puerto Rican harlequin butterfly (all life stages) and the prickly bush must survey the areas where the work will be performed for the presence of the species and its host plant. It is important to note that the Puerto Rican harlequin butterfly can be observed year-round in all life stages; thus, oviposition (egg-laying) may occur at any time during the year. c. If the prickly bush is present on the project site, try to avoid cutting the plant, even if no eggs, caterpillars, or chrysalids are present.
- d. If there is no prickly bush within the project area, but the butterfly is observed flying within the project area, do not harass, harm, pursue, wound, kill, trap, capture, collect, or attempt to engage in any such conduct, the species. e. Adult butterflies are often observed flying near the host plant as part of their mating behavior and for laying eggs. Project-related activities must stop if the prickle bush is found in the project area and the Puerto Rican harlequin butterfly is observed flying in that same area. A temporary 5-meter (16 feet) buffer zone of no activity or human disturbance should be established and clearly marked around that prickly bush until the butterfly moves out on its own. f. Once the Puerto Rican harlequin butterfly has moved away, within a period of 24 to 36 hours, a search of the prickly bush that has been buffered should be conducted to determine the presence of any eggs, caterpillars, or chrysalids of the butterfly on the plant. The contractor or the Applicant should send a

report of the observation and its findings to caribbean_es@fws.gov after the 36-hour search is concluded. g. If, after the initial search or after the 24 to 36-hour search, any life stage of the Puerto Rican harlequin butterfly is found in the prickly bush, take the following actions: *. Clearly mark the host plant with flagging tape. *. Establish a 5-meter (16-foot) buffer zone around the bush for its protection. *. Eggs are typically found on the prickly bush's newly grown, tender branches. Once the egg hatch, the caterpillar moves and feeds throughout the bush. Therefore, avoid cutting off the prickly bush within the project site even if no eggs, caterpillars, or chrysalids are present. *. Work within the 10-meter buffered area may resume when no signs of any live life stage of the butterfly are detected, which usually takes approximately 60 to 120 days. h. For all Puerto Rican harlequin butterfly sightings (all life stages), the time and date of the sighting and the specific location where the butterfly was found must be recorded. Data should also include a photo of the butterfly (if possible) and the habitat where it was observed, site GPS coordinates, and comments on how the butterfly was detected and its behavior. All Puerto Rican harlequin butterfly sighting reports should be sent to the Service's Caribbean Ecological Service Field Office at caribbean_es@fws.gov.

- For FEEDER 8404-03 and 8404-04 Ottoschulzia rhodoxylon (Pincho Palo de rosa) and Cordia bellonis (no common name) a. Where threatened and endangered plants are identified, flag individuals and avoid to the extent feasible. If the plants cannot be avoided, they should be salvaged and replanted as close to the impact area as possible. b. If space allows, leave a 5-foot buffer around individuals and/or clusters c. For trees and palm trees, if space allows, leave a 15-foot buffer around the tree d. When pruning, prune dead branches. If pruning live branches do not prune more than 10%. Please contact the USFWS Field Office if additional pruning is necessary for a listed plant species: Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov.
- For FEEDER 8404-03 Amazona vittata (Puerto Rican parrot) and Buteo platypterus brunnescens (Puerto Rican Broad-winged Hawk) a. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside breeding season no nest surveys are required. However, some bird species may nest year-round, therefore, if a nest is encountered while the project is being conducted, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: *. Puerto Rican parrot: February-June *. Puerto Rican broad-winged hawk: December-June For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. Office phone: 786-244-0081.
- ***Disregard previous conditions"
- ***Disregard previous condition***
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- ***Please disregard Additional staging areas condition***
- Additional staging areas and/or work pads within work site area haven&#65533;t been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 14] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 8:57 PM PDT

Review Comments

Version 2 reflects the negative cost for PA reconciliation process. Change request - $229,741.76 for a total Federal share for this project of $2,170,666.98.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 6:58 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $2,411,852.19 for subaward number 107956 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
3/20/2026	4339DRPRP01079561	20173YOY-06102025	6/9/2025	$369,042.07
3/20/2026	4339DRPRP01079561	20173YOY-03042026	3/3/2026	($369,042.07)

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	2/6/2025	$1,476,168.27	90%	Accepted	4339DRPRP01079561
2	10/8/2026	($206,767.58)	90%	Accepted	4339DRPRP01079561
1	8/27/2026	$901,266.29	90%	Accepted	4339DRPRP01079561

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	745859 **P/W #** 11839	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 18] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders SAN JUAN 2001- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374351

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

Introduction

This document is to submit for approval a Detailed Scope of Work ("SOW") to COR3 and FEMA for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installs advanced technology equipment (i.e., reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The strategy is to deploy full automation equipment to the transmission and to the distribution systems. While the individual projects are interconnected and enhance each other, each can also be implemented independent of each other, and each confers benefits independently. The Program includes multiple projects being implemented across the island on both systems. Automation is one of several initiatives to complete final restoration of the transmission and distribution systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 745859 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the three- phase reclosers and communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damages for upcoming occurrences. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeder 2001-02.

Key components of this project are (1) pole replacement, (2) the installation of three-phase feeder reclosers, and (3) the installation of communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. Therefore, Luma to replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase reclosers on a distribution feeder.

A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three- phase reclosers are communication-ready to enable remote control and visualization.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damages in future disasters.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independent of the feeder reclosers. cFCI help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure models. That data is used by the grid operator to make decisions on operations, management and restoration. The cFCI can be programmed to send automatic notification/alarms based on user set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event which saves. Installation of the three-phase reclosers and associated hardware, the communicating fault current indicators (communications ready) are critical for the Energy Management

System ("EMS") and associated components to function with full capabilities and to mitigate the loss of service and potential damages in future disasters.

FEMA noted in conversation preceding submission of this DSOW that the project's scope does not contain fiber optics or communication capability that was included in previous projects and asked how LUMA will provide full automation capabilities to the components within the scope of this project. This project is distinguishable from projects where the reclosers are installed on microgrids, such as those in Vieques and Culebra. Microgrids and require extremely fast communications that fiber optics can provide; other advanced technology such as Phasor Measurement Units may also require such high speed/bandwidth communications. That speed/bandwidth is not required on a standard feeder and would significantly increase the cost. LUMA has developed this scope for reclosers and their associated hardware only. The omission of fiber optics or communication capability from this scope does not prevent full automation capabilities, nor does it prohibit their addition at a later date.

Facilities Description

The facilities listed below are part of the electrical distribution system. All feeders originate from a substation (start) and serve customers along the route to various locations (end). The coordinates shown below represent the mainline backbone of each feeder. Please refer to ***APPENDIX D – LUMA's Active Projects*** that show no duplication of scope elements.

Facilities List

Name	Damage Number	Feeder Number	GPS Start	GPS End
Fajardo (San Juan Region)	661504	2001-02	[redacted]	[redacted]

Note: Please refer to **APPENDIX *C*— *Project Considerations* for a list of all GPS locations that this project will impact**.

PROJECT SCOPE OF WORK

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for Feeder 2001-02.

Proposed 428 Public Assistance Scope of Work

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

New Pole	[redacted]	None	60'-S10 Galvanized Steel Pole (CP-C6-XARM) Rec-2-2 Ver 6 (S-6) (E-1-2-3 QTY=1)) (F-1-3(QTY=1)) (K-5)	• Install new pole 60'-S-10 12-sided Galvanized Steel for mid-span. • Install primary framing. • Install Three-Phase Recloser 2001-02A • Install (1) 1 kva Transformer (4.16/7.20kva -120/240v) for the source side. • Use the existing secondary conduc for the load side. • Install (1) Anchor. • Install (1) down guy.
12372741	[redacted]	(40'-H3 Concrete Pole) (CP-C6-XARM) (STL-10) (K-6)	50' Galvanized Steel Pole (CP-C6-XARM) (STL-10) (K-6) (REC-2-1 VER. 6)	• Remove and dispose of a 40' concrete pole. • Replace with a new 50'-S8 12 Galvanized Steel Pole. • Install (2) 1 kva transformer (4.16/7. 120/240v) for load side. • Remove and replace the streetlight the new pole. • Install (1) Three-Phase recloser 200 02B.
12372279	[redacted]	(40'-H3 Concrete Pole (CP-C6-XARM) (S-1) (URD-3-A)	60' Galvanized Steel Pole (CP-C6-XARM) (S-1) (URD-3-A)	• Remove and dispose of a 40' concr pole. • Replace with a 60'-S-10 12-Sided Galvanized Steel. This is an adjacent

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
12372282	[redacted]	40'-H3 Concrete Pole) (CP-C6-XARM) (S-1) (STL-10) (K-5)	60' Galvanized Steel Pole (CP-C6-XARM) (S-6) (K-6) (STL-10)	• Remove and dispose of a 40' concr pole • Replace with a 60'-S-10 12-Sided Galvanized Steel. This is an adjacent • Remove and Replace streetlight to new pole. • Install secondary conductor 1//0 al TPX 100ft.
Segment FID **1000283386**	[redacted]	NONE	(LABOR, cFCI QTY=3)	• Labor to install communicating fault current indicator cFCI-A in segment 1000283386.
Segment FID **18382106**	[redacted]	NONE	(LABOR, cFCI QTY=3)	• Labor to install communicating fault current indicator cFCI-B in segment 18382106.

For more detailed information about the scope of work please refer to the ***APPENDIX B- LUMA Project Cost Estimate.***

Scope Notes:

1) This version of the project will be fully funded using PA 428 funds. A future version of this project may contain PA 406 using the one-time change waiver, as per the applicant representative's request.

2) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and APPENDIX C – Project Considerations.

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations; there is one new pole location included in this scope of work. Refer to APPENDIX C – Project Considerations, column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. The brushing of vegetation will be limited to a 10 ft radius that surrounds the surface of the pole without exceeding the width of the right-of-way. No tree removal will occur as part of this scope. Refer to **APPENDIX C- Project Considerations** for locations where vegetation brushing is anticipated. The vegetation removal process will be managed according to applicable federal and state regulations.

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right- of-way.

3) Debris will be separated and taken to an approved waste disposal facility in compliance with applicable federal and local regulations.

4) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

5) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. The warehouse assigned is the Fajardo District Warehouse, whose address is Marcelino Gotay Avenue, Union Corner, Fajardo, PR. Coordinates are [redacted]. Refer to document *Warehouse Locations*

6) Fill, Gravel, and Sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

7) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manlift, 120- ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform*. **Vegetation** will be removed utilizing a *machete, chainsaw, electric pruner, telescopic pole pruner, bucket truck, and/or chipper*. All equipment used will comply with Tier 4 EPA Emission Standard, if available.

8) Specific List of **Permits Required**:

a. Department of Transportation and Public Works -("DTOP") Endorsements & Municipality Notifications

b. Excavation and Demolition Notification in the Department of Transportation and Public Works Agency - ("DTOP")
c. LUMA will provide proof of all permits.

PROJECT COST ESTIMATE (PCE)

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and is subject to being updated. LUMA has allocated 10% of the project cost to mitigate potential known risks. For more details refer to **APPENDIX B- LUMA Project Cost Estimate.**

COST ESTIMATE SUMMARY			
COST ELEMENT	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$38,273.65**	**$0.00**	**$38,273.65**
MANAGEMENT	**$22,564.00**	**$0.00**	**$22,564.00**
Distribution Automation **Group 18**	**$379,735.90**	**$0.00**	**$379,735.90**
GENERAL CONDITIONS	**$31,141.70**	**$0.00**	**$31,141.70**
CONTINGENCY	**$56,409.99**	**$0.00**	**$56,409.99**
COST TOTALS	**$528,125.24**	**$0.00**	**$528,125.23**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$ 0**
FAASt ALLOCATIONS	**FAASt PROJECT # 745859 TOTAL**		**$467,287.59**
	FAASt A&E # 335168 TOTAL		**$60,837.64**

Work To Be Completed (WTBC): $528,125.23

A&E Deduction (Global A&E FAASt 335168): -$60,837.64

Project Total Cost: $467,287.59

For detailed cost estimate, please refers to document labeled: 745859- DR4339-PR- APPENDIX B- Cost Estimate LPCE Rev 3.xlsx

Project Notes:

1. Refer to detailed SOW provided in document 745859-DR4339PR- Group 18- DAR -SAN JUAN 2001- FY24 Detailed Scope of Work Rev8 - signed.pdf.

2. Due to a correction in the cost refer to the files: 745859- DR4339-PR- APPENDIX B- Cost Estimate LPCE Rev 3.1.xlsx and 745859-DR4339PR- Cost clarification email.pdf.

3. For reference documents Appendix A thru D, see file labeled:

745859-DR4339PR-APPENDIX A - Initial Scope of Work

745859-DR4339PR-APPENDIX B - LUMA Project Cost Estimate

745859-DR4339PR-APPENDIX C - Project Considerations

4. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAASt PREPA work (see project: 335168 - FAASt A&E PREPA).

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, the mitigation opportunities will be applied in a furure version (V1) of the Permanent Work Project. The project is ready for Insurance completion

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$528,125.23	Uncompleted
3510	1	Lump Sum	($60,837.64)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$467,287.59
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$467,287.59
Federal Share (90.00%)	$420,558.84
Non-Federal Share (10.00%)	$46,728.75

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

12/3/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 18] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- National Historic Preservation Act (NHPA) - a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the

vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

- Resource Conservation and Recovery Act, aka Solid Waste Disposal Act (RCRA) - 1. The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. 2. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. 3. If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- NEPA Determination - 1. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning to borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material. 2. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By Amaro, Luis N. **Reviewed On** 08/22/2024 8:00 PM PDT

Review Comments

LNA 08/22/24. This project has been reviewed, found eligible and cost reasonable, and it is ready to continue the award process.

Recipient Review

Reviewed By Salgado, Gabriel **Reviewed On** 08/22/2024 8:35 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Miller, Thomas **Reviewed On** 08/22/2024 8:45 PM PDT

General Info

Project #	745859 **P/W #** 11839	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 18] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Signed		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders SAN JUAN 2001- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374351

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

********** VERSION 1 **********

Version 1 has been created to capture the PREPA change in cost of the project, a request an amendment to the Scope of Work (SOW). LUMA requests component additions to the project scope of work and cost estimate that were not included in the obligated project: • Radio communications kits: - LUMA originally planned to transmit data to and from Three-Phase Reclosers using fiber optic cable which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS). • Air Break Bypass Switches: Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved. LUMA also removed FIDs 12372282 and 12372279 from the revised scope of work. Version 0 will be fully de-obligated to reclassify 428 (Public Assistance) costs from the previous version, which will be added to 406 (Mitigation) costs in this version.

SOW from previous version has been removed from current SOW. It can be found in the “Versioning and Amendments” tab in GM.

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Introduction

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW de?nes the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 745859 Automation Program Group 18 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

Project Description

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators ("cFCIs")) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers bene?ts independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million Residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 745859 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (speci?cally reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeder 2001-02.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers, and (3) the installation of cFCIs. Each of these components and their bene?t to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the

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location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes con?guration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing two three-phase reclosers.

(2) Communicating Fault Current Indicators

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, speci?cally by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic noti?cation/alarms based on user- set parameters. This allows for quick dispatch of ?eld crews to speci?c sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to ef?ciently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain ?ber optics or communication capability that is included in other projects. This project is distinguishable from projects that include ?ber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of ?ber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of ?ber optics at a later date.

Facilities

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

Facilities for Automation Group 18 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Fajardo (San Juan Region)	2001-02	[redacted]	[redacted]

Note: Please refer to *APPENDIX B - Project Considerations* for a list of all GPS locations that this project will impact.

Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Sabana Llana Regional Warehouse, whose address is # 654 De Diego Final Street, Rio Piedras, San Juan, PR. The warehouse coordinates are [redacted]. The staging area will be located at Carolina where coordinates are [redacted].

Project Area Map with Boundaries of Construction

A map of the project area is not available at this time.

Section 428 Scope of Work

The proposed type of work for this project:

_X_ Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

__ Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

__ Subrecipient's request letter included, see **Appendix ____**.

__ Recipient's approval letter included, see **Appendix ____**.

__ Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

__ Subrecipient's request letter included, see **Appendix ____**.

__ Recipient's approval letter included, see **Appendix ____**.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of three (3) damaged concrete poles.
- Install one (1) new pole.
- Install two (2) Three-Phase Reclosers.
- Install three (3) 1 kVA transformers.
- Install two (2) communicating fault indicators.

LUMA requests two changes to the project: (1) remove two poles from the scope of work (FID 12372279, FID 12372282) and (2) align the scope with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including:

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on the feeder backbone and the additional cost (delta) for the replacement of fuse cutouts for a single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

As detailed in the appendix of the amendment letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project (V0):

- Radio communications kits:
  - LUMA originally planned to transmit data to and from Three-Phase Reclosers using fiber optic cable which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS).
- Air Break Bypass Switches

o Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

LUMA also removed FIDs 12372282 and 12372279 from this revised scope of work.

FEMA Distribution Automation (DA) 406 HM Determination Amendment V2.1:

During the development and discussion of the "FAASt PREPA HM Resolution – Automation System V2.0", it was agreed that 406 HM would fund the installation of new reclosers at critical facilities to create redundancy (loop) and would cover the delta for replacing the manual disconnect switch with an automatic recloser at a strategic location to sectionalize the fault and prevent physical damage to the system.

However, in the Distribution Automation projects Group 15 (PN755211) and Group 18 (PN745859) submitted to FEMA for review on 10/1/2025, the subrecipient clarified that the manual disconnects switches ("Air Break Bypass Switches") are essential equipment for energizing and disconnecting the three-phase automatic recloser. The subrecipient explains that the cost of these switches was involuntarily omitted from the Group 30 Automation project, so from now on it will be included in the Automation Program projects. The purpose of this equipment is to isolate the recloser in the event of a fault or maintenance, keeping the three- phase circuit energized while the situation is resolved.

In this case, the 406 HM team agreed that the Air Break Bypass Switches would be covered by 428 PA funds (in accordance with the FCE) and the automatic reclosers by 406 HM (100%); and if the installation of an automatic recloser creates new redundancy in critical facilities (loop feeder), 406 HM could cover 100% of the costs (Air Break Bypass Switches and automatic

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Scope of Work	Scope of work
New Pole	[redacted]	None	(50' GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (S-6) (E-1-2-3 (QTY=1)) (F-1-3(QTY=1)) (K-5) (ABS-3-XARM QTY=3)	• Install new midspan pole 50ft., galvanized round tapered pole. • Install primary (CP-C6) framing • Install (1) anchor (F-1-3). • Install (1) downguy (E-1-2-3). • Install secondary (K-5) framing. • Install and connect three (3) sets of Air Break Bypass (ABS-3-XARM) and the fram hardware to support them.

12372741	[redacted]	(40'-H3 Concrete Pole) (CP-C6-XARM) (STL-10) (K-6)	(50' GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (K-6) (ABS-3-XARM QTY=3)	•Remove and dispose of a 40ft. concrete and replace with a new 50' Galvanized Tapered Round Pole. •Remove, dispose and replace primary (C C6) framings. •Remove, dispose and replace secondary 6) framing. •Remove, dispose and replace the streetlight (LED Type-STL-10). •Install and connect three (3) sets of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
Segment FID **1000283386**	[redacted]	NONE	(LABOR, FCI QTY=3)	Install (3) Fault Current Indicators (FCIs).
Segment FID **18382106**	[redacted]	NONE	(LABOR, FCI QTY=3)	Install (3) Fault Current Indicators (FCIs).

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.
2. Existing poles are to be replaced by galvanized tapered poles, at the locations identi?ed in the table above. Refer to *APPENDIX B - Project Considerations,* column B (soil area and depth impact) for the depths of the galvanized tapered poles.
3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.
4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the table above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.
B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).
C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, describe the scope, extent, and location of the

selected activity.

_X_ **Ground disturbance outside of existing footprint**. If checked, describe the ground disturbing activities, including the extent, location, and depth of the disturbance.

- Poles - Refer to *APPENDIX B - Project Considerations,* column B (soil area and depth impact), for the depths of the poles to be installed.

__ **Soil testing or boring to be performed as part of pre-construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

__ **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

_X_ **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project 727691 FAASt [SanJuan Group C] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

_X_ **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) ?nal debris disposal location; and (4) ?nal debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, ?nal debris disposal location, and ?nal debris disposal method are not yet available.

_X_ **Staging areas, landing areas for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area**: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in section 7.2 above. LUMA has not yet identified any other additional staging areas that it will require.
- **Access Roads**: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

_X_ **Fill material**. If the project includes the use of ?ll material, provide the source of the ?ll material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

__ Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

_ _ **Facility is over 45 years old**. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__ **Known renovations to the facility**. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

? Photos of all sides of the facility are provided.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to *Appendix A-LUMA Project Cost Estimate.*

COST ESTIMATE SUMMARY			
COST ELEMENT	**428**	**406**	**PROJECT TOTAL**

PLANNING	**$19,478.40**	**$0.00**	**$19,478.40**
MANAGEMENT	**$13,856.97**	**$0.00**	**$13,856.97**
Distribution Automation Group 18	**$233,875.14**	**$0.00**	**$233,875.14**
GENERAL CONDITIONS	**$12,096.92**	**$0.00**	**$12,096.92**
COST TOTALS	**$279,307.43**	**$0.00**	**$279,307.43**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$ 0**
FAASt ALLOCATIONS		**428 FAASt PROJECT # 745859 TOTAL**	**$223,**
		FAASt E&M #673691 - 428	$33,
		FAASt A&E # 335168 TOTAL	$21,

4428 Project Summary, Version 1:

Work To Be Completed (WTBC): $279,307.43

E&M Deduction (#673691) 428: $- $33,515.73

A&E Deduction (Global A&E FAASt 335168): -$21,856.33

Project Total Cost: $223,935.37

Total Project Cost V1: V0 - (V0 De-obligation V1) + V1 (Cost Change) = $467,287.59 - $497,287.59 +223,935.37 = $223,935.77.

VERSION SUMMARY OF KEY CHANGES:

V0: $467,287.59 (WTBC, A&E Deduction)

V1: $223,935.77 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

Project Notes:

1. Refer to detailed SOW provided in document:
    - *745859-DR4339PR- DSOW Group 18 428-406 HM Revision 12.pdf*
2. Refer to detailed cost estimate in document:
    - *745859-DR4339PR-APPENDIX A- Luma Project Cost Estimate- Revision 012.xlsx*

3. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAASt PREPA work (see project: 335168 - FAASt A&E PREPA).

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

6. Version 0 will be fully de-obligated to reclassify 428 (Public Assistance) costs from the previous version, which will be added to 406 (Mitigation) costs in this version. Refer to document labeled: SP 745859 - FAAST PREPA- Email Clarification - Reclassification of 428 costs to 406 Mitigation.pdf.

7. For reference documents Appendix A thru D, see file labeled:

- 745859-DR4339PR-APPENDIX A - Initial Scope of Work
- 745859-DR4339PR-APPENDIX B - LUMA Project Cost Estimate
- 745859-DR4339PR-APPENDIX C - Project Considerations
- 745859-DR4339PR-APPENDIX D - LUMA Active Project

406 HMP Scope

Project number: 745859 FAASt [Automation Program Group 18] (TL/Distribution)

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24).

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: (Start: [redacted]; End: [redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the feeder or poles. In this project:

a) One (1ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 60ft (S-10) 12-sided galvanized pole.

b) Existing 40ft concrete pole will be replaced with one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5)12-sided galvanized pole.

As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for three each pole:

a) Group 18: Feeder 2001-02, WOP 3PH Recloser Installation – Segment FID 18382010:

The decision to use a 60-foot pole, instead of the standard 50-foot alternative, is based on the requirement to comply with vertical clearance regulations and structural design standards associated with the installation of two independent distribution circuits on a single-pole structure, in addition to the integration of a three-phase (3F) recloser on the lower circuit. Therefore, the increased pole height ensures adequate vertical and horizontal clearances between both distribution circuits and the reliability device, and guarantees compliance with applicable structural codes, including the capacity to withstand wind loads (pole loading analysis) up to 160 mph.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

As a mitigation strategy, 406 HM will fund the installation 2ea three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 2 (two) fault current indicators (FCIs) by 2 (two) communicating fault current indicators (cFCIs). For a total of 6ea cFCI.

Mitigation Measures *(Supplementary)*

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of 3ea 1kVA stainless steel transformers.

2. Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of 2ea Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 159,672.67
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 38,737.44
Hazard Mitigation Total Cost =	**$ 198,410.11**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 77,702.27
Architecture and Engineering (A&E) =	$ 15,504.92
Construction Cost =	$ 105,202.92
Hazard Mitigation Total Cost =	**$198,410.11**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $198,410.11 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents.** ***(HMP, HMP cost estimate, Supporting documents file).***

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$528,125.23	Uncompleted
3510	1	Lump Sum	($60,837.64)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$279,307.43	Uncompleted
3510	1	Lump Sum	($21,856.33)	Uncompleted
9001	1	Lump Sum	($33,515.73)	Uncompleted
9001	1	Lump Sum	($467,287.59)	Uncompleted

CRC Gross Cost	$223,935.37
Total 406 HMP Cost	$198,410.11
Total Insurance Reductions	$0.00
CRC Net Cost	$422,345.48
Federal Share (90.00%)	$380,110.94
Non-Federal Share (10.00%)	$42,234.54

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

12/3/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 18] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken

to protect the discovery and avoid additional harm. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

- *. The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- *. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning to borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 12/23/2025 6:25 PM PDT

Review Comments

Project version allocates HM funding as part of the reconciliation efforts for FAASt projects. Reviewed, found eligible and reasonable. CLG 12/23/25

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 12/23/2025 9:20 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

General Info

Project #	745859 **P/W #** 11839	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 18] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders SAN JUAN 2001- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374351

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

********** **VERSION 2** **********

Version 2 has been created to capture the LUMA change in project cost, as an amendment at the request of Event Leadership (see INC2129477).

The project currently reflects a negative pending federal share obligated. To address this, a new amendment/version was created specifically to offset the CRC gross cost from the previous version. Since the project was in Pending Award status, the Budget Analyst initiated this amendment/version.

In the current version, $**243,352.22** will be reobligated to the CRC gross cost, effectively canceling out the CRC gross cost from the prior version. Once this amendment/version moves to Pending Award, only the 406 Hazard Mitigation Program (HMP) amount of $**198,410.11** will be net obligated for 406 HM costs.

This process ensures that the CRC gross cost is properly accounted for and that only the eligible 406 HMP costs are reflected in the pending award.

The scope of work (SOW) from the previous version has been removed from the current SOW. It can be found in the “Versioning and Amendments” tab in GM.

V2 Project Total Cost: $243,352.22

VERSION SUMMARY OF KEY CHANGES:

- V0: $467,287.59 (WTBC, A&E Deduction)
- V1: $223,935.77 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)
- V2: $243,352.22 - Event Leadership Request to offset the CRC gross cost from the previous version (Sub-FAASt Transaction guidance).

406 HMP Scope

Project number: 745859 FAASt [Automation Program Group 18] (TL/Distribution)

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24).

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: (Start: [redacted]; End: [redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the

feeder or poles. In this project:

a) One (1ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 60ft (S-10) 12-sided galvanized pole.

b) Existing 40ft concrete pole will be replaced with one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5)12-sided galvanized pole.

As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for three each pole:

a) Group 18: Feeder 2001-02, WOP 3PH Recloser Installation – Segment FID 18382010:

The decision to use a 60-foot pole, instead of the standard 50-foot alternative, is based on the requirement to comply with vertical clearance regulations and structural design standards associated with the installation of two independent distribution circuits on a single-pole structure, in addition to the integration of a three-phase (3F) recloser on the lower circuit. Therefore, the increased pole height ensures adequate vertical and horizontal clearances between both distribution circuits and the reliability device, and guarantees compliance with applicable structural codes, including the capacity to withstand wind loads (pole loading analysis) up to 160 mph.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

As a mitigation strategy, 406 HM will fund the installation 2ea three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 2 (two) fault current indicators (FCIs) by 2 (two) communicating fault current indicators (cFCIs). For a total of 6ea cFCI.

Mitigation Measures *(Supplementary)*

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of 3ea 1kVA stainless steel transformers.

2. Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely

control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of 2ea Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 159,672.67
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 38,737.44
Hazard Mitigation Total Cost =	**$ 198,410.11**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 77,702.27
Architecture and Engineering (A&E) =	$ 15,504.92
Construction Cost =	$ 105,202.92
Hazard Mitigation Total Cost =	**$198,410.11**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $198,410.11 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. *(HMP, HMP cost estimate, Supporting documents file).***

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$528,125.23	Uncompleted
3510	1	Lump Sum	($60,837.64)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$279,307.43	Uncompleted
3510	1	Lump Sum	($21,856.33)	Uncompleted
9001	1	Lump Sum	($33,515.73)	Uncompleted
9001	1	Lump Sum	($467,287.59)	Uncompleted
9001	1	Lump Sum	$243,352.22	Uncompleted

CRC Gross Cost	$467,287.59
Total 406 HMP Cost	$198,410.11
Total Insurance Reductions	$0.00
CRC Net Cost	$665,697.70
Federal Share (90.00%)	$599,127.93
Non-Federal Share (10.00%)	$66,569.77

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

12/3/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 18] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken

to protect the discovery and avoid additional harm. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

- *. The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
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- If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
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EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/31/2026 12:42 PM PDT

Review Comments

Reviewed, found eligible and reasonable. HM will be funded in a future amendment, since 428 and 406 HM funding will be processed in different transactions. This effort does not affect one-time change eligibility. CLG

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 08/03/2026 4:07 PM PDT

Review Comments

Recipient review completed. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion. This Version (2) project was created for cost changes. This project does not apply to the Department of Energy's executive order. This means that FEMA is the lead agency for environmental matters.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

General Info

Project #	745859 **P/W #** 11839	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 18] (TL/Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
Process Step	Obligated	**Incident End Date**	11/15/2017

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders SAN JUAN 2001- FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1374351

FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24]

********** VERSION 3 **********

Version 3 was created to capture the LUMA change in project cost and to request an amendment to the Scope of Work (SOW). In Version 2, leadership requested that the negative pending federal share obligation be addressed. A positive amount of $243,352.22 was re-obligated to the CRC gross cost, effectively canceling out the CRC gross cost from the prior version. As a result, only the Section 406 Hazard Mitigation Program (HMP) amount of $198,410.11was net obligated for Section 406 hazard mitigation costs.

In this version, Section 428 funding is reconciled to modify the project cost estimate and reflect the accurate allocation of Architecture and Engineering (A&E) costs to FAASt #335168, as well as the appropriate allocation of Equipment and Materials (E&M) costs to FAASt #673691. Version 0 will be fully de-obligated to reclassify Sectior 428 Public Assistance costs, which had been added to Section 406 Mitigation costs in the previous version.

The SOW from the previous version has been removed from the current SOW. It can be found in the “Versioning and Amendments” tab in GM.

Introduction

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of w (“SOW”) for the proposed construction work to be performed. The SOW de?nes the activities that will be performed using Public Assistance (“PA”) funding and it may include § 406 hazard mitigation proposals (“HMPs”).

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According to the SOP, FEMA “anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limitthe submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness.” SOP at 4.

This document contains the detailed SOW for FEMA PA project 745859 Automation Program Group 18 (Distribution) under DR-4339-PR Public Assistance. The docume provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding request related to the T&D System submitted to FEMA.References to “Subrecipient” herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

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Project Description

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program (“Program”) through which it will install advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution (“T&D”) system, the Program will be implemented through multiple projects across the island on both T&D systems. Themultiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers bene?ts independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million Residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 745859 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System (“EMS”) and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeder 2001-02.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their bene?t to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement becauseof the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to

enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes con?guration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing two three-phase reclosers.

(3) Communicating Fault Current Indicators

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, speci?cally by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration.The cFCI can be programmed to send automatic noti?cation/alarms based on user-set parameters. This allows for quick dispatch of ?eld crews to speci?c sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to ef?ciently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain ?ber optics or communication capability that is included in other projects. This project is distinguishable from projects that include ?ber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of ?ber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of ?ber optics at a later date.

Facilities

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 15 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Fajardo (San Juan Region)	2001-02	[redacted]	[redacted]

Note: Please refer to *APPENDIX B - Project Considerations* for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses.The warehouse assigned is the Sabana Llana Regional Warehouse, whose address is # 654 De Diego Final Street,Rio Piedras, San Juan, PR. The warehouse coordinates are [redacted]. The staging area will be located at Carolina where coordinates are [redacted].

Project Area Map with Boundaries of Construction

A map of the project area is not available at this time.

Section 428 Scope of Work

The proposed type of work for this project:

_X_ Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

__ Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

__ Subrecipient's request letter included, see **Appendix** ___.

__ Recipient's approval letter included, see **Appendix** ___.

___ Alternate Project: Does not restore the predisaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

__ Subrecipient's request letter included, see **Appendix** ___.

__ Recipient's approval letter included, see **Appendix** ___.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of three (3) damaged concrete poles.
- Install one (1) new pole.
- Install two (2) Three-Phase Reclosers.
- Install three (3) 1 kVA transformers.
- Install two (2) communicating fault indicators.

LUMA requests two changes to the project: (1) remove two poles from the scope of work (FID 12372279, FID 12372282) and (2) align the scope with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including:

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on the feeder backbone.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Radio Communications Kit:
  - LUMA originally planned to transmit data to and from Three-Phase Reclosers using ?ber optic cable, which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS).
- Air Break Bypass Switches

  Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was

involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

LUMA also removed FIDs 12372282 and 12372279 from this revised scope of work.

FEMA Distribution Automation (DA) 406 HM Determination Amendment V2.1:

During the development and discussion of the "FAASt PREPA HM Resolution – Automation System V2.0", it was agreed that 406 HM would fund the installation of nev reclosers at critical facilities to create redundancy (loop) and would cover the delta for replacing the manual disconnect switch with an automatic recloser at a strategic location to sectionalize the fault and prevent physical damage to the system.

However, in the Distribution Automation projects Group 15 (PN755211) and Group 18 (PN745859) submitted to FEMA for review on 10/1/2025, the subrecipient clarifiec that the manual disconnects switches ("Air Break Bypass Switches") are essential equipment for energizing and disconnecting the three-phase automatic recloser. The subrecipient explains that the cost of these switches was involuntarily omitted from the Group 30 Automation project, so from now on it will be included in the Automation Program projects. The purpose of this equipment is to isolate the recloser in the event of a fault or maintenance, keeping the three-phase circuit energized while the situation is resolved.

In this case, the 406 HM team agreed that the Air Break Bypass Switches would be covered by 428 PA funds (in accordance with the FCE) and the automatic reclosers by 406 HM (100%); and if the installation of an automatic recloser creates new redundancy in critical facilities (loop feeder), 406 HM could cover 100% of the costs (Air Break Bypass Switches and automatic recloser).

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Scope of Work	Scope of work
New Pole	[redacted]	None	(50' GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (S-6) (E-1-2-3 (QTY=1)) (F-1-3(QTY=1)) (K-5) (ABS-3-XARM QTY=3)	• Install new midspan pole 50ft., galvanized round tapered pole. • Install primary (CP-C6) framing • Install (1) anchor (F-1-3). • Install (1) downguy (E-1-2-3). • Install secondary (K-5) framing. • Install and connect three (3) sets of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
12372741	[redacted]	(40'-H3 Concrete Pole) (CP-C6-XARM) (STL-10) (K-6)	(50' GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (K-6) (ABS-3-XARM QTY=3)	• Remove and dispose of a 40ft. concrete pole and replace with a new 50' Galvanized Tapered Round Pole. • Remove, dispose and replace primary (CP-C6) framings. • Remove, dispose and replace secondary (K-6) framing. • Remove, dispose and replace the streetlight (LED Type-STL-10). • Install and connect three (3) sets of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
gment FID 00283386	[redacted]	NONE	(LABOR, FCI QTY=3)	Install (3) Fault Current Indicators (FCIs).
gment FID 8382106	[redacted]	NONE	(LABOR, FCI QTY=3)	Install (3) Fault Current Indicators (FCIs).

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. The existing poles are to be replaced by galvanized tapered poles, at the locations identi?ed in the table above. Refer to *APPENDIX B - Project Considerations,* column B (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the table above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.
B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (Februar 2020).
C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

For 406 Mitigation Opportunity SOW please refer to section 10.0 Section of Hazard Mitigation Proposal of filename *745859-DR4339PR- DSOW Group 18 428-406 HM Revision 12.pdf*

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, describe the scope, extent, and location of the selected activity.

_X_ **Ground disturbance outside of existing footprint**. If checked, describe the ground disturbing activities, including the extent, location, and depth of the disturbance.

- Poles - Refer to *APPENDIX B - Project Considerations,* column B (soil area and depth impact), for the depths of the poles to be installed.

__ **Soil testing or boring to be performed as part of pre construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

__ **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

_X_ **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project 723883 FAASt [SanJuan] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

_X_ **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) ?nal debris disposal location; and (4) ?nal debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, ?nal debris disposal location, and ?nal debris disposal method are not yet available.

_X_ **Staging areas, landing areas for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

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· **Staging Area**: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that it will require.

· **Access Roads**: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the easement.

_X_ **Fill material**. If the project includes the use of ?ll material, provide the source of the ?ll material including the provider's name and address (if known).

· Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

__ Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__ **Facility is over 45 years old**. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__ **Known renovations to the facility**. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__ Photos of all sides of the facility are provided.

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PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to *Appendix A- LUMA Project Cost Estimate*.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
LANNING	**$ 19,478.40**	**$ 13,818.01**	**$ 33,296.41**
ANAGEMENT	**$ 13,856.97**	**$ 9,830.16**	**$ 23,687.13**
istribution Automation Group 18 San uan Feeder 2001-02 45859	**$ 233,875.14**	**$ 166,180.37**	**$ 400,055.51**
ENERAL CONDITIONS	**$ 12,096.92**	**$ 8,581.57**	**$ 20,678.49**
OST TOTALS	**$ 279,307.43**	**$ 198,410.11**	**$ 477,717.54**
EDUCTIONS	**OTAL INSURANCE PROCEEDS RECEIVED**		**$ -**
	E-OBLIGATION TO FAASt IF APPLICABLE		**$ -**
AASt ALLOCATIONS	FAAST PROJECT #745859- 428		$ 223,935.37
	FAAST PROJECT # 745859- 406 HM		$ 198,410.11
	FAAST PROJECT #745859 TOTAL:		**$ 422,345.48**
	FAASt A&E # 335168 - 428		$ 21,856.33
	FAASt A&E # 335168 - 406 HM		$ 15,504.92

	FAASt A&E # 335168 TOTAL	**$ 37,361.25**
	FAASt E&M #673691 - 428	$ 33,515.73
	FAASt E&M #673691 - 406 HM	$ 77,702.27
	FAASt E&M #673691 TOTAL	**$ 111,218.00**

428 Project Summary, Version 3:

Work To Be Completed (WTBC): $279,307.43

E&M Deduction (#673691) 428: -$33,515.73

A&E Deduction (Global A&E FAASt 335168): -$21,856.33

Project Total Cost: $223,935.37

Total Project Cost V3: V2 - (De-obligation V0) + V3 (Cost Change) = $467,287.59 - $467,287.59 + $223,935.37= $223,935.37

VERSION SUMMARY OF KEY CHANGES:

V0: $467,287.59 (WTBC, A&E Deduction)

V1: $223,935.77 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V2)

V2: $243,352.22 - Event Leadership Request to offset the CRC gross cost from the previous version (Sub-FAASt Transaction guidance).

V3: $223,935.37 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

Project Notes:

1. Refer to detailed SOW provided in document: *745859-DR4339PR- DSOW Group 18 428-406 HM Revision 12.pdf*

2. Refer to detailed cost estimate in document: *745859-DR4339PR-APPENDIX A- Luma Project Cost Estimate- Revision 012.xlsx.*

3. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAASt PREPA work (see project: 335168 FAASt A&E PREPA).

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. In this version, only the 428 portions of funding are reconciled to ensure 428 costs are properly accounted for the pending award.

6. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

7. The following attachments and appendices are provided with this DSOW:

Item	Document Description or Filename

A	LUMA Project Cost Estimate
B	Project Considerations
C	LUMA's Active Projects
D	Pole Height Increase Justification

406 HMP Scope

Project number: 745859 FAASt [Automation Program Group 18] (TL/Distribution)

Damage #1374351; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 18: DAR – SAN JUAN 2001- FY24).

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: (Start: [redacted]; End: [redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the feeder or poles. In this project:

a) One (1ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 60ft (S-10) 12-

sided galvanized pole.

b) Existing 40ft concrete pole will be replaced with one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5)12-sided galvanized pole.

As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for three each pole:

a) Group 18: Feeder 2001-02, WOP 3PH Recloser Installation – Segment FID 18382010:

The decision to use a 60-foot pole, instead of the standard 50-foot alternative, is based on the requirement to comply with vertical clearance regulations and structural design standards associated with the installation of two independent distribution circuits on a single-pole structure, in addition to the integration of a three-phase (3F) recloser on the lower circuit. Therefore, the increased pole height ensures adequate vertical and horizontal clearances between both distribution circuits and the reliability device, and guarantees compliance with applicable structural codes, including the capacity to withstand wind loads (pole loading analysis) up to 160 mph.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

As a mitigation strategy, 406 HM will fund the installation 2ea three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 2 (two) fault current indicators (FCIs) by 2 (two) communicating fault current indicators (cFCIs). For a total of 6ea cFCI.

Mitigation Measures *(Supplementary)*

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of 3ea 1kVA stainless steel transformers.

2. Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless

connection).

As a mitigation strategy, 406 HM will fund the installation of 2ea Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 159,672.67
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 38,737.44
Hazard Mitigation Total Cost =	**$ 198,410.11**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 77,702.27
Architecture and Engineering (A&E) =	$ 15,504.92
Construction Cost =	$ 105,202.92
Hazard Mitigation Total Cost =	**$198,410.11**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $198,410.11 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. *(HMP, HMP cost estimate, Supporting documents file).***

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$528,125.23	Uncompleted
3510	1	Lump Sum	($60,837.64)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$279,307.43	Uncompleted
3510	1	Lump Sum	($21,856.33)	Uncompleted
9001	1	Lump Sum	($33,515.73)	Uncompleted
9001	1	Lump Sum	($467,287.59)	Uncompleted
9001	1	Lump Sum	$243,352.22	Uncompleted
9001	1	Lump Sum	($467,287.59)	Uncompleted
9001	1	Lump Sum	$279,307.43	Uncompleted
3510	1	Lump Sum	($21,856.33)	Uncompleted
9001	1	Lump Sum	($33,515.73)	Uncompleted

CRC Gross Cost	$223,935.37
Total 406 HMP Cost	$198,410.11
Total Insurance Reductions	$0.00
CRC Net Cost	$422,345.48
Federal Share (90.00%)	$380,110.94
Non-Federal Share (10.00%)	$42,234.54

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient’s completion of all of its small projects and compliance with all environmental and historic preservation requirements within 180 days of the applicant’s completion of its last small project, or the latest approved deadline, whichever is sooner.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

12/3/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 18] (TL/Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or

work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

- *. The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- *. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- ***DISREGARD PREVIOUS COMMENT***On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of

Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning to borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 18] (TL/Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 8:57 PM PDT

Review Comments

Version 3 reflects the negative cost for PA reconciliation process. Change request - $243,352.22 for a total Federal share for this project of $380,110.94

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 6:32 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $422,345.48 for subaward number 11839 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
0	Pending	In Review		$467,287.60	90%	$0.00	

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
2/19/2025	4339DRPRP00118391	20173RNY-02182025	2/14/2025	$105,139.71
3/6/2026	4339DRPRP00118391	20173RNY-03042026	3/3/2026	($105,139.71)

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	9/18/2024	$420,558.84	90%	Accepted	4339DRPRP00118391
2	8/27/2026	$178,569.09	90%	Accepted	4339DRPRP00118391
3	10/8/2026	($219,016.99)	90%	Accepted	4339DRPRP00118391

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	752808 **P/W #** 108000	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 19] (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1310158; FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03 (Distribution)
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 19: Feeders 8801-01, 8801-02, 8801-03 (Distribution)
- **Approx. Year Built:** 1980
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1310158

FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

Introduction

This document is to submit for approval a Detailed Scope of Work ("SOW"), to COR3 and FEMA, for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program (“Program”) installs advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The strategy is to deploy full automation equipment to the transmission and to the distribution systems. While the individual projects are interconnected and enhance each other, each can also be implemented independent of each other, and each confers benefits independently. The Program includes multiple projects being implemented across the island on both systems. Automation is one of several initiatives to complete final restoration of the transmission and distribution systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful

completion of the Program and its ability to sustain the power grid in future disasters.

Project 752808 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the reclosers and communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damages for upcoming occurrences. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 8801-01, 8801-02, 8801-03.

Key components of this project are (1) pole replacement, (2) the installation of three-phase and single-phase feeder reclosers, and (3) the installation of communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices, and it also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If the pole cannot maintain structural integrity, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. Therefore, LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compound structural demands and spacing prerequisites and ensure the resilience and reliability of the electrical grid infrastructure.

Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers on distribution feeders.

Three-Phase Reclosers: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization.

Implementation of reclosers will preserve the continuity of electric services by pre- empting or minimizing power disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damages in future disasters.

Single-Phase Reclosers: A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. Thisproject will install single-phase reclosers on the distribution feeder and distribution lines branching from the feeder. It is a protection device that is used on a single-phase or a two-phase distribution feeder. Single-phase reclosers are used on feeders with three-phases if fault currents are low at the location. A single-phase recloser is a single device with one switch that can open to interrupt fault currents and automatically reclose to restore power.

Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independent of the feeder reclosers. cFCI helps identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure models. That data is used by the grid operator to make decisions on operations, management, and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event which saves. Installation of the three-phase reclosers and associated hardware, the communicating fault current indicators (communications ready) are critical for the Energy Management System ("EMS") and associated components to function with full capabilitiesand to mitigate the loss of service and potential damages in future disasters.

This project is distinguishable from projects where the reclosers are installed on microgrids, such as those in Vieques and Culebra. Microgrids require extremely fast communications that fiber optics can provide; other advanced technologies, such as Phasor Measurement Units, may also require such high-speed/bandwidth communications. That speed/bandwidth is not required on a standard feeder and would significantly increase the cost. LUMA has developed this scope for reclosers and their associated hardware only. cFCIs and reclosers can communicate through a few different modes of communications, so the lack of fiber optics in this scope of work does not prevent or limit the monitoring capabilities of reclosers and cFCIs or the automation capabilities of reclosers. Furthermore, it does not prohibit the incorporation of fiber optics at a later date.

Facilities Description

The facilities listed below are part of the electrical distribution system. All feeders originate from a substation (start) and serve customers along the route to various locations (end). The coordinates shown below represent the mainline backbone of each feeder. Please refer to

APPENDIX D – LUMA's Active Projects that show no duplication of scope elements.

Facilities List

Name	Damage Number	Feeder Number	GPS Location
Arecibo	1310158	8801-01	[redacted]
Arecibo	1310158	8801-02	[redacted]
Arecibo	1310158	8801-03	[redacted]

Note: Please refer to **APPENDIX C— Project Considerations for a list of all GPS locations that this project will impact.**

Project Scope of Work (PCE)

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for Feeders in this project.

Proposed 428 Public Assistance Scope of Work Feeder 8801-01

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
New Pole	[redacted]	N/A	(50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2) (K-5)	• Install 50' S8 12-Sided Galvanized steel pole. • Install primary framing. • Install secondary framing due to three-phase rec **8801-01A** installation. • Install (1) three-phase Recloser **8801-01A**
19600900	[redacted]	N/A	(K-5) (3/0 TPX (QTY= 85 '))	• Install load side secondary framing due to thre phase recloser 8801-01A
19600737	[redacted]	(ASSY-1509 (QTY=3)) (42''CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and Dispose fuse fid: 33782260 (qty=3 and close jumpers due to three-phase recloser 8801-01A installation

19601641	[redacted]	(40' H3 CONCRETE POLE) (CP-C6-XARM) (STL-10) (E-1-2-3(QTY=2)) (F-1-3(QTY=2)) (ASSY-1509 (QTY=3)) (42''CROSSARM)	(50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (STL-10) (REC-2-1)	• Remove and dispose of 40' H3 Concrete Pole. • Replace with 50' S8 12-sided galvanized steel p • Replace primary framing. • Replace streetlight. • Remove and dispose of a crossarm. • Install (1) three-phase Recloser **8801-01B.** • Remove dispose fuses fid: 33781811 (qty=3) du three- phase Recloser 8801-01B installation. • Install 1 kva transformer (8.32- 4.80kv/120v) from source side.
19602031	[redacted]	(45' H6 CONCRETE POLE) (CP-C5-XARM) (CP-B5-XARM) (CP-A5)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C5-XARM) (CP-B5-XARM) (CP-A5)	• Remove and Dispose a of 45' H6 Concrete Pole • Replace with 45' S5.7 12-sided galvanized steel • Replace primary framings.

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
			(REC-3-A)	• Install (1) Single-Phase recloser 200A
19602112	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	• Remove and Dispose fuse fid: 33781521 (qty=1 due to (1) Single-phase recloser 200a installation
1000042602	[redacted]	(ASSY-1509 (QTY=3))	(REC-3-C)	• Remove and Dispose fuses fid: 33711560 (qty= due to three Single-phase recloser 200A installatio • Install (3) single-phase recloser 200a in existing S8 steel pole.
1000042601	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and Dispose fuse fid: 1001733410 (qty due to three (3) Single-Phase recloser 200a installation.
19590943	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and Dispose fuse fid: 33710257 (qty=3 due to three (3) single-phase recloser 200a installation.
27365725	[redacted]	(35' C5 WOOD POLE) (CP-C6-XARM) (CP-A5) (E-1-2-3) (F-1-3)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (CP-A5) (REC-3-A)	• Remove and dispose of 35' C5 Wood pole. • Replace with 45' S5.7 12-Sided Galvanized stee • Replace primary Framings. • Remove and dispose downguy. • Remove and dispose an anchor. • Install (1) Single-phase recloser 200A.
27366707	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	• Remove and Dispose fuse fid: 33712201 (qty=1 due to (1) single-phase recloser 200a installation.

27365767	[redacted]	(CP-C7) (ASSY-1509 (QTY=3)) (42''CROSSARM)	CP-C7 (REC-3-C)	• Replace primary framing. • Remove and Dispose 42" crossarm. • Remove and Dispose fuse fid: 33712115 (qty=3 to three Single-Phase recloser 200A installation. • Install (3) Single-Phase Recloser 200A in existir 45' H6 concrete pole.
27366370	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	• Remove and Dispose fuse fid: 33714437 (qty=1 due to (1)Single-phase recloser 200a installation.
27365874	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and Dispose fuse fid: 33712146 (qty=3 to three

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
				(3) single-phase recloser 200a installation.
27367514	[redacted]	(ASSY-1509 (QTY=1))	(REC-3-A)	• Remove and Dispose to (1) single-phas recloser 200A installation. • Install (3) single- phase recloser 200A in existing S3 steel pole.
27367618	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	• Remove and Dispose fuse fid: 33712250 (qty=1 due to (1) single-phase recloser 200A installation.
22103272	[redacted]	N/A	(LABOR, cFCI(QTY=3))	• Labor to install communicating Fault Current Indicator.

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POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
100135937	[redacted]	(45' H4 CONCRETE POLE) (S-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50' S8 12- SIDED GALVANIZED STEEL POLE) (S-6) (REC-2-1)	• Remove and dispose of 45' H4 Concrete Pole. • Replace with 50'S8 12-sided galvanized steel pole. • Replace primary framing. • Remove and dispose downguys. • Remove and Dispose anchors. • Install 1 kva transformer (4.8/7.62kv-120v) from source • Install (1) three-phase recloser 8801-02A on radial circuit.

1001715694	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	• Remove and Dispose fuse fid: 1001715713 (qty=2) Du three phase recloser **8801-02a** installation. • Install stand-off bracket assembly. • Install cutout blades (qty=2) due to three phase reclose **8801-02a** installation.
1001715793	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	• Remove and dispose a fid: 1001715791 (qty=2) due to three phase recloser **8801-02a** installation. • Install stand-off bracket assembly. Install cutout bl (qty=2) due to three phase recloser **8801-02a** installation.
1001715829	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B)	• Remove and Dispose fuse fid: 1001715827 (qty=2) due three phase recloser **8801-02a** installation.

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
			(CUTOUT BLADES(QTY=2))	• Install stand-off bracket assembly. • Install cutout blades (qty=2) due to three phase reclose **8801-02a** installation.
1000269597	[redacted]	(ASSY-1509 (QTY=6)) (42'' CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY= 6))	• Remove and dispose crossarm. • Remove and Dispose fuse fid: 33600810 (qty=3) and cl jumpers due to three phase recloser **8801-02a** installatio • Remove and Dispose fuse fid: 1001537978 (qty=3) and jumpers due to three phase recloser **8801-02a** installation.
1000462787	[redacted]	(45 ' H4 CONCRETE POLE) (CP-A6) (CP-B1)	(50' S8 12- SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1)	• Remove and dispose 45 H4 Concrete pole. • Replace with 50' S8 12-SIDED GALVANIZED steel pole • Replace primary framing. • Install 1 kva transformer (4.8/7.62kv-120v) from source • Install (1) three-phase recloser 8801-02B on radial circuit.
27371666	[redacted]	(40 ' C3 WOOD POLE) (CP-C3- XARM) (K-6) (E-1-2-3 (QTY=3)) (F-1-3 (QTY=3)) (STL-10) (ASSY-1509 (QTY=3))	(45' S5.7 12- SIDED GALVANIZED STEEL POLE) (CP-C3-XARM) (K-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2)) (STL-10) (ASSY-1509 (QTY=3)) (ASSY 1505 FIG. C) (CUTOUT BLADES(QTY=3))	• Remove and dispose of 40' C3 wood pole. • Replace with 45' S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Replace secondary framing. • Remove and dispose downguys. • Remove and Dispose anchors. • Replace streetlight. • Remove and Dispose fuse fid: 33600923 (qty=3) due to three- phase recloser **8801-02b** installation. • Install stand-off bracket assembly. • Install cutout blades (qty=3) due to three phase reclose **8801-02B** installation.

27371093	[redacted]	(35‘ C4 WOOD POLE) (CP-C6- XARM) (CP-C5- XARM) (ASSY-1509 (QTY=1)) (E-1-2-3) (F-1-3)	(45’ S5.7 12- SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (CP-A5) (REC-3-A)	• Remove and dispose of 35’ C4 wood pole. • Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framings. • Remove and Dispose fuse fid: 33600960 (qty=1) due to single- phase recloser 200a installation. • Install (1) single-phase recloser 200A
27371222	[redacted]	(45‘ S3 STEEL POLE)	(45’ S5.7 12- SIDED	• Remove and dispose of 45’ S3 steel pole.

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
		(CP-C6- XARM) (K-7-4) (STL-10) (T-12) (ASSY-1509 (QTY=3))	GALVANIZED STEEL POLE) (CP-C6-XARM) (K-7-4) (STL-10) (REC-3-C)	• Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Replace secondary framing. • Replace streetlight. • Remove and Dispose capacitor bank. • Remove and Dispose fuse fid: 33601082 (qty=3) due to single- phase recloser 200a installation. • Install (3) single-phase recloser 200A
27371623	[redacted]	(40‘ C5 WOOD POLE) (CP-A6) (K-7-B) (STL-10) (T-1) (ASSY-1509)	(45’ S5.7 12- SIDED GALVANIZED STEEL POLE) (CP-A6) (K-7-B) STL-10) (T-1) (REC-3-A)	• Remove and Dispose a of 40’ C5 Wood pole. • Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Replace secondary framing. • Replace streetlight. • Transfer transformer. • Remove and Dispose fuse fid: 33600901 (qty=1) due to single- phase recloser 200a installation. • Install (1) single-phase recloser 200A
27373845	[redacted]	(40‘ H4 CONCRETE POLE) (CP- B6) (ASSY-1509 (QTY=2))	(45’ S5.7 12- SIDED GALVANIZED STEEL POLE) (CP-B6-XARM) (E-1-2-3) (F-1-3) (REC-3-B)	• Remove and dispose of 40’ H4 concrete pole. • Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Remove and Dispose fuse fid: 1001715633 (qty=2) due two (2) single-phase recloser 200a installation. • Install (2) single-phase recloser 200A
1001715916	[redacted]	(ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS(QTY= 2)	• Remove and Dispose fuse fid: 1001715903 (qty=2) and close jumpers due to two (2) single-phase recloser 200a installation.
1001715914	[redacted]	n/a	(REC-3-A)	• Install (1) single-phase recloser 200A
1001715910	[redacted]	(40‘ C4 WOOD POLE) (CP-A6) (ASSY-1509) (E-1-2-3) (F-1-3)	(45’ S5.7 12- SIDED GALVANIZED STEEL POLE) (CP-A6) (REC-3-A)	• Remove and dispose of 40’ C4 Wood pole. • Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Remove and dispose downguy. • Remove and Dispose anchor. • Remove and Dispose fuse fid: 1001715908 (qty=1) due to (1)

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
				single-phase recloser 200a installation. • Install (1) single-phase recloser 200A
27368823	[redacted]	(45‘ C3 WOOD POLE) (CP-A6) (K-7) (E-1-2-3) (F-1-3) (STL-10) (T-1) (ASSY-1509)	(45’ S5.7 12- SIDED GALVANIZED STEEL POLE) (CP-A6) (K-7) (STL-10) (T-1) (ASSY-1509) (ASSY 1505 FIG. A) (CUTOUT BLADES)	• Remove and dispose of 45’ C3 wood pole. • Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Replace secondary framing. • Remove and dispose downguy. • Remove and Dispose anchor. • Replace streetlight. • Transfer transformer. • Remove and Dispose fuse fid: 3364913 (qty=1) due to (single- phase recloser 200a installation. • Install stand-off bracket assembly. • Install cutout blade due to (1) single- phase recloser 20 installation.
27368312	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY= 1)	• Remove and Dispose fuse fid: 1001276694 (qty=1) a close jumpers due to (1) single-phase recloser 200a installation.
27369149	[redacted]	(35‘ C4 WOOD POLE) (CP-A6) (K-7-4) (STL-10) (ASSY-1509 (QTY=1))	(45’ S5.712- SIDED GALVANIZED STEEL POLE) (CP-A6) (K-7-4) (STL-10) (REC-3-A)	• Remove and dispose of 35’ C4 wood pole. • Replace with 45’ S5.7 12-SIDED GALVANIZED steel po • Replace primary framing. • Replace secondary framing. • Replace streetlight. • Remove and Dispose fuse fid: 33604639 (qty=1) due to single- phase recloser 200a installation. • Install (1) single-phase recloser 200A.
22103254	[redacted]	N/A	(LABOR, cFCI(QTY=3))	• Labor to install communicating Fault Current Indicator.
27371119	[redacted]	N/A	(LABOR, cFCI(QTY=3)) (ASSY 1509 (QTY=3)) (ASSY 1505 FIG. C) (CUTOUT BLADES(QTY=3))	• Labor to install communicating Fault Current Indicator. • Install standoff bracket assembly. • Install cutout blades in cutout fuse assembly.

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POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
New Pole	[redacted]	N/A	(50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1)	• Install a new 50' S8 12-sided galvanized steel pole. • Install primary framing. • Install 1 kva transformer (8.32- 4.8kv/120v) from source side. • Install (1) Three-Phase Recloser 8801-03A.
19593191	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and Dispose fuse fid: 1000479677 (qty=3) and cl jumpers due to three-phase recloser **8801-03A** installation.
19595275	[redacted]	(40' H3 CONCRETE POLE) (CP-C6- XARM) (42" CROSARM) (STL-10) (ASSY 1509 (QTY=3)) (E-1-2-3) (F-1-3)	(45' S5.712-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (STL-10) (REC-3-C)	• Remove and Dispose 40' H3 concrete pole. • Replace with 45' S5.7 12-SIDED GALVANIZED steel pole. • Replace primary framing. • Remove and dispose down guys. • Remove and Dispose anchors. • Replace streetlight. • Remove and Dispose 42" crossarm. • Install (3) single-phase recloser 200A. • Remove and Dispose fuse fid: 33712978 (qty=3) due to single-phase recloser 200a installat
19595971	[redacted]	(35' C4 WOOD POLE) (CP-C6- XARM) (42" CROSARM) (STL-10) (ASSY 1509 (QTY=3)) (E-1-2-3) (F-1-3)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (STL-10) (REC-3-C)	• Remove and dispose of 35' C4 Wood pole. • Replace with 45' S5.7 12-SIDED GALVANIZED steel pole. • Replace primary framing. • Remove and Dispose down guys. • Remove and Dispose anchors. • Replace streetlight. • Remove and Dispose 42" crossarm. • Install (3) single-phase recloser 200A. • Remove and Dispose fuse fid: 33713402 (qty=3) due to si phase recloser 200A installation.
12239114	[redacted]	(45' H4 CONCRETE POLE) (CP-C6- XARM) (K-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50' S8 12-SIDED GALVANIZED STEEL POLE) CP-C6-XARM) (K-6) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2)) (REC-3-C)	• Remove and Dispose 45' H4 concrete pole. • Replace with 50' S8 12-SIDED GALVANIZED steel pole. • Replace primary framing. • Replace secondary framing. • Replace down guys. • Replace streetlight. • Install (3) single-phase recloser 200A.
12239425	[redacted]	(ASSY-1509 (QTY=3)) (42"CROSSA RM)	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and dispose of a 42' crossarm. • Remove and Dispose fuse fid: 33781055 (qty=3) and clos due to three (3) single-phase recloser 200A installation.
19593950	[redacted]	(60' H6 CONCRETE POLE) (CP-C6- XARM) (CP-C5- XARM)	(60' S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (CP-C5-XARM) (REC-3-C)	• Remove and Dispose 60' H6 concrete pole. • Replace with 60' S8.5 12-SIDED GALVANIZED steel pole. • Replace primary framings. • Remove and Dispose 42" crossarm.

POLE FID	COORDINATES LAT, LONG	Existing	Install	SCOPE OF WORK
		(ASSY-1509 (QTY=3)) (CROSSARM 42")		• Remove and Dispose fuse fid: 33712771 (qty=3) due to si phase recloser 200a installation. • Install (3) single-phase recloser 200A.
19594032	[redacted]	(ASSY-1509 (QTY=3)) (42"CROSSA RM)	(CUTOUT BLADES(QTY=3)) (ASSY-1509 (QTY=3)) (ASSY-1505 FIG. C)	• Remove and Dispose 42" crossarm. • Install cutout blades (qty=3) on existing 45' H4 concrete pc to three (3) single-phase recloser 200A installation. • Remove and Dispose fuse fid: 1001467251 (qty=3) due to single- phase recloser 200A installation.
19596535	[redacted]	(35' CONCRETE POLE) (CP-A1) (K-7-4) (STL-10)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-A6) (K-7-4) (STL-10) (REC-3-A)	• Remove and Dispose of 35' concrete pole. • Replace with 45' S5.7 12-SIDED GALVANIZED steel pole. • Replace primary framing. • Replace secondary framing. • Install (1) single-phase recloser 200A.
19595269	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	• Remove and Dispose fuse fid: 33713687 (qty=1) and clos jumpers due to single-phase recloser 200a installation.
22103246	[redacted]	n/a	(LABOR, cFCI (QTY=3))	• Labor to install communicating Fault Current Indicator.
19593241	[redacted]	n/a	(LABOR, cFCI (QTY=3))	• Labor to install communicating Fault Current Indicator.

For more detailed information about the scope of work, please refer to APPENDIX B— **LUMA Project Cost Estimate.**

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard), the LUMA Overhead Electrical Distribution System Manual V4, and APPENDIX C—Project Considerations.

Pole Replacement

a. Remove and dispose and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing poles in the same location; there are two new pole locations included in this scope of work. Refer to APPENDIX C – Project Considerations,column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3' of the existing anchor. The maximum distance an anchor will be installed for a 50' pole is 25' from the base of the pole, within the right-of-way.

e. The brushing of vegetation will be limited to a 10 ' radius that sur12-SIDED GALVANIZEDs the surface of the pole without exceeding the width of the right-of-way. No tree removal will occur as part of this scope. Refer to **APPENDIX C- Project Considerations** for locations where vegetation brushing is anticipated. The vegetation removal process will be managed

according to applicable federal and state regulations.

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, disposed of, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right- of-way.

2) Debris will be separated and taken to an approved waste disposal facility in compliance with applicable federal and local regulations.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. The assigned warehouse is the Fajardo District Warehouse, whose address is Marcelino Gotay Avenue, Union Corner, Fajardo, PR. The coordinates are [redacted]. Refer to the document *Warehouse Locations.*

5) Fill, Gravel, and Sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manli', 120- ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering*

Machine, and Flatbed platform. **Vegetation** will be Remove and Dispose and Dispose and Dispose and Dispose and Disposed utilizing a *machete, chainsaw, electric pruner, telescopic pole pruner, bucket truck, and/or chipper* . All equipment used will comply with Tier 4 EPA Emission Standard, if available.

7) Specific List of **Permits Required**:

a. Department of Transportation and Public Works - ("DTOP")
Endorsements & Municipality Notifications
b. Excavation and Demolition Notification in t h e DTOP
c. LUMA will provide proof of all permits.

Project Cost Estimate (PCE):

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and may be subject to change. LUMA has allocated 10% of the project cost to mitigate potential known risks. For more details refer to **APPENDIX B - Detailed Cost Estimate.**

COST ESTIMATE			
COST ELEMENT	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$215,403.95**	**-**	**$215,403.95**
MANAGEMENT	**$133,106.70**	**-**	**$133,106.70**
Group 19- Arecibo 8801- FY24	**$2,285,307.55**	**-**	**$2,285,307.55**
GENERAL CONDITIONS	**$144,142.70**	**-**	**$144,142.70**
CONTINGENCY	**$324,176.99**	**-**	**$324,176.99**
COST TOTALS	**$3,102,137.89**	**-**	**$3,102,137.89**
DEDUCTIONS		**TOTAL INSURANCE PROCEEDS RECEIVED**	**$ 0**

FAASt ALLOCATIONS	FAASt Project # 752808 TOTAL	$2,753,627.24
	FAASt A&E # 335168 TOTAL	$348,510.65

Project Cost Summary, Version 0:

Work to be Completed (WTBC): $3,102,137.89

A&E Deduction (Global A&E FAASt 335168): -$348,510.65

Project Total Cost: $2,753,627.24

Attachments

Project Notes:

1. Refer to the detailed SOW provided in document 752808- DR4339PR- DSOW Group 19- DAUT ARECIBO Rev 01 .pdf
2. For reference documents Appendix A through D, see the file labeled:

752808-DR4339PR-PPENDIX A - Initial Scope of Work 752808-DR4339PR-APPENDIX B - Detailed Cost Estimate
752808-DR4339PR-APPENDIX C - Project Considerations 752808-DR4339PR-APPENDIX D - LUMA Active Project

3. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAASt PREPA work (see project: 335168 - FAASt A&E PREPA).

406 HMP Scope

406 Hazard Mitigation measures were not requested by the subrecipient for this project in Version 0. However, the mitigation opportunities will be applied in a future version (V1) of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$3,102,137.89	Uncompleted
3510	1	Lump Sum	($348,510.65)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$2,753,627.24
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$2,753,627.24
Federal Share (90.00%)	$2,478,264.52
Non-Federal Share (10.00%)	$275,362.72

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

2/18/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 19] (Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 19] (Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.
- a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out. d. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased) or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters,

documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant's permanent files.

- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harm s way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harm's way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Service's Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: Caribbean_es@fws.gov or jose_cruz-burgos@fws.gov
- 34. The Puerto Rican harlequin butterfly (Atlantea tulita) is endemic to Puerto Rico, occurring in the western portion of the island, in the northern karst region, and in the west-central volcanic-serpentine region. The following measures apply to the Puerto Rican harlequin butterfly through its current range: a. The contractor must inform all personnel about the potential presence of the Puerto Rican harlequin butterfly and its host plant, prickly bush (Oplonia spinosa), in the project areas. A pre-work meeting should inform all project personnel about the need to avoid harming this butterfly and its occupied host plant. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. Educational material (e.g., posters, flyers, or signs with photos or illustrations of all the life stages of the Puerto Rican harlequin butterfly (i.e., eggs, caterpillar, chrysalids, and adult, and its host plant) should be prepared and available to all personnel for reference. b. Before starting any project activity, including removal of vegetation and earth movement, the contractor must clearly delineate the boundaries of the working area in the field to avoid unnecessary habitat impacts. Once the project areas are clearly marked, and before any work activity, including site preparation, personnel with knowledge and ability to identify the Puerto Rican harlequin butterfly (all life stages) and the prickly bush must survey the areas where the work will be performed for the presence of

the species and its host plant. It is important to note that the Puerto Rican harlequin butterfly can be observed year-round in all life stages; thus, oviposition (egg-laying) may occur at any time during the year. c. If the prickly bush is present on the project site, try to avoid cutting the plant, even if no eggs, caterpillars, or chrysalids are present. d. If there is no prickly bush within the project area, but the butterfly is observed flying within the project area, do not harass, harm, pursue, wound, kill, trap, capture, collect, or attempt to engage in any such conduct, the species. e. Adult butterflies are often observed flying near the host plant as part of their mating behavior and for laying eggs. Project-related activities must stop if the prickle bush is found in the project area and the Puerto Rican harlequin butterfly is observed flying in that same area. A temporary 50-meter (164 feet) buffer zone of no activity or human disturbance should be established and clearly marked around that prickly bush until the butterfly moves out on its own.

- f. Once the Puerto Rican harlequin butterfly has moved away, within a period of 24 to 36 hours, a search of the prickly bush that has been buffered should be conducted to determine the presence of any eggs, caterpillars, or chrysalids of the butterfly on the plant. The contractor or the Applicant should send a report of the observation and its findings to caribbean_es@fws.gov after the 36-hour search is concluded. g. If, after the initial search or after the 24 to 36-hour search, any life stage of the Puerto Rican harlequin butterfly is found in the prickly bush, take the following actions: o Clearly mark the host plant with flagging tape. o Establish a 10-meter (32-foot) buffer zone around the bush for its protection. o Eggs are typically found on the prickly bush's newly grown, tender branches. Once the egg hatch, the caterpillar moves and feeds throughout the bush. Therefore, avoid cutting off the prickly bush within the project site even if no eggs, caterpillars, or chrysalids are present. o Work within the 10-meter buffered area may resume when no signs of any live life stage of the butterfly are detected, which usually takes approximately 60 to 120 days. h. For all Puerto Rican harlequin butterfly sightings (all life stages), the time and date of the sighting and the specific location where the butterfly was found must be recorded. Data should also include a photo of the butterfly (if possible) and the habitat where it was observed, site GPS coordinates, and comments on how the butterfly was detected and its behavior. All Puerto Rican harlequin butterfly sighting reports should be sent to the Service&#65533;s Caribbean Ecological Service Field Office at caribbean_es@fws.gov. j. For questions regarding the Puerto Rican harlequin butterfly, the Point of Contacts are: o José Cruz-Burgos, Endangered Species Coordinator: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: jose_cruz-burgos@fws.gov o Carlos Pacheco, Fish and Wildlife Biologist . Mobile: 786-847-5951 . Office Direct Line: 939-320-3113 . Email: carlos_pacheco@fws.gov
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 19] (Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 12/31/2024 4:24 PM PDT

Review Comments

Project has been reviewed, found eligible and reasonable. Subrecipient is responsible for complying with all grants and subgrant conditions. - CLG 12.31.24

Recipient Review

Reviewed By Salgado, Gabriel **Reviewed On** 01/14/2025 1:24 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v1

General Info

Project #	752808 **P/W #** 108000	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 19] (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1310158; FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03 (Distribution)
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 19: Feeders 8801-01, 8801-02, 8801-03 (Distribution)
- **Approx. Year Built:** 1980
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1310158

FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

********** **VERSION 1** **********

Version 1 created to align the scope and cost in PA and HM. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion. SOW from previous Versions has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

SOW from previous version has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

Introduction

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW de?nes the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designsincluding drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 752808 Automation Program Group19 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by

PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

Project Description

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers bene?ts independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 752808 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (speci?cally reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on 8801-01, 8801-02, and 8801-03.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their bene?t to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes con?guration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing ?ve three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of 32 single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user- set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters. This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date.

Facilities

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

Facilities for Automation Group 19 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Arecibo	8801-01	[redacted]	[redacted]
Arecibo	8801-02	[redacted]	[redacted]
Arecibo	8801-03	[redacted]	[redacted]

Note: Please refer to *APPENDIX B - Project Considerations* for a list of all GPS locations that this project will impact.

Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. Thewarehouse assigned is the Arecibo Warehouse, whose address is #681 Street, 0.1 KM, Islote Ward, Arecibo, PR. The warehouse coordinates are [redacted]. The staging area will be in Manati Warehouse which coordinates are [redacted].

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

A map of the project area is not available at this time.

SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

_X_ Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

__Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

__Subrecipient's request letter included, see **Appendix __**.

__Recipient's approval letter included, see **Appendix __**.

__ Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

__Subrecipient's request letter included, see **Appendix __**.

__Recipient's approval letter included, see **Appendix __**.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of twenty (20) damaged poles.
- Install ?ve (5) Three Phase Reclosers.
- Install thirty-four (34) Single Phase Reclosers, remove fuses and close jumpers.
- Install four (4) 1 kVA transformers.
- Install ?fteen (15) communicating fault indicators.

LUMA requests the alignment the scope and cost of Project 752808 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on the feeder backbone and the additional cost (delta) for the replacement of fuse cutouts for a single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

The obligated DSOW included new pole installations. This DSOW aligns the scope of these poles with a 406 mitigation proposal approved by FEMA.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Radio Communications Kit:
  - LUMA originally planned to transmit data to and from Three-Phase Reclosers using ?ber optic cable, which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS).
- Air Break Bypass Switches
  - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder 8801-01

POLE FID	COORDINATES LAT, LONG	Existing (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
New Pole	[redacted]	N/A	(50' ROUND TAPERED POLE) (CP-C6-XARM)	· Install a new 50 ft. high galvanized steel round tapered pole. · Install primary framing.

POLE FID	COORDINATES LAT, LONG	Existing (REMOVE)	428 REPLACEMENT	SCOPE OF WORK

			(K-5) (ABS-3-XARM QTY=3)	· Install secondary framing. · Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.
19600870	[redacted]	N/A	(K-5) (3/0 TPX (QTY= 85 ‘))	· Install load side secondary framing.
19600737	[redacted]	(ASSY-1509 (QTY=3)) (CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	· Remove and dispose crossarm. · Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
19601641	[redacted]	(40’ H3 CONCRETE POLE) (CP-C6-XARM) (STL-10) (E-1-2-3(QTY=2)) (F-1-3(QTY=2)) (ASSY-1509 (QTY=3)) (42’’CROSSARM)	(50’ S8 ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (ABS-3-XARM QTY=3)	· Remove and dispose of 40’ H3 concrete pole and replace with 50’ galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose (2) anchors and (2) downguys. · Remove and dispose crossarm. · Remove and dispose (3) Fuse Cutouts. · Install and connect one (1) set of Air Break Bypass Switches (ABS-3-XARM) and the framing hardware to support them.
19602031	[redacted]	(45’ H6 CONCRETE POLE) (CP-C5-XARM) (CP-B5-XARM) (CP-A5)	(45’ ROUND TAPERED POLE) (CP-C5-XARM) (CP-B5- XARM) (CP-A5)	· Remove and dispose 45’ H6 concrete pole and replace with 45’ galvanized round tapered pole. · Remove, dispose and replace (3) primary framings.
19602112	[redacted]	(ASSY-1509 (QTY=1))	(ASSY-1509 (QTY=1)) CLOSE JUMPERS	· Remove, dispose and replace (1) Fuse Cutout. · Labor to close jumpers.
1000042602	[redacted]	(ASSY-1509 (QTY=3))	(ASSY-1509 (QTY=3))	· Remove, dispose and replace (3) Fuse Cutouts.
1000042601	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.

POLE FID	COORDINATES LAT, LONG	Existing (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
19590943	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
27365725	[redacted]	(35’ C5 WOOD POLE) (CP-C6-XARM) (CP-A5) (E-1-2-3) (F-1-3)	(45’ ROUND TAPERED POLE) (CP-C6-XARM) (CP-A5)	· Remove and dispose of 35’ C5 wood pole and re 45’ galvanized round tapered pole. · Remove, dispose and replace primary framings. · Remove and dispose downguy. · Remove and dispose anchor.
27366707	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	· Remove, dispose and replace (1) Fuse Cutout. · Labor to close jumpers.

27365767	[redacted]	(CP-C7) (ASSY-1509 (QTY=3)) (42''CROSSARM)	(CP-C7) (E-1-2-3) (F-1-3)	· Remove, dispose and replace primary framing. · Remove and dispose 42" crossarm. · Install downguy and anchor. · Remove, dispose and replace (3) Fuse Cutouts.
27366370	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	· Remove and dispose (1) Fuse Cutout. · Labor to close jumpers.
27365874	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
27367514	[redacted]	(ASSY-1509 (QTY=1))	(ASSY-1509 (QTY=1))	· Remove, dispose and replace (1) Fuse Cutout. · Labor to lower neutral and raise transformer.
27367618	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	· Remove and dispose (1) Fuse Cutout. · Labor to close jumpers.
22103272	[redacted]	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators (FCIs)

Feeder 8801-02

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
1001353937	[redacted]	(45' H4 CONCRETE POLE) (S-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50' ROUND TAPERED POLE) (S-6) (ABS-3-XARM QTY=3)	· Remove and dispose 45' H4 concrete pole and r 50' galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose (2) downguys. · Remove and dispose (2) anchors. ·Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to suppo them.
1001715694	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	· Remove and dispose (2) Fuse Cutouts. · Install stand-off bracket assembly. · Install (2) cutout blades.
1001715793	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	· Remove and dispose (2) Fuse Cutouts. · Install stand-off bracket assembly. · Install (2) cutout blades.
1001715829	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	· Remove and dispose (2) Fuse Cutouts. · Install stand-off bracket assembly. · Install (2) cutout blades.

1000269597	[redacted]	(ASSY-1509 (QTY=6)) (42'' CROSSARM)	(LABOR TO CLOSE JUMPERS (QTY=6))	· Remove and dispose crossarm. · Remove and Dispose (6) Fuse Cutouts. · Labor to close jumpers.
1000462787	[redacted]	(45 ' H4 CONCRETE POLE) (CP-A6) (CP-B1)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (ABS-3-XARM QTY=3)	· Remove and dispose 45' H4 concrete pole and r 50' galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Install and connect one (1) set of Air Break Byp Switches (ABS-3- XARM) and the framing hardwa support them.
27371666	[redacted]	(40 ' C3 WOOD POLE) (CP-C3-XARM) (K-6)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C3-XARM)	· Remove and dispose of 40' C3 wood pole and re 45' galvanized round tapered pole.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
		(E-1-2-3 (QTY=3)) (F-1-3 (QTY=3)) (STL-10) (ASSY-1509 (QTY=3))	(K-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2)) (STL-10) (ASSY-1509 (QTY=3)) (ASSY 1505 FIG. C) (CUTOUT BLADES(QTY=3))	· Remove, dispose and replace primary and secon framing. · Remove and dispose three (3) anchors and (3) downguys. · Install (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED Type). · Remove, dispose and replace (3) Fuse Cutouts. · Install stand-off bracket assembly. · Install (3) cutout blades.
27371093	[redacted]	(35' C4 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM) ASSY-1509 (QTY=1)) (E-1-2-3) (F-1-3)	(45' ROUND TAPERED POLE) (CP-C6-XARM) (CP-A5) ASSY-1509 (QTY=1)	·Remove and dispose 35' C4 wood pole and replac galvanized round tapered pole. ·Remove, dispose and replace (2) primary framings. ·Remove, dispose and replace (1) Fuse Cutout.
27371222	[redacted]	(45' S3 STEEL POLE) (CP-C6-XARM) (K-7-4) (STL-10) (T-12) (ASSY-1509 (QTY=3))	(45' ROUND TAPERED POLE) (CP-C6-XARM) (K-7-4) (STL-10) ASSY-1509 (QTY=3)	· Remove and dispose of 45' S3 steel pole and rep 45' galvanized round tapered pole. · Remove, dispose and replace (2) primary framing secondary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose capacitor bank. · Remove, dispose and replace (3) Fuse Cutouts.

27371623	[redacted]	(40‘ C5 WOOD POLE) (CP-A6) (K-7-B) (STL-10) (T-1) (ASSY-1509)	(45’ S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-A6) (K-7-B) STL-10) (T-1) (REC-3-A) ASSY-1509 (QTY=1)	·Remove and dispose 40’ C5 wood pole and replac galvanized round tapered pole. ·Remove, dispose and replace primary framing and s framing. Remove, dispose and replace streetlight (L –

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
				·Relocate existing transformer to the new pole. Re dispose and replace (1) Fuse Cutout.
27373845	[redacted]	(40‘ H4 CONCRETE POLE) (CP-B6) (ASSY-1509 (QTY=2))	(45’ ROUND TAPERED POLE) (CP-B6-XARM) (E-1-2-3) (F-1-3) ASSY-1509 (QTY=2)	·Remove and dispose of 40’ H4 concrete pole and r 45’ galvanized round tapered pole. ·Remove, dispose and replace primary framing. ·Remove, dispose and replace (2) Fuse Cutouts. · Install (1) anchor and (1) downguy.
1001715916	[redacted]	(ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS(QTY=2) ASSY-1509 (QTY=2)	·Remove, dispose and replace (2) Fuse Cutouts. · Labor to close jumpers.
1001715910	[redacted]	(40‘ C4 WOOD POLE) (CP-A6) (ASSY-1509) (E-1-2-3) (F-1-3)	(45’ ROUND TAPERED POLE) (CP-A6) ASSY-1509 (QTY=1)	·Remove and dispose 40’ C4 wood pole and repla galvanized round tapered pole. ·Remove, dispose and replace primary framing. · Remove and dispose downguy. · Remove and dispose anchor. · Remove, dispose and replace (1) Fuse Cutout.
27368823	[redacted]	(45‘ C3 WOOD POLE) (CP-A6) (K-7) (E-1-2-3) (F-1-3) (STL-10) (T-1) (ASSY-1509)	(45’ ROUND TAPERED POLE) (CP-A6) (K-7) (STL-10) (T-1) (ASSY-1509) (ASSY 1505 FIG. A) (CUTOUT BLADES)	· Remove and dispose of 45’. C3 wood pole with 45’ galvanized round pole. · Remove, dispose and replace primary framing secondary framing. · Remove and dispose downguy and anchor. · Remove, dispose and replace streetlight (LED Type). · Relocate existing transformer to the new pole. · Remove, dispose and replace (1) Fuse Cutout. · Install stand-off bracket assembly.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK

				· Install cutout blade.
27368312	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1)	· Remove and Dispose (1) Fuse Cutout. · Labor to close jumpers.
27369149	[redacted]	(35‘ C4 WOOD POLE) (CP-A6) (K-7-4) (STL-10) (ASSY-1509 (QTY=1))	(45’ ROUND TAPERED POLE) (CP-A6) (K-7-4) (STL-10)	·Remove and dispose 35’ C4 wood pole and replac galvanized round tapered pole. · Remove, dispose and rep primary framing and secondary fra ·Remove, dispose and replace streetlight (LED Typ · Remove and Dispose (1) Fuse Cutout.
22103254	[redacted]	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators (FCIs).
27371119	[redacted]	N/A	(LABOR, FCI(QTY=3)) (ASSY 1509 (QTY=3)) (ASSY 1505 FIG. C) (CUTOUT BLADES(QTY=3))	·Install (3) Fault Current Indicators (FCIs). · Install standoff bracket assembly. · Install (3) cutout blades in cutout fuse assembly.

Feeder 8801-03

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	INSTALL	SCOPE OF WORK
New Pole	[redacted]	N/A	(50’ TAPERED POLE) (CP-C6-XARM) (ABS-3-XARM QTY=3)	· Install a new 50’ galvanized round tapered steel po · Install primary framing. · Install and connect one (1) set of Air Break Bypas Switches and the framing hardware to support them.
19593191	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
19595275	[redacted]	(40‘ H3 CONCRETE POLE) (CP-C6-XARM) (42’’ CROSARM) (STL-10)	(45’ ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (ASSY1509 QTY=3)	· Remove and dispose 40’ H3 concrete pole and r a 45’ galvanized round tapered steel pole. · Remove, dispose and replace primary framing.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	INSTALL	SCOPE OF WORK

		(ASSY 1509 (QTY=3)) (E-1-2-3) (F-1-3)		· Remove and dispose downguy and anchor. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose 42" crossarm. · Remove, dispose and replace (3) Fuse Cutouts.
19595971	[redacted]	(35' C4 WOOD POLE) (CP-C6-XARM) (42'' CROSARM) (STL-10) (ASSY 1509 (QTY=3)) (E-1-2-3) (F-1-3)	(45' S5.7 ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (ASSY1509 QTY=3)	· Remove and dispose 35' C4 wood pole and repla 45' galvanized round tapered steel pole. · Remove, dispose and replace primary framing. · Remove and dispose down guy and anchor. · Remove, dispose and replace streetlight (LED type). · Remove and dispose 42'' crossarm. · Remove, dispose and replace (3) Fuse Cutouts.
12239114	[redacted]	(45' H4 CONCRETE POLE) (CP-C6-XARM) (K-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50' ROUND TAPERED POLE) CP-C6-XARM) (K-6) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	· Remove and dispose 45' H4 concrete pole and replace with 50' round tapered steel pole. · Remove, dispose and replace primary and secon framing. · Remove, dispose and replace (2) anchors and (2 downguys. · Remove, dispose and replace streetlight (LED type).
12239425	[redacted]	(ASSY-1509 (QTY=3)) (42''CROSSARM)	(L A B O R TO CLOSE JUMPERS (QTY=3)) (ASSY1509 QTY=3)	· Remove and dispose 42" crossarm. · Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.
19593950	[redacted]	(60' H6 CONCRETE POLE) (CP-C6-XARM) (CP-C5-XARM) (ASSY-1509 (QTY=3))	(60' ROUND TAPERED POLE) (CP-C6-XARM) (CP-C5-XARM) (ASSY1509 QTY=3)	· Remove and dispose 60' H6 concrete pole and r 60' round tapered steel pole. · Remove, dispose and replace (2) primary framin · Remove and dispose 42" crossarm.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	INSTALL	SCOPE OF WORK
		(CROSSARM 42")		· Remove, dispose and replace (3) Fuse Cutouts.
19594032	[redacted]	(ASSY-1509 (QTY=3)) (42''CROSSARM)	(CUTOUT BLADES(QTY=3)) (ASSY-1509 (QTY=3)) (ASSY-1505 FIG. C)	· Remove and dispose 42'' crossarm. · Install (3) cutout blades on existing pole. · Remove and dispose (3) Fuse Cutouts.

19596535	[redacted]	(35‘ CONCRETE POLE) (CP-A1) (K-7-4) (STL-10)	(45’ ROUND TAPERED POLE) (CP-A6) (K-7-4) (STL-10)	· Remove and dispose 35’ concrete pole and repla round tapered steel pole. · Remove, dispose and replace primary framing a secondary framing. · Remove, dispose and replace streetlight (LED Type. (STL-10).
19595269	[redacted]	ASSY	(LABOR TO CLOSE JUMPERS (QTY=3)) (ASSY1509 QTY=3)	· Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.
22103246	[redacted]	NONE	(LABOR, FCI (QTY=3))	· Install (3) Fault Current Indicators (FCIs).
19593241	[redacted]	NONE	(LABOR, FCI (QTY=3))	· Install (3) Fault Current Indicators (FCIs).

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMAreasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.
2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identi?ed in the tables above. Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact) for the depths of the galvanized tapered poles.
3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.
4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.
B. Consensus-based codes, per FEMA’s Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).
C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

SECTION 406 HAZARD MITIGATION PROPOSAL

§ 406 HAZARD MITIGATION OPPORTUNITY

FEMA’s § 428 Alternative Procedures Guide for Permanent Work in Puerto Rico (v.3) states that FEMA will “encourage the concepts of regional infrastructure resiliency” and “provide mitigation opportunities that leverage innovative and renewable technologies.”[1] The § 428 Alternative Procedures are intended to allow subrecipients and FEMA “to prioritize the provision of funding for eligible permanent work in ways that best meet the recovery needs of impacted communities” and provide “flexibility in the use of funds.”[2] The Guide emphasizes the importance of mitigation measures “to improve resilience of disaster-damaged facilities from future, similar damage to the facilities.”[3] FEMA defines hazard mitigation as “any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects.”[4] To that end, LUMA proposes to add feeder reclosers (single and three-phase) and communication fault current indicators (“cFCI”) to this project to improve the resiliency of the T&D systems against future hurricane damage and its effects. The Distribution Automation program will add approximately a total of 4,000 three-phase reclosers, 15,000 single-phase reclosers, and 11,000 cFCIs across the island. The addition of feeder reclosers and cFCIs will reduce the potential for widespread loss of service during a disaster event and prevent physical damage, mitigating the negative effects of a future, similar disaster.

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Feeder reclosers will improve system resiliency. LUMA requests 406 hazard mitigation funding for five (5) three-phase reclosers, thirty-two (32) single-phase reclosers, also known as trip savers, and five (5) radio communication kits for those reclosers as described in the table below.

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinat Lat, Lon
8801-01	Three-Phase Recloser Radio Communication Kit	1	New Pole	[redacted]
8801-01	Three-Phase Recloser Radio Communication Kit	1	19601641	[redacted]
8801-01	Single-Phase Recloser	1	19602031	[redacted]
8801-01	Single-Phase Recloser	3	1000042602	[redacted]
8801-01	Single-Phase Recloser	1	27365725	[redacted]
8801-01	Single-Phase Recloser	3	27365767	[redacted]
8801-01	Single-Phase Recloser	1	27367514	[redacted]
8801-02	Three-Phase Recloser Radio Communication Kit	1	100135937	[redacted]
8801-02	Three-Phase Recloser Radio Communication Kit	1	1000462787	[redacted]
8801-02	Single-Phase Recloser	1	27371093	[redacted]
8801-02	Single-Phase Recloser	3	27371222	[redacted]
8801-02	Single-Phase Recloser	1	27371623	[redacted]

Feeder reclosers have microprocessors that monitor the voltage and current on a feeder line to determine whether the recloser should take action to protect the function of that feeder. They protect the feeder line by stopping temporary line faults from causing an extended outage. An example of a temporary line fault is vegetation touching a power line for a brief period of time. When a feeder recloser detects this type of fault it automatically opens the circuit (briefly stopping the flow of electricity to allow the disturbance to resolve) and then rapidly recloses to restore power. It has been observed that approximately 70% of faults are temporary. This action reduces the frequency, duration, and breadth of disaster-related outages, protecting the public safety. Feeder reclosers prevent temporary line faults from turning into an outage, which speeds restoration after a storm or disaster.

When used on a looped circuit, the reclosers can also contain a power outage to a localized area. The two reclosers nearest the fault will open the circuit (briefly stopping the flow of electricity between them) so the outage is contained to a segment of the customers between the two reclosers. Meanwhile, power continues to reach the remaining customers on the feeder line. See illustration below where the yellow lightning bolt is the fault, and the red squares are the reclosers that have opened to contain the outage to the customers in red.

In the same scenario without the reclosers, a larger portion - and potentially all - of the customers served by the feeder would lose power until the fault could be repaired. Thus, feeder reclosers mitigate outages similar to what was experienced during Hurricane Maria by localizing an outage area and preventing cascading outages that can extend the outage time. Power is a critical lifeline. Extended power outages caused by disaster damage like the one after Hurricane Maria have devastating effects on the public health and safety. Mitigation measures that reduce the likelihood of extended, wide-ranging outages will also reduce the life-safety risk of disaster damage.

Feeder reclosers will be installed across the distribution feeder system, providing the operations center with outage and loading information across a wide area. The operations center can use this information to prioritize outage restoration across that area. This can reduce customer outage time and consequently decrease the risk of harm to the public and property. The operations center has the ability to remotely control the reclosers, opening and closing specific reclosers, so as to re-energize the greatest number of customers and localize the outage to the customers on a feeder segment between two reclosers. In contrast, under the current system a feeder that experiences a fault will lose power back to the circuit breaker, at the substation, until the cause of the fault is cleared. Until the fault is cleared all customers on the feeder have no power. The fault needs to be identified by visual inspection. Visual inspection takes much longer than clearing a fault remotely. During a disaster, when numerous feeders experience permanent faults, the ability to localize the outage and re-energize the non-damaged segments in minutes instead of hours or days is a significant reduction of risk to public health and safety.

Reclosers also prevent physical damage to the infrastructure by preventing short circuit currents on a fault getting to the main breaker of a feeder. Reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur. Un-isolated electrical faults lead to sustained arcing, causing extensive equipment and property damage. Prolonged faults create ?re and critical public safety risks.

These reclosers are part of a larger system of protection to be implemented through the Distribution Automation program. In addition to these speci?c critical facilities, Distribution Automation will protect the electrical grid as a whole, a critical facility that spans all of Puerto Rico. Electrical faults can cause outages that cascade across multiple facilities, regions, or even the entire island, disrupting service for customers and other critical facilities far from any speci?c distribution circuit. Additionally, faults and outages can cause frequency deviations and increased wear and tear on all components of the grid, including generation, transmission, and distribution facilities, without geographic limitation. Without reliable infrastructure at all stages of electrical generation, transmission, and distribution, Puerto Ricans will be at heightened and increasing risks of sustained outages with severe impacts on public health and safety. Ultimately, localized grid resilience investments bene?t all customers, because the interconnected grid as a whole – not any speci?c distribution or transmission line – serves Puerto Rico. In other words, a recloser in the San Juan region could mitigate the cascading effects that would cause an outage at a hospital or ?re station in Arecibo, and vice versa. DHS recognizes the importance of incorporating resilience into critical infrastructure projects, including "identifying key dependencies and interdependencies and ways in which this critical infrastructure asset, system, or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors" and "mapping potential cascading effects from potential infrastructure disruptions." *S e e* DHS Supplemental Tool: Incorporating Resilience into Critical InfrastructureProjects, https://www.cisa.gov/sites/default/?les/publications/NIPP-2013-Supplement- Incorporating-Resilience-into-CI-Projects-508.pdf. Puerto Rico's generation, transmission, and distribution systems must function as a single integrated system to deliver power.

Poles will improve system resiliency. Luma requests 406 hazard mitigation for the following poles:

Feeder 8801-01

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	New Pole	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	19601641	

45ft S5.7 12-sided galvanized steel pole	1	19602031	[redacted]
45ft S5.7 12-sided galvanized steel pole	1	27365725	

Feeder 8801-02

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	1001353937	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	1000462787	
45ft S5.7 12-sided galvanized steel pole	1	27371666	
45ft S5.7 12-sided galvanized steel pole	1	27371093	
45ft S5.7 12-sided galvanized steel pole	1	27371222	
45ft S5.7 12-sided galvanized steel pole	1	27371623	
45ft S5.7 12-sided galvanized steel pole	1	27373845	
45ft S5.7 12-sided galvanized steel pole	1	1001715910	
45ft S5.7 12-sided galvanized steel pole	1	27368823	

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
			[redacted]
45ft S5.7 12-sided galvanized steel pole	1	27369149	

Feeder 8801-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	New Pole	[redacted]
45ft S5.7 12-sided galvanized steel pole	1	19595275	
45ft S5.7 12-sided galvanized steel pole	1	19595971	
50ft S8.5 12-sided galvanized steel pole	1	12239114	
60ft. S8.5 12-sided galvanized steel pole	1	19593950	
45ft S5.7 12-sided galvanized steel pole	1	19596535	

Higher poles will improve system resiliency. Replacement poles provide the strength required to carry the reclosers and related hardware and withstand hurricane wind speeds. Existing wood poles will be replaced by a 12-sided galvanized steel pole, as identi?ed in the tables in §§ 9.1 and 10.2. LUMA selected the poles for replacement after performing an electrical analysis of the feeder line and applying best design practices for reclosers.

A 12-sided galvanized steel pole is proposed as replacement for existing wood poles, as it is capable of supporting the load of the reclosers and withstanding the forces generated by 160 mph winds.

None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests § 406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

LUMA considered mitigation percentages in situations where it is necessary to increase pole height in increments of five feet up to a maximum difference of 15 feet. Average percentages for each such scenario were applied. A table that presents such scenarios and percentages is included in the HM Pole Labor Worksheet tab of *APPENDIX A*.

Communicating fault circuit indicators ("cFCIs") improve system resiliency. LUMA requests 406 hazard mitigation funding for the following fifteen cFCIs:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat,
8801-01	cFCIs	3	22103272	[redacted]
8801-02	cFCIs	3	22103254	

8801-02	cFCIs	3	27371119	[redacted]
8801-03	cFCIs	3	22103246	
8801-03	cFCIs	3	19593241	

cFCI's allow the operator to locate circuit faults (i.e., outages) faster than the current method, and provides the central monitoring system ("Energy Management System" or "EMS") information it can use to prevent further damage and to prioritize restoration efforts. While reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur, cFCIs offer a fundamentally proactive approach to damage prevention. By detecting incipient (i.e., emerging) faults in their early stages, and enabling timely intervention, cFCIs can prevent the fault from ever fully materializing, thereby directly eliminating the potential for physical damage to system assets.

In the event a feeder line experiences a fault, cFCIs can identify the location of the fault along a feederline and communicate it to the operator. Multiple cFCIs are located along a feeder and its branches. Determining the placement location of cFCIs requires extensive engineering to ensure LUMA will gain maximum benefit from each sensor.[5]

These feeders do not have FCIs, therefore, repair crews would need to visually inspect the feeder line to locate the fault. In comparison, cFCIs will provide repair crews with information that narrows their search to an area between two cFCIs. Thus, the cFCI's information dramatically reduces search time. A smaller search area reduces customer outage time, and consequently, decreases harm to the public and property after a disaster. This feature provides a more specific location of the fault than what is provided by reclosers.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure. Note that on this specific project, the cFCIs in the HM scope of work are new. They are not replacing existing FCIs (FCIs are not present).

Benefits of cFCIs include:

- Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.
- Fault Location: cFCIs help quickly locate faults on the line (like short circuits or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.
- Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on cables, breakers, and other components.
- Lightning and Surge Detection cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis. Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action —preventing physical stress or failure.
- Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.
- Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion—allowing scheduled repairs before damage occurs.
- Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:
- Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.
- Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components.
- Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing—reducing the impact area and protecting healthy parts of the system.
- Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

For more information on cFCIs and how they are integral to fortifying Puerto Rico's electrical infrastructure, please see the T&D Resilience Plan submitted by LUMA to COR3 and the "Distribution Automation, Operation, and System Visibility Roadmap"

Stainless Steel Transformer. LUMA requests §406 hazard mitigation funding for four (4) stainless steel transformers at the pole and coordinates noted in the table:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinate Lat, Long
8801-01	1 Kva Stainless-Steel Transformer (8.32-4.80kv/120v)	1	19601641	[redacted]
8801-02	1 Kva Stainless-Steel Transformer (4.8/7.62kv-120v)	1	100135937	

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinate Lat, Long
8801-02	1 Kva Stainless-Steel Transformer (4.8/7.62kv-120v)	1	1000462787	[redacted]
8801-03	1 Kva Stainless-Steel Transformer (8.32-4.80kv/120v)	1	New Pole	

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

LUMA galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage t PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Transformer failure poses harm to the equipment and the public due to resulting loss of power. LUMA proposes that this measure be eligible for § 406 hazard mitigation funding. In FAASt no. 165226, stainless steel transformers more than 1 mile from the shoreline were granted 406 HM funding. In addition, the Fixed Cost Estimate was based on pole mounted transformers that are coated steel with a corrosion resistant cover band and not stainless-steel transformers.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall strength, and corrosion resistance. Stainless steel is a high- strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

Additionally, existing transformers across the island suffer from corrosion, not just the ones close to the seashore. Stainless steel transformers offer superior resistance to corrosion. Corroded transformers have a higher likelihood of failure during a disaster due to debris impacts, fires, and significant water intrusion. Such failure can create unintended electrical paths outside the insulated circuits. This leads to short circuits, which can immediately disrupt transformer function and cause widespread power outages. Additionally, corrosion degrades insulation within the transformer, making it prone to electrical arcing, further increasing the risk of failure or potential for a fire. Oil leaking from a damaged transformer could lead to vegetation damage or groundwater contamination. A stainless-steel transformer is better able to withstand the corrosive effects of that exposure than a galvanized steel transformer. As a result, a stainless- steel transformer will be more resistant to the effects of a disaster like Hurricane Maria and help to protect life and property.

By upgrading to this material, LUMA will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure. LUMA requests that stainless steel galvanized transformers that are more than one mile from the seashore be eligible for § 406 hazard mitigation funding equal to the difference in price between a stainless steel and galvanized steel transformer.

§ 406 SCOPE OF WORK

Feeder 8801-01

428 Section			406 HM		
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
New Pole	[redacted]	· Install a new 50 ft. high galvanized steel round tapered pole. · Install primary framing. · Install secondary framing. · Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.	New Pole	[redacted]	· Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole. · Install (1) Three-Phase Recloser 8801-01A on radial circuit. · Install and commission the radio communication kit for three-phase recloser.
19601641		· Remove and dispose of 40ft. H3 concrete pole and replace with 50ft. galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose (2) anchors and (2) downguys.	19601641		· Replace 50ft. round pole with 50ft. S8 12-sided galvanized steel pole. · Install (1) Three-Phase Recloser 8801-01B On radial circuit. · Install and commission radio communication kit for three-phase recloser. · Install (1) 1 kVA stainless-steel transformer (8.32-4.80kV/120V) from source side.

428 Section			406 HM		
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
		· Remove and dispose crossarm. · Remove and dispose (3) Fuse Cutouts. · Install and connect three (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.			
19602031	[redacted]	· Remove and dispose 45ft. H6 concrete type pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace (3) primary framings.	19602031	[redacted]	· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutouts on FID 19602112 with the installation of (1) Single-Phase Recloser 200A.
19602112		· Remove, dispose and replace (1) Fuse Cutout. · Labor to close jumpers.			
1000042602		· Remove, dispose and replace (3) Fuse Cutouts.	1000042602		· Replace (3) Fuse Cutouts with the installation of (3) Single-Phase recloser 200A on existing pole.

27365725 27366707 27365767	[redacted]	· Remove and dispose 35ft. C5 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framings. · Remove and dispose downguy. · Remove and dispose anchor. · Remove, dispose and replace (1) Fuse Cutout. · Labor to close Jumpers. · Remove, dispose and replace primary framing. · Remove and dispose 42-inch crossarm. · Install downguy and anchor.	27365725 27365767	[redacted]	· Replace round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout on FID 27666707 with the installation of (1) Single-phase Recloser 200A. · Replace (3) Fuse Cutouts with the installations (3) Single-Phase Recloser 200A in existing pole.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
		· Remove, dispose and replace (3) Fuse Cutouts.			
27367514	[redacted]	· Remove, dispose and replace (1) Fuse Cutout. · Labor to lower neutral and raise transformer.	27367514	[redacted]	· Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A in existing pole.
22103272		· Install (3) Fault Current Indicators (FCIs)	22103272		· Replace FCIs and install (3) Communicating Fault Current Indicators (cFCIs),

Feeder 8801-02

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
1001353937	[redacted]	· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose (2) downguys. · Remove and dispose (2) anchors. · Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.	1001353937	[redacted]	· Replace 50ft. round pole with 50ft. S8.5 12- sided galvanized steel pole. · Install one (1) 1 kVA stainless-steel transformer (4.8/7.62kv-120v) from source side. · Install (1) Three-Phase Recloser 8801-02A on radial circuit. · Install and commission radio communication kit for the Three-Phase Recloser.

1000462787	[redacted]	· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.	1000462787	[redacted]	· Replace 50ft. round pole with 50ft. S8.5 12- sided galvanized steel pole. · Install one (1) 1kVA stainless-steel transformer (4.8/7.62kV-120V) from source side. · Install (1) Three-Phase Recloser 8801-02B on radial circuit. · Install and commission radio communicating kit for the Three-Phase Recloser.
27371666		· Remove and dispose of 40ft. C3 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary and secondary framing. · Remove and dispose three (3) anchors and (3) downguys. · Install (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED Type). · Remove, dispose and replace (3) Fuse Cutouts. · Install stand-off bracket assembly. · Install (3) cutout blades.	27371666		· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole.

428 Section

Pole FID	Coordinates Lat. Long	Scope of Work
27371093	[redacted]	·Remove and dispose 35ft. C4 wood pole and replace with 45ft. galvanized round tapered pole. ·Remove, dispose and replace (2) primary framings. ·Remove, dispose and replace (1) Fuse Cutout.
27371222		· Remove and dispose of 45ft. S3 steel pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace (2) primary framing and (1) secondary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose capacitor bank. · Remove, dispose and replace (3) Fuse Cutouts.
27371623		· Remove and dispose 40ft. C5 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing and secondary framing. · Remove, dispose and replace streetlight (LED Type). · Relocate existing transformer to the new pole. · Remove, dispose and replace (1) Fuse Cutout.

406 HM

FID	Coordinates Lat. Long	Scope of Work
27371093	[redacted]	· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A.
27371222		· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts with the installation (3) Single-Phase Recloser 200A.
27371623		· Replace round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.

27373845	[redacted]	· Remove and dispose of 40ft. H4 concrete pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace (2) Fuse Cutouts.	27373845	[redacted]	· Replace round pole with 45ft. S5.7 galvanized steel pole. · Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Recloser 200A.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
	[redacted]	· Install (1) anchor and (1) downguy.		[redacted]	
1001715916		· Remove, dispose and replace (2) Fuse Cutouts. · Labor to close jumpers.	1001715914		· Replace (2) Fuse Cutouts on FID 1001715916 with the installation of (1) Single-Phase Recloser 200A.
1001715910		· Remove and dispose 40ft. C4 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose downguy. and anchor. · Remove, dispose and replace (1) Fuse Cutout.	1001715910		· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.
27368823		· Remove and dispose of 45ft.. C3 wood pole and replace with 45ft. galvanized round pole. · Remove, dispose and replace primary framing and secondary framing. · Remove and dispose downguy and anchor. · Remove, dispose and replace streetlight (LED Type). · Relocate existing transformer to the new pole. · Remove, dispose and replace (1) Fuse Cutout. · Install stand-off bracket assembly. · Install cutout blade.	27368823		· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole.
27369149		· Remove and dispose of 35ft. C4 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing and secondary framing.	27369149		· Replace 45ft. rounded tapered pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**

		· Remove, dispose and replace streetlight (LED Type). · Remove, dispose and replace (1) Fuse Cutout.			
22103254	[redacted]	· Install (3) Fault Current Indicators (FCIs).	22102538	[redacted]	· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).
27371119		· Install (3) Fault Current Indicators (FCIs). · Install standoff bracket assembly. · Install (3) cutout blades in cutout fuse assembly.	33166532		· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

Feeder 8801-03

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
New Pole	[redacted]	· Install a new 50ft. galvanized round tapered steel pole. · Install primary framing. · Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.	New Pole	[redacted]	· Replace 50ft. round pole with 50ft. S8.5 galvanized steel pole. · Install (1) 1 kVA stainless-steel transformer (8.32-4.8kV/120V) from source side. · Install (1) Three-Phase Recloser 8801-03A. · Install and commission radio communication kit for the Three-Phase Recloser.
19595275		· Remove and dispose 40ft. H3 concrete pole and replace with a 45ft. galvanized round tapered steel pole. · Remove, dispose and replace primary framing. · Remove and dispose (1) downguy and (1) anchor.	19595275		· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
		· Remove, dispose and replace streetlight (LED Type). · Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutout.			

19595971	[redacted]	· Remove and dispose 35ft. C4 wood pole and replace with a 45ft. galvanized round tapered steel pole. · Remove, dispose and replace primary framing. · Remove and dispose down guy and anchor. · Remove, dispose and replace streetlight (LED type). · Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutouts.	19595971	[redacted]	· Replace 45ft. rounded pole with a 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.
12239114		· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. round tapered steel pole. · Remove, dispose and replace primary framing and secondary framing. · Remove, dispose and replace (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED type).	12239114		· Replace 50ft. round pole with a 50ft., S8.5 galvanized steel pole. · Replace (3) Fuse Cutouts on FID 12239425 with the installation of (3) Single-Phase Reclosers 200A.
12239425		·Remove and dispose 42-inch crossarm. ·Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.			
19593950		· Remove and dispose 60ft. H6 concrete pole and replace with 60ft. round tapered steel pole. · Remove, dispose and replace (2) primary framings.	19593950		· Replace 60ft. round pole with 60ft. S8.5 12- sided galvanized steel pole. · Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.

428 Section			**406 HM**		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
		· Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutouts.			
19596535	[redacted]	· Remove and dispose 35ft. concrete pole and replace with 45ft. round tapered steel pole. · Remove, dispose and replace primary framing and secondary framing. · Remove, dispose and replace streetlight (LED Type. (STL-10).	19596535	[redacted]	· Replace 45ft. round pole. with 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts in FID 19595269 with the installation of (1) Single-Phase Recloser 200A.
19595269		· Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.			
22103246		· Install (3) Fault Current Indicators (FCIs).	22103246		· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

19593241	· Install (3) Fault Current Indicators. [redacted] [redacted]	19593241	[redacted] [redacted]	· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

_X_ **Ground disturbance outside of existing footprint**. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

· Poles - Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact), for the depths of the poles to be installed.

· **Soil testing or boring to be performed as part of pre-construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

· **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

_X_ **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

• Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	FAASt	Vegetation Project
8801-01 8801-03	728827	FAASt [Region 2 -Arecibo Group A] High Density (Vegetation)
8801-02	750067	FAASt [Region 2 -Arecibo Group A] Low Density (Vegetation)

_X_ **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) ?nal debris disposal location; and (4) ?nal debris disposal method.

• Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, ?nal debris disposal location, and ?nal debris disposal method is not yet available.

_X_ **Staging areas, landing area for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

· **Staging Area**: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identi?ed any other additional staging areas that

· **Access Roads**: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

_X_ **Fill material**. If the project includes the use of ?ll material, provide the source of the ?ll material including the provider's name and address (if known).

· Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

__Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__**Facility is over 45 years old**. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__**Known renovations to the facility**. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__Photos of all sides of the facility are provided.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t *Appendix A- LUMA Project Cost Estimate*.

COST ESTIMATE			
COST ELEMENT	**428**	**406**	**PROJECT TOTAL**
PLANNING	$110,111.221	-	$110,111.221
MANAGEMENT	$79,026.590	-	$79,026.590
LPCE DISTRIBUTION AUTOMATION GROUP 19	$1,345,698.505	-	$1,345,698.505
GENERAL CONDITIONS	$72,680.074	-	$72,680.074
COST TOTALS	**$1,607,516.390**	**-**	**$1,607,516.390**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		
FAASt ALLOCATIONS	**FAASt Project # 752808 TOTAL**		**$1,352,947.241**
	FAASt E&M #673691 - 428		$134,857.230
	FAASt A&E # 335168 -428		$119,711.919

428 Project Summary, Version 1:

Work to Be Completed (WTBC): $1,607,516.39 - 1,607,516.39 = $0.00 (See project note # 6)

E&M Deduction (#673691) 428: -$134,857.23 +134,857.23 = $0.00 (See project note # 6)

A&E Deduction (Global A&E FAASt 335168): -$119,711.92 + 119,711.92 = $0.00 (See project note # 6)

Project Total Cost: $1,352,947.24 - 1,352,947.24 = $0.00 (See project note # 6)

VERSION SUMMARY OF KEY CHANGES:

V0: $2,753,627.24 (WTBC, A&E Deduction)

V1: $0.00 (WTBC)

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: *752808- DR4339PR - DSOW Group 19- Revision 004- V1.pdf*.
2. Refer to detailed cost estimate in document: *752808-DR4339PR-APPENDIX B-Detailed Cost Estimate Revision 004 - V1.xlsx*.
3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.
5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.
6. The following attachments and appendices are provided with this DSOW:

A LUMA Project Cost Estimate

B Project Considerations

C LUMA's Active Projects

D Pole Height Increase Justification

6. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: 'SP 752808- DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.'"

406 HMP Scope

**********Version 1**********

Project number: [752808] FAASt [Automation Program Group 19] (Distribution)

Damage #: 1310158; FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Arecibo, Puerto Rico

GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology

equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

   The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the feeder or poles. In this project:

   a) Two (2ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with tow (2ea) 50ft (S-8.5) 12-sided galvanized pole.

   b) Existing one (1ea) 40ft concrete pole will be replaced with one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5)12-sided galvanized pole.

   c) Existing three (3ea) 45ft concrete pole will be replaced with three (3ea) 45ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with three (3ea) 45ft (S5.7)12-sided galvanized pole.

   d) Existing five (5ea) 35ft concrete pole will be replaced with five (5ea) 45ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with five (5ea) 45ft (S5.7)12-sided galvanized pole.

   e) Existing three (3ea) 45ft concrete pole will be replaced with three (3ea) 50ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with three (3ea) 50ft (S8.5)12-sided galvanized pole.

   f) Existing five (5ea) 40ft concrete pole will be replaced with five (5ea) 45ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with five (5ea) 45ft (S5.7)12-sided galvanized pole.

   g) Existing one (1ea) 60ft concrete pole will be replaced with one (1ea) 60ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 60ft (S8.5)12-sided galvanized pole.

2. **Feeder Reclosers:**

   Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

   Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

   The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

   Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

   As a mitigation strategy, 406 HM will fund the installation five (5ea) three-phase reclosers and thirty-two (32ea) single-phase recloser.

3. **Communicating Fault Current Indicators:**

   Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of fifteen (15ea) communicating fault current indicators (cFCIs).

Mitigation Measures *(Supplementary)*

4. **Stainless Steel Transformer (1kVA):**

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of four (4ea) 1kVA stainless steel transformers.

5. **Radio communication kit for three phase reclosers:**

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of five (5ea) Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$577,475.71
+ HM (Subrecipient A&E, Management & General Conditions) =	$146,122.01
Hazard Mitigation Total Cost =	**$723,597.72**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$320,428.90
Architecture and Engineering (A&E) =	$ 52,375.13
Construction Cost =	$350,793.69
Hazard Mitigation Total Cost =	**$723,597.72**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $723,597.72 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**********Version 0**********

406 Hazard Mitigation measures were not requested by the subrecipient for this project in Version 0. However, the mitigation opportunities will be applied in a future version (V1) of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$3,102,137.89	Uncompleted
3510	1	Lump Sum	($348,510.65)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted

CRC Gross Cost	$2,753,627.24
Total 406 HMP Cost	$723,597.72
Total Insurance Reductions	$0.00
CRC Net Cost	$3,477,224.96
Federal Share (90.00%)	$3,129,502.47
Non-Federal Share (10.00%)	$347,722.49

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

2/18/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No

Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 19] (Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 19] (Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.
- a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out. d. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased) or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.

- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant's permanent files.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harm s way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harm's way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Service's Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: Caribbean_es@fws.gov or jose_cruz-burgos@fws.gov
- 34. The Puerto Rican harlequin butterfly (Atlantea tulita) is endemic to Puerto Rico, occurring in the western portion of the island, in the northern karst region, and in the west-central volcanic-serpentine region. The following measures apply to the Puerto Rican harlequin butterfly through its current range: a. The contractor must inform all personnel about the potential presence of the Puerto Rican harlequin butterfly and its host plant, prickly bush (Oplonia spinosa), in the project areas. A pre-work meeting should inform all project personnel about the need to avoid harming this butterfly and its occupied host plant. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. Educational material (e.g., posters, flyers, or signs with photos or illustrations of all the life stages of the Puerto Rican harlequin butterfly (i.e., eggs, caterpillar, chrysalids, and adult, and its host plant) should be prepared and available to all personnel for reference. b. Before starting any project activity, including removal of vegetation and earth movement, the contractor must clearly delineate the boundaries of the working area in the field to avoid unnecessary habitat impacts. Once the

project areas are clearly marked, and before any work activity, including site preparation, personnel with knowledge and ability to identify the Puerto Rican harlequin butterfly (all life stages) and the prickly bush must survey the areas where the work will be performed for the presence of the species and its host plant. It is important to note that the Puerto Rican harlequin butterfly can be observed year-round in all life stages; thus, oviposition (egg-laying) may occur at any time during the year. c. If the prickly bush is present on the project site, try to avoid cutting the plant, even if no eggs, caterpillars, or chrysalids are present. d. If there is no prickly bush within the project area, but the butterfly is observed flying within the project area, do not harass, harm, pursue, wound, kill, trap, capture, collect, or attempt to engage in any such conduct, the species. e. Adult butterflies are often observed flying near the host plant as part of their mating behavior and for laying eggs. Project-related activities must stop if the prickle bush is found in the project area and the Puerto Rican harlequin butterfly is observed flying in that same area. A temporary 50-meter (164 feet) buffer zone of no activity or human disturbance should be established and clearly marked around that prickly bush until the butterfly moves out on its own.

- f. Once the Puerto Rican harlequin butterfly has moved away, within a period of 24 to 36 hours, a search of the prickly bush that has been buffered should be conducted to determine the presence of any eggs, caterpillars, or chrysalids of the butterfly on the plant. The contractor or the Applicant should send a report of the observation and its findings to caribbean_es@fws.gov after the 36-hour search is concluded. g. If, after the initial search or after the 24 to 36-hour search, any life stage of the Puerto Rican harlequin butterfly is found in the prickly bush, take the following actions: o Clearly mark the host plant with flagging tape. o Establish a 10-meter (32-foot) buffer zone around the bush for its protection. o Eggs are typically found on the prickly bush's newly grown, tender branches. Once the egg hatch, the caterpillar moves and feeds throughout the bush. Therefore, avoid cutting off the prickly bush within the project site even if no eggs, caterpillars, or chrysalids are present. o Work within the 10-meter buffered area may resume when no signs of any live life stage of the butterfly are detected, which usually takes approximately 60 to 120 days. h. For all Puerto Rican harlequin butterfly sightings (all life stages), the time and date of the sighting and the specific location where the butterfly was found must be recorded. Data should also include a photo of the butterfly (if possible) and the habitat where it was observed, site GPS coordinates, and comments on how the butterfly was detected and its behavior. All Puerto Rican harlequin butterfly sighting reports should be sent to the Service&#65533;s Caribbean Ecological Service Field Office at caribbean_es@fws.gov. j. For questions regarding the Puerto Rican harlequin butterfly, the Point of Contacts are: o José Cruz-Burgos, Endangered Species Coordinator: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: jose_cruz-burgos@fws.gov o Carlos Pacheco, Fish and Wildlife Biologist . Mobile: 786-847-5951 . Office Direct Line: 939-320-3113 . Email: carlos_pacheco@fws.gov
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 19] (Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/15/2026 12:52 PM PDT

Review Comments

Project has been reviewed, found eligible and reasonable. Subrecipient and its agents are responsible for compliance with all grants and subgrant conditions including any applicable Federal, State and Local requirements. CLG 071526

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/28/2026 8:23 PM PDT

Review Comments

Recipient review completed. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v2

General Info

Project #	752808 **P/W #** 108000	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 19] (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1310158; FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03 (Distribution)
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 19: Feeders 8801-01, 8801-02, 8801-03 (Distribution)
- **Approx. Year Built:** 1980
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1310158

FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

********** Version 2 **********

Version 2 has been created as an administrative amendment due to limitations in IFMIS (The Finance system), which cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Refer to document: Sub-FAAST Transactions - allocation process.pdf

Introduction

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW de?nes the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designsincluding drawings and cost estimates. FEMA also recognizes that,

generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 752808 Automation Program Group19 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

Project Description

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers bene?ts independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 752808 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (speci?cally reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on 8801-01, 8801-02, and 8801-03.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their bene?t to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the systemoperator knows their status and can remotely control them. Deployment of the wireless communication devices includes con?guration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing ?ve three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of 32 single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user- set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently

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mitigate the loss of service and potential damages in future disasters. This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date.

Facilities

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

Facilities for Automation Group 19 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Arecibo	8801-01	[redacted]	
Arecibo	8801-02		
Arecibo	8801-03		

Note: Please refer to *APPENDIX B - Project Considerations* for a list of all GPS locations that this project will impact.

Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. Thewarehouse assigned is the Arecibo Warehouse, whose address is #681 Street. 0.1 KM. Islote Ward, Arecibo, PR. The warehouse coordinates are [redacted]. The staging area will be in Manati Warehouse which coordinates are [redacted].

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

A map of the project area is not available at this time.

SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

_X_ Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

__Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

__Subrecipient's request letter included, see **Appendix __**.

__Recipient's approval letter included, see **Appendix __**.

__ Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

__Subrecipient's request letter included, see **Appendix __**.

__Recipient's approval letter included, see **Appendix __**.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of twenty (20) damaged poles.
- Install ?ve (5) Three Phase Reclosers.
- Install thirty-four (34) Single Phase Reclosers, remove fuses and close jumpers.
- Install four (4) 1 kVA transformers.
- Install ?fteen (15) communicating fault indicators.

LUMA requests the alignment the scope and cost of Project 752808 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on the feeder backbone and the additional cost (delta) for the replacement of fuse cutouts for a single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

The obligated DSOW included new pole installations. This DSOW aligns the scope of these poles with a 406 mitigation proposal approved by FEMA.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Radio Communications Kit:
  - LUMA originally planned to transmit data to and from Three-Phase Reclosers using ?ber optic cable, which also required the installation of additional poles. LUMA now proposes installing radio communication kits to enable communication with the Three-Phase Reclosers and the PREPA SCADA system (EMS).
- Air Break Bypass Switches
  - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder 8801-01

POLE FID	COORDINATES LAT, LONG	Existing (REMOVE)	428 REPLACEMENT	SCOPE OF WORK

New Pole	[redacted]	N/A	(50' ROUND TAPERED POLE) (CP-C6-XARM)	· Install a new 50 ft. high galvanized steel round tapered pole. · Install primary framing.

POLE FID	COORDINATES LAT, LONG	Existing (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
			(K-5) (ABS-3-XARM QTY=3)	· Install secondary framing. · Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.
19600870	[redacted]	N/A	(K-5) (3/0 TPX (QTY= 85 '))	· Install load side secondary framing.
19600737		(ASSY-1509 (QTY=3)) (CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	· Remove and dispose crossarm. · Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
19601641		(40' H3 CONCRETE POLE) (CP-C6-XARM) (STL-10) (E-1-2-3(QTY=2)) (F-1-3(QTY=2)) (ASSY-1509 (QTY=3)) (42''CROSSARM)	(50' S8 ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (ABS-3-XARM QTY=3)	· Remove and dispose of 40' H3 concrete pole and replace with 50' galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose (2) anchors and (2) downguys. · Remove and dispose crossarm. · Remove and dispose (3) Fuse Cutouts. · Install and connect one (1) set of Air Break Bypass Switches (ABS-3-XARM) and the framing hardware to support them.
19602031		(45' H6 CONCRETE POLE) (CP-C5-XARM) (CP-B5-XARM) (CP-A5)	(45' ROUND TAPERED POLE) (CP-C5-XARM) (CP-B5- XARM) (CP-A5)	· Remove and dispose 45' H6 concrete pole and replace with 45' galvanized round tapered pole. · Remove, dispose and replace (3) primary framings.
19602112		(ASSY-1509 (QTY=1))	(ASSY-1509 (QTY=1)) CLOSE JUMPERS	· Remove, dispose and replace (1) Fuse Cutout. · Labor to close jumpers.
1000042602		(ASSY-1509 (QTY=3))	(ASSY-1509 (QTY=3))	· Remove, dispose and replace (3) Fuse Cutouts.
1000042601		(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.

POLE FID	COORDINATES LAT, LONG	Existing (REMOVE)	428 REPLACEMENT	SCOPE OF WORK

19590943	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
27365725	[redacted]	(35' C5 WOOD POLE) (CP-C6-XARM) (CP-A5) (E-1-2-3) (F-1-3)	(45' ROUND TAPERED POLE) (CP-C6-XARM) (CP-A5)	· Remove and dispose of 35' C5 wood pole and re 45' galvanized round tapered pole. · Remove, dispose and replace primary framings. · Remove and dispose downguy. · Remove and dispose anchor.
27366707	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	· Remove, dispose and replace (1) Fuse Cutout. · Labor to close jumpers.
27365767	[redacted]	(CP-C7) (ASSY-1509 (QTY=3)) (42''CROSSARM)	(CP-C7) (E-1-2-3) (F-1-3)	· Remove, dispose and replace primary framing. · Remove and dispose 42" crossarm. · Install downguy and anchor. · Remove, dispose and replace (3) Fuse Cutouts.
27366370	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	· Remove and dispose (1) Fuse Cutout. · Labor to close jumpers.
27365874	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
27367514	[redacted]	(ASSY-1509 (QTY=1))	(ASSY-1509 (QTY=1))	· Remove, dispose and replace (1) Fuse Cutout. · Labor to lower neutral and raise transformer.
27367618	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS (QTY=1))	· Remove and dispose (1) Fuse Cutout. · Labor to close jumpers.
22103272	[redacted]	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators (FCIs)

Feeder 8801-02

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
1001353937	[redacted]	(45' H4 CONCRETE POLE) (S-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50' ROUND TAPERED POLE) (S-6) (ABS-3-XARM QTY=3)	· Remove and dispose 45' H4 concrete pole and r 50' galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose (2) downguys. · Remove and dispose (2) anchors. ·Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to suppo them.

1001715694	[redacted]	(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	· Remove and dispose (2) Fuse Cutouts. · Install stand-off bracket assembly. · Install (2) cutout blades.
1001715793		(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	· Remove and dispose (2) Fuse Cutouts. · Install stand-off bracket assembly. · Install (2) cutout blades.
1001715829		(ASSY-1509 (QTY=2))	(ASSY-1509 (QTY=2)) (ASSY 1505 FIG. B) (CUTOUT BLADES(QTY=2))	· Remove and dispose (2) Fuse Cutouts. · Install stand-off bracket assembly. · Install (2) cutout blades.
1000269597		(ASSY-1509 (QTY=6)) (42'' CROSSARM)	(LABOR TO CLOSE JUMPERS (QTY=6))	· Remove and dispose crossarm. · Remove and Dispose (6) Fuse Cutouts. · Labor to close jumpers.
1000462787		(45 ' H4 CONCRETE POLE) (CP-A6) (CP-B1)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (ABS-3-XARM QTY=3)	· Remove and dispose 45' H4 concrete pole and r 50' galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Install and connect one (1) set of Air Break Byp Switches (ABS-3- XARM) and the framing hardwa support them.
27371666		(40 ' C3 WOOD POLE) (CP-C3-XARM) (K-6)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C3-XARM)	· Remove and dispose of 40' C3 wood pole and re 45' galvanized round tapered pole.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
		(E-1-2-3 (QTY=3)) (F-1-3 (QTY=3)) (STL-10) (ASSY-1509 (QTY=3))	(K-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2)) (STL-10) (ASSY-1509 (QTY=3)) (ASSY 1505 FIG. C) (CUTOUT BLADES(QTY=3))	· Remove, dispose and replace primary and second framing. · Remove and dispose three (3) anchors and (3) downguys. · Install (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED Type). · Remove, dispose and replace (3) Fuse Cutouts. · Install stand-off bracket assembly. · Install (3) cutout blades.
27371093	[redacted]	(35' C4 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM) ASSY-1509 (QTY=1)) (E-1-2-3) (F-1-3)	(45' ROUND TAPERED POLE) (CP-C6-XARM) (CP-A5) ASSY-1509 (QTY=1)	·Remove and dispose 35' C4 wood pole and replac galvanized round tapered pole. ·Remove, dispose and replace (2) primary framings. ·Remove, dispose and replace (1) Fuse Cutout.

27371222	[redacted]	(45‘ S3 STEEL POLE) (CP-C6-XARM) (K-7-4) (STL-10) (T-12) (ASSY-1509 (QTY=3))	(45’ ROUND TAPERED POLE) (CP-C6-XARM) (K-7-4) (STL-10) ASSY-1509 (QTY=3)	· Remove and dispose of 45’ S3 steel pole and rep 45’ galvanized round tapered pole. · Remove, dispose and replace (2) primary framing secondary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose capacitor bank. · Remove, dispose and replace (3) Fuse Cutouts.
27371623		(40‘ C5 WOOD POLE) (CP-A6) (K-7-B) (STL-10) (T-1) (ASSY-1509)	(45’ S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-A6) (K-7-B) STL-10) (T-1) (REC-3-A) ASSY-1509 (QTY=1)	·Remove and dispose 40’ C5 wood pole and replac galvanized round tapered pole. ·Remove, dispose and replace primary framing and s framing. Remove, dispose and replace streetlight (L –

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
	[redacted]			·Relocate existing transformer to the new pole. Re dispose and replace (1) Fuse Cutout.
27373845		(40‘ H4 CONCRETE POLE) (CP-B6) (ASSY-1509 (QTY=2))	(45’ ROUND TAPERED POLE) (CP-B6-XARM) (E-1-2-3) (F-1-3) ASSY-1509 (QTY=2)	·Remove and dispose of 40’ H4 concrete pole and 45’ galvanized round tapered pole. ·Remove, dispose and replace primary framing. ·Remove, dispose and replace (2) Fuse Cutouts. · Install (1) anchor and (1) downguy.
1001715916		(ASSY-1509 (QTY=2))	(LABOR TO CLOSE JUMPERS(QTY=2) ASSY-1509 (QTY=2)	·Remove, dispose and replace (2) Fuse Cutouts. · Labor to close jumpers.
1001715910		(40‘ C4 WOOD POLE) (CP-A6) (ASSY-1509) (E- 1-2-3) (F-1-3)	(45’ ROUND TAPERED POLE) (CP-A6) ASSY-1509 (QTY=1)	·Remove and dispose 40’ C4 wood pole and repla galvanized round tapered pole. ·Remove, dispose and replace primary framing. · Remove and dispose downguy. · Remove and dispose anchor. · Remove, dispose and replace (1) Fuse Cutout.

27368823	[redacted]	(45‘ C3 WOOD POLE) (CP-A6) (K-7) (E-1-2-3) (F-1-3) (STL-10) (T-1) (ASSY-1509)	(45’ ROUND TAPERED POLE) (CP-A6) (K-7) (STL-10) (T-1) (ASSY-1509) (ASSY 1505 FIG. A) (CUTOUT BLADES)	· Remove and dispose of 45’. C3 wood pole with 45’ galvanized round pole. · Remove, dispose and replace primary framing secondary framing. · Remove and dispose downguy and anchor. · Remove, dispose and replace streetlight (LED Type). · Relocate existing transformer to the newpole. · Remove, dispose and replace (1) Fuse Cutout. · Install stand-off bracket assembly.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	428 REPLACEMENT	SCOPE OF WORK
				· Install cutout blade.
27368312	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1)	· Remove and Dispose (1) Fuse Cutout. · Labor to close jumpers.
27369149		(35‘ C4 WOOD POLE) (CP-A6) (K-7-4) (STL-10) (ASSY-1509 (QTY=1))	(45’ ROUND TAPERED POLE) (CP-A6) (K-7-4) (STL-10)	·Remove and dispose 35’ C4 wood pole and replac galvanized round tapered pole. · Remove, dispose and rep primary framing and secondary fra ·Remove, dispose and replace streetlight (LED Typ · Remove and Dispose (1) Fuse Cutout.
22103254		N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators (FCIs).
27371119		N/A	(LABOR, FCI(QTY=3)) (ASSY 1509 (QTY=3)) (ASSY 1505 FIG. C) (CUTOUT BLADES(QTY=3))	·Install (3) Fault Current Indicators (FCIs). · Install standoff bracket assembly. · Install (3) cutout blades in cutout fuse assembly.

Feeder 8801-03

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	INSTALL	SCOPE OF WORK
New Pole	[redacted]	N/A	(50’ TAPERED POLE) (CP-C6-XARM) (ABS-3-XARM QTY=3)	· Install a new 50’ galvanized round tapered steel po · Install primary framing. · Install and connect one (1) set of Air Break Bypas Switches and the framing hardware to support them.

19593191	[redacted]	(ASSY-1509 (QTY=3))	(LABOR TO CLOSE JUMPERS (QTY=3))	· Remove and dispose (3) Fuse Cutouts. · Labor to close jumpers.
19595275		(40‘ H3 CONCRETE POLE) (CP-C6-XARM) (42’’ CROSARM) (STL-10)	(45’ ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (ASSY1509 QTY=3)	· Remove and dispose 40’ H3 concrete pole and r a 45’ galvanized round tapered steel pole. · Remove, dispose and replace primary framing.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	INSTALL	SCOPE OF WORK
		(ASSY 1509 (QTY=3)) (E- 1-2-3) (F-1-3)		· Remove and dispose downguy and anchor. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose 42” crossarm. · Remove, dispose and replace (3) Fuse Cutouts.
19595971	[redacted]	(35‘ C4 WOOD POLE) (CP-C6-XARM) (42’’ CROSARM) (STL-10) (ASSY 1509 (QTY=3)) (E-1-2-3) (F-1-3)	(45’ S5.7 ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (ASSY1509 QTY=3)	· Remove and dispose 35’ C4 wood pole and repla 45’ galvanized round tapered steel pole. · Remove, dispose and replace primary framing. · Remove and dispose down guy and anchor. · Remove, dispose and replace streetlight (LED type). · Remove and dispose 42’’ crossarm. · Remove, dispose and replace (3) Fuse Cutouts.
12239114		(45‘ H4 CONCRETE POLE) (CP-C6-XARM) (K-6) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50’ ROUND TAPERED POLE) CP-C6-XARM) (K-6) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	· Remove and dispose 45’ H4 concrete pole and replace with 50’ round tapered steel pole. · Remove, dispose and replace primary and second framing. · Remove, dispose and replace (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED type).
12239425		(ASSY-1509 (QTY=3)) (42’’CROSSARM)	(L A B O R TO CLOSE JUMPERS (QTY=3)) (ASSY1509 QTY=3)	· Remove and dispose 42” crossarm. · Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.
19593950		(60‘ H6 CONCRETE POLE) (CP-C6-XARM) (CP-C5-XARM) (ASSY-1509 (QTY=3))	(60’ ROUND TAPERED POLE) (CP-C6-XARM) (CP-C5-XARM) (ASSY1509 QTY=3)	· Remove and dispose 60’ H6 concrete pole and r 60’ round tapered steel pole. · Remove, dispose and replace (2) primary framin · Remove and dispose 42” crossarm.

POLE FID	COORDINATES LAT, LONG	EXISTING (REMOVE)	INSTALL	SCOPE OF WORK
		(CROSSARM 42")		· Remove, dispose and replace (3) Fuse Cutouts.
19594032	[redacted]	(ASSY-1509 (QTY=3)) (42''CROSSARM)	(CUTOUT BLADES(QTY=3)) (ASSY-1509 (QTY=3)) (ASSY-1505 FIG. C)	· Remove and dispose 42'' crossarm. · Install (3) cutout blades on existing pole. · Remove and dispose (3) Fuse Cutouts.
19596535		(35' CONCRETE POLE) (CP-A1) (K-7-4) (STL-10)	(45' ROUND TAPERED POLE) (CP-A6) (K-7-4) (STL-10)	· Remove and dispose 35' concrete pole and repla round tapered steel pole. · Remove, dispose and replace primary framing a secondary framing. · Remove, dispose and replace streetlight (LED Type. (STL-10).
19595269		ASSY	(LABOR TO CLOSE JUMPERS (QTY=3)) (ASSY1509 QTY=3)	· Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.
22103246		NONE	(LABOR, FCI (QTY=3))	· Install (3) Fault Current Indicators (FCIs).
19593241		NONE	(LABOR, FCI (QTY=3))	· Install (3) Fault Current Indicators (FCIs).

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMAreasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.
2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identi?ed in the tables above. Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact) for the depths of the galvanized tapered poles.
3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.
4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.
B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).
C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
E. LUMA's latest Design Criteria Document (DCD) which aggregates the designconsiderations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

SECTION 406 HAZARD MITIGATION PROPOSAL

§ 406 HAZARD MITIGATION OPPORTUNITY

FEMA's § 428 Alternative Procedures Guide for Permanent Work in Puerto Rico (v.3) states that FEMA will "encourage the concepts of regional infrastructure resiliency" and "provide mitigation opportunities that leverage innovative and renewable technologies."[1] The § 428 Alternative Procedures are intended to allow subrecipients and FEMA "to prioritize the provision of funding for eligible permanent work in ways that best meet the recovery needs of impacted communities" and provide "flexibility in the use of funds."[2] The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."[3] FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."[4] To that end, LUMA proposes to add feeder reclosers (single and three-phase) and communication fault current indicators ("cFCI") to this project to improve the resiliency of the T&D systems against future hurricane damage and its effects. The Distribution Automation program will add approximately a total of 4,000 three-phase reclosers, 15,000 single-phase reclosers, and 11,000 cFCIs across the island. The addition of feeder reclosers and cFCIs will reduce the potential for widespread loss of service during a disaster event and prevent physical damage, mitigating the negative effects of a future, similar disaster.

Feeder reclosers will improve system resiliency. LUMA requests 406 hazard mitigation funding for five (5) three-phase reclosers, thirty-two (32) single-phase reclosers, also known as trip savers, and five (5) radio communication kits for those reclosers as described in the table below.

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinat Lat, Lon
8801-01	Three-Phase Recloser Radio Communication Kit	1	New Pole	[redacted]
8801-01	Three-Phase Recloser Radio Communication Kit	1	19601641	[redacted]
8801-01	Single-Phase Recloser	1	19602031	[redacted]
8801-01	Single-Phase Recloser	3	1000042602	[redacted]
8801-01	Single-Phase Recloser	1	27365725	[redacted]
8801-01	Single-Phase Recloser	3	27365767	[redacted]
8801-01	Single-Phase Recloser	1	27367514	[redacted]
8801-02	Three-Phase Recloser Radio Communication Kit	1	100135937	[redacted]
8801-02	Three-Phase Recloser Radio Communication Kit	1	1000462787	[redacted]

8801-02	Single-Phase Recloser	1	27371093	[redacted]
8801-02	Single-Phase Recloser	3	27371222	[redacted]
8801-02	Single-Phase Recloser	1	27371623	[redacted]

Feeder reclosers have microprocessors that monitor the voltage and current on a feeder line to determine whether the recloser should take action to protect the function of that feeder. They protect the feeder line by stopping temporary line faults from causing an extended outage. An example of a temporary line fault is vegetation touching a power line for a brief period of time. When a feeder recloser detects this type of fault it automatically opens the circuit (briefly stopping the flow of electricity to allow the disturbance to resolve) and then rapidly recloses to restore power. It has been observed that approximately 70% of faults are temporary. This action reduces the frequency, duration, and breadth of disaster-related outages, protecting the public safety. Feeder reclosers prevent temporary line faults from turning into an outage, which speeds restoration after a storm or disaster.

When used on a looped circuit, the reclosers can also contain a power outage to a localized area. The two reclosers nearest the fault will open the circuit (briefly stopping the flow of electricity between them) so the outage is contained to a segment of the customers between the two reclosers. Meanwhile, power continues to reach the remaining customers on the feeder line. See illustration below where the yellow lightning bolt is the fault, and the red squares are the reclosers that have opened to contain the outage to the customers in red.

In the same scenario without the reclosers, a larger portion - and potentially all - of the customers served by the feeder would lose power until the fault could be repaired. Thus, feeder reclosers mitigate outages similar to what was experienced during Hurricane Maria by localizing an outage area and preventing cascading outages that can extend the outage time. Power is a critical lifeline. Extended power outages caused by disaster damage like the one after Hurricane Maria have devastating effects on the public health and safety. Mitigation measures that reduce the likelihood of extended, wide-ranging outages will also reduce the life-safety risk of disaster damage.

Feeder reclosers will be installed across the distribution feeder system, providing the operations center with outage and loading information across a wide area. The operations center can use this information to prioritize outage restoration across that area. This can reduce customer outage time and consequently decrease the risk of harm to the public and property. The operations center has the ability to remotely control the reclosers, opening and closing specific reclosers, so as to re-energize the greatest number of customers and localize the outage to the customers on a feeder segment between two reclosers. In contrast, under the current system a feeder that experiences a fault will lose power back to the circuit breaker, at the substation, until the cause of the fault is cleared. Until the fault is cleared all customers on the feeder have no power. The fault needs to be identified by visual inspection. Visual inspection takes much longer than clearing a fault remotely. During a disaster, when numerous feeders experience permanent faults, the ability to localize the outage and re-energize the non-damaged segments in minutes instead of hours or days is a significant reduction of risk to public health and safety.

Reclosers also prevent physical damage to the infrastructure by preventing short circuit currents on a fault getting to the main breaker of a feeder. Reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur. Un-isolated electrical faults lead to sustained arcing, causing extensive equipment and property damage. Prolonged faults create ?re and critical public safety risks.

These reclosers are part of a larger system of protection to be implemented through the Distribution Automation program. In addition to these speci?c critical facilities, Distribution Automation will protect the electrical grid as a whole, a critical facility that spans all of Puerto Rico. Electrical faults can cause outages that cascade across multiple facilities, regions, or even the entire island, disrupting service for customers and other critical facilities far from any speci?c distribution circuit. Additionally, faults and outages can cause frequency deviations and increased wear and tear on all components of the grid, including generation, transmission, and distribution facilities, without geographic limitation. Without reliable infrastructure at all stages of electrical generation, transmission, and distribution, Puerto Ricans will be at heightened and increasing risks of sustained outages with severe impacts on public health and safety. Ultimately, localized grid resilience investments bene?t all customers, because the interconnected grid as a whole – not any speci?c distribution or transmission line – serves Puerto Rico. In other words, a recloser in the San Juan region could mitigate the cascading effects that would cause an outage at a hospital or ?re station in Arecibo, and vice versa. DHS recognizes the importance of incorporating resilience into critical infrastructure projects, including "identifying key dependencies and interdependencies and ways in which this critical infrastructure asset, system, or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors" and "mapping potential cascading effects from potential infrastructure disruptions." *S e e* DHS Supplemental Tool: Incorporating Resilience into Critical InfrastructureProjects, https://www.cisa.gov/sites/default/?les/publications/NIPP-2013-Supplement- Incorporating-Resilience-into-CI-Projects-508.pdf. Puerto Rico's generation, transmission, and distribution systems must function as a single integrated system to deliver power.

Poles will improve system resiliency. Luma requests 406 hazard mitigation for the following poles:

Feeder 8801-01

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	New Pole	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	19601641	
45ft S5.7 12-sided galvanized steel pole	1	19602031	
45ft S5.7 12-sided galvanized steel pole	1	27365725	

Feeder 8801-02

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	1001353937	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	1000462787	
45ft S5.7 12-sided galvanized steel pole	1	27371666	
45ft S5.7 12-sided galvanized steel pole	1	27371093	
45ft S5.7 12-sided galvanized steel pole	1	27371222	
45ft S5.7 12-sided galvanized steel pole	1	27371623	
45ft S5.7 12-sided galvanized steel pole	1	27373845	
45ft S5.7 12-sided galvanized steel pole	1	1001715910	
45ft S5.7 12-sided galvanized steel pole	1	27368823	

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
			[redacted]
45ft S5.7 12-sided galvanized steel pole	1	27369149	[redacted]

Feeder 8801-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	New Pole	[redacted]
45ft S5.7 12-sided galvanized steel pole	1	19595275	
45ft S5.7 12-sided galvanized steel pole	1	19595971	
50ft S8.5 12-sided galvanized steel pole	1	12239114	
60ft. S8.5 12-sided galvanized steel pole	1	19593950	
45ft S5.7 12-sided galvanized steel pole	1	19596535	

Higher poles will improve system resiliency. Replacement poles provide the strength required to carry the reclosers and related hardware and withstand hurricane wind speeds. Existing wood poles will be replaced by a 12-sided galvanized steel pole, as identi?ed in the tables in §§ 9.1 and 10.2. LUMA selected the poles for replacement after performing an electrical analysis of the feeder line and applying best design practices for reclosers.

A 12-sided galvanized steel pole is proposed as replacement for existing wood poles, as it is capable of supporting the load of the reclosers and withstanding the forces generated by 160 mph winds.

None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests § 406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

LUMA considered mitigation percentages in situations where it is necessary to increase pole height in increments of five feet up to a maximum difference of 15 feet. Average percentages for each such scenario were applied. A table that presents such scenarios and percentages is included in the HM Pole Labor Worksheet tab of *APPENDIX A*.

Communicating fault circuit indicators ("cFCIs") improve system resiliency. LUMA requests 406 hazard mitigation funding for the following fifteen cFCIs:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat,
8801-01	cFCIs	3	22103272	[redacted]
8801-02	cFCIs	3	22103254	
8801-02	cFCIs	3	27371119	
8801-03	cFCIs	3	22103246	
8801-03	cFCIs	3	19593241	

cFCI's allow the operator to locate circuit faults (i.e., outages) faster than the current method, and provides the central monitoring system ("Energy Management System" or "EMS") information it can use to prevent further damage and to prioritize restoration efforts. While reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur, cFCIs offer a fundamentally proactive approach to damage prevention. By detecting incipient (i.e., emerging) faults in their early stages, and enabling timely intervention, cFCIs can prevent the fault from ever fully materializing, thereby directly eliminating the potential for physical damage to system assets.

In the event a feeder line experiences a fault, cFCIs can identify the location of the fault along a feederline and communicate it to the operator. Multiple cFCIs are located along a feeder and its branches. Determining the placement location of cFCIs requires extensive engineering to ensure LUMA will gain maximum benefit from each sensor.[5]

These feeders do not have FCIs, therefore, repair crews would need to visually inspect the feeder line to locate the fault. In comparison, cFCIs will provide repair crews with information that narrows their search to an area between two cFCIs. Thus, the cFCI's information dramatically reduces search time. A smaller search area reduces customer outage time, and consequently, decreases harm to the public and property after a disaster. This feature provides a more specific location of the fault than what is provided by reclosers.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure. Note that on this specific project, the cFCIs in the HM scope of work are new. They are not replacing existing FCIs (FCIs are not present).

Benefits of cFCIs include:

- Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.
- Fault Location: cFCIs help quickly locate faults on the line (like short circuits or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.
- Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on cables, breakers, and other components.
- Lightning and Surge Detection cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis. Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action —preventing physical stress or failure.
- Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.
- Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion—allowing scheduled repairs before damage occurs.
- Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:

· Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.
· Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components.
· Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing—reducing the impact area and protecting healthy parts of the system.
· Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

For more information on cFCIs and how they are integral to fortifying Puerto Rico's electrical infrastructure, please see the T&D Resilience Plan submitted by LUMA to COR3 and the "Distribution Automation, Operation, and System Visibility Roadmap"

Stainless Steel Transformer. LUMA requests §406 hazard mitigation funding for four (4) stainless steel transformers at the pole and coordinates noted in the table:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinate Lat, Long
8801-01	1 Kva Stainless-Steel Transformer (8.32-4.80kv/120v)	1	19601641	[redacted]
8801-02	1 Kva Stainless-Steel Transformer (4.8/7.62kv-120v)	1	100135937	

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinate Lat, Long
8801-02	1 Kva Stainless-Steel Transformer (4.8/7.62kv-120v)	1	1000462787	[redacted]
8801-03	1 Kva Stainless-Steel Transformer (8.32-4.80kv/120v)	1	New Pole	

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

LUMA galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage t PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Transformer failure poses harm to the equipment and the public due to resulting loss of power. LUMA proposes that this measure be eligible for § 406 hazard mitigation funding. In FAASt no. 165226, stainless steel transformers more than 1 mile from the shoreline were granted 406 HM funding. In addition, the Fixed Cost Estimate was based on pole mounted transformers that are coated steel with a corrosion resistant cover band and not stainless-steel transformers.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall strength, and corrosion resistance. Stainless steel is a high- strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

Additionally, existing transformers across the island suffer from corrosion, not just the ones close to the seashore. Stainless steel transformers offer superior resistance to corrosion. Corroded transformers have a higher likelihood of failure during a disaster due to debris impacts, fires, and significant water intrusion. Such failure can create unintended electrical paths outside the insulated circuits. This leads to short circuits, which can immediately disrupt transformer function and cause widespread power outages. Additionally, corrosion degrades insulation within the transformer, making it prone to electrical arcing, further increasing the risk of failure or potential for a fire. Oil

leaking from a damaged transformer could lead to vegetation damage or groundwater contamination. A stainless-steel transformer is better able to withstand the corrosive effects of that exposure than a galvanized steel transformer. As a result, a stainless- steel transformer will be more resistant to the effects of a disaster like Hurricane Maria and help to protect life and property.

By upgrading to this material, LUMA will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure. LUMA requests that stainless steel galvanized transformers that are more than one mile from the seashore be eligible for § 406 hazard mitigation funding equal to the difference in price between a stainless steel and galvanized steel transformer.

§ 406 SCOPE OF WORK

Feeder 8801-01

428 Section			406 HM		
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
New Pole	[redacted]	· Install a new 50 ft. high galvanized steel round tapered pole. · Install primary framing. · Install secondary framing. · Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.	New Pole	[redacted]	· Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole. · Install (1) Three-Phase Recloser 8801-01A on radial circuit. · Install and commission the radio communication kit for three-phase recloser.
19601641		· Remove and dispose of 40ft. H3 concrete pole and replace with 50ft. galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose (2) anchors and (2) downguys.	19601641		· Replace 50ft. round pole with 50ft. S8 12-sided galvanized steel pole. · Install (1) Three-Phase Recloser 8801-01B On radial circuit. · Install and commission radio communication kit for three-phase recloser. · Install (1) 1 kVA stainless-steel transformer (8.32-4.80kV/120V) from source side.

428 Section			406 HM		
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
		· Remove and dispose crossarm. · Remove and dispose (3) Fuse Cutouts. · Install and connect three (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.			

19602031	[redacted]	· Remove and dispose 45ft. H6 concrete type pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace (3) primary framings.	19602031	[redacted]	· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutouts on FID 19602112 with the installation of (1) Single-Phase Recloser 200A.
19602112		· Remove, dispose and replace (1) Fuse Cutout. · Labor to close jumpers.			
1000042602		· Remove, dispose and replace (3) Fuse Cutouts.	1000042602		· Replace (3) Fuse Cutouts with the installation of (3) Single-Phase recloser 200A on existing pole.
27365725		· Remove and dispose 35ft. C5 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framings. · Remove and dispose downguy. · Remove and dispose anchor.	27365725		· Replace round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout on FID 27666707 with the installation of (1) Single-phase Recloser 200A.
27366707		· Remove, dispose and replace (1) Fuse Cutout. · Labor to close Jumpers.			
27365767		· Remove, dispose and replace primary framing. · Remove and dispose 42-inch crossarm. · Install downguy and anchor.	27365767		· Replace (3) Fuse Cutouts with the installations (3) Single-Phase Recloser 200A in existing pole.

428 Section			406 HM		
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
		· Remove, dispose and replace (3) Fuse Cutouts.			
27367514	[redacted]	· Remove, dispose and replace (1) Fuse Cutout. · Labor to lower neutral and raise transformer.	27367514	[redacted]	· Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A in existing pole.
22103272		· Install (3) Fault Current Indicators (FCIs)	22103272		· Replace FCIs and install (3) Communicating Fault Current Indicators (cFCIs),

Feeder 8801-02

428 Section			406 HM		
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**

1001353937	[redacted]	· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose (2) downguys. · Remove and dispose (2) anchors. · Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.	1001353937	[redacted]	· Replace 50ft. round pole with 50ft. S8.5 12- sided galvanized steel pole. · Install one (1) 1 kVA stainless-steel transformer (4.8/7.62kv-120v) from source side. · Install (1) Three-Phase Recloser 8801-02A on radial circuit. · Install and commission radio communication kit for the Three-Phase Recloser.
1000462787		· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. galvanized steel round tapered pole. · Remove, dispose and replace primary framing. · Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.	1000462787		· Replace 50ft. round pole with 50ft. S8.5 12- sided galvanized steel pole. · Install one (1) 1kVA stainless-steel transformer (4.8/7.62kV-120V) from source side. · Install (1) Three-Phase Recloser 8801-02B on radial circuit. · Install and commission radio communicating kit for the Three-Phase Recloser.
27371666		· Remove and dispose of 40ft. C3 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary and secondary framing. · Remove and dispose three (3) anchors and (3) downguys. · Install (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED Type). · Remove, dispose and replace (3) Fuse Cutouts. · Install stand-off bracket assembly. · Install (3) cutout blades.	27371666		· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
27371093	[redacted]	·Remove and dispose 35ft. C4 wood pole and replace with 45ft. galvanized round tapered pole. ·Remove, dispose and replace (2) primary framings. ·Remove, dispose and replace (1) Fuse Cutout.	27371093	[redacted]	· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A.

27371222	[redacted]	· Remove and dispose of 45ft. S3 steel pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace (2) primary framing and (1) secondary framing. · Remove, dispose and replace streetlight (LED Type). · Remove and dispose capacitor bank. · Remove, dispose and replace (3) Fuse Cutouts.	27371222	[redacted]	· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts with the installation (3) Single-Phase Recloser 200A.
27371623		· Remove and dispose 40ft. C5 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing and secondary framing. · Remove, dispose and replace streetlight (LED Type). · Relocate existing transformer to the new pole. · Remove, dispose and replace (1) Fuse Cutout.	27371623		· Replace round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.
27373845		· Remove and dispose of 40ft. H4 concrete pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace (2) Fuse Cutouts.	27373845		· Replace round pole with 45ft. S5.7 galvanized steel pole. · Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Recloser 200A.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
		· Install (1) anchor and (1) downguy.			
1001715916	[redacted]	· Remove, dispose and replace (2) Fuse Cutouts. · Labor to close jumpers.	1001715914	[redacted]	· Replace (2) Fuse Cutouts on FID 1001715916 with the installation of (1) Single-Phase Recloser 200A.
1001715910		· Remove and dispose 40ft. C4 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose downguy. and anchor. · Remove, dispose and replace (1) Fuse Cutout.	1001715910		· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.

27368823	[redacted]	· Remove and dispose of 45ft.. C3 wood pole and replace with 45ft. galvanized round pole. · Remove, dispose and replace primary framing and secondary framing. · Remove and dispose downguy and anchor. · Remove, dispose and replace streetlight (LED Type). · Relocate existing transformer to the new pole. · Remove, dispose and replace (1) Fuse Cutout. · Install stand-off bracket assembly. · Install cutout blade.	27368823	[redacted]	· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole.
27369149		· Remove and dispose of 35ft. C4 wood pole and replace with 45ft. galvanized round tapered pole. · Remove, dispose and replace primary framing and secondary framing.	27369149		· Replace 45ft. rounded tapered pole with 45ft. S5.7 galvanized steel pole. · Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A.

428 Section				406 HM	
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
		· Remove, dispose and replace streetlight (LED Type). · Remove, dispose and replace (1) Fuse Cutout.			
22103254	[redacted]	· Install (3) Fault Current Indicators (FCIs).	22102538	[redacted]	· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).
27371119		· Install (3) Fault Current Indicators (FCIs). · Install standoff bracket assembly. · Install (3) cutout blades in cutout fuse assembly.	33166532		· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

Feeder 8801-03

428 Section				406 HM	
Pole FID	**Coordinates Lat. Long**	**Scope of Work**	**FID**	**Coordinates Lat. Long**	**Scope of Work**
New Pole	[redacted]	· Install a new 50ft. galvanized round tapered steel pole. · Install primary framing. · Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.	New Pole	[redacted]	· Replace 50ft. round pole with 50ft. S8.5 galvanized steel pole. · Install (1) 1 kVA stainless-steel transformer (8.32-4.8kV/120V) from source side. · Install (1) Three-Phase Recloser 8801-03A. · Install and commission radio communication kit for the Three-Phase Recloser.

19595275	[redacted]	· Remove and dispose 40ft. H3 concrete pole and replace with a 45ft. galvanized round tapered steel pole. · Remove, dispose and replace primary framing. · Remove and dispose (1) downguy and (1) anchor.	19595275	[redacted]	· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.

428 Section			406 HM		
Pole FID	**Coordinates** **Lat. Long**	**Scope of Work**	**FID**	**Coordinates** **Lat. Long**	**Scope of Work**
		· Remove, dispose and replace streetlight (LED Type). · Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutout.			
19595971	[redacted]	· Remove and dispose 35ft. C4 wood pole and replace with a 45ft. galvanized round tapered steel pole. · Remove, dispose and replace primary framing. · Remove and dispose down guy and anchor. · Remove, dispose and replace streetlight (LED type). · Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutouts.	19595971	[redacted]	· Replace 45ft. rounded pole with a 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.
12239114	[redacted]	· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. round tapered steel pole. · Remove, dispose and replace primary framing and secondary framing. · Remove, dispose and replace (2) anchors and (2) downguys. · Remove, dispose and replace streetlight (LED type). · Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.	12239114	[redacted]	· Replace 50ft. round pole with a 50ft., S8.5 galvanized steel pole. · Replace (3) Fuse Cutouts on FID 12239425 with the installation of (3) Single-Phase Reclosers 200A.
12239425					
19593950		· Remove and dispose 60ft. H6 concrete pole and replace with 60ft. round tapered steel pole. · Remove, dispose and replace (2) primary framings.	19593950		· Replace 60ft. round pole with 60ft. S8.5 12- sided galvanized steel pole. · Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.

428 Section	406 HM

Pole FID	Coordinates Lat. Long	Scope of Work	FID	Coordinates Lat. Long	Scope of Work
		· Remove and dispose 42-inch crossarm. · Remove, dispose and replace (3) Fuse Cutouts.			
19596535	[redacted]	· Remove and dispose 35ft. concrete pole and replace with 45ft. round tapered steel pole. · Remove, dispose and replace primary framing and secondary framing. · Remove, dispose and replace streetlight (LED Type. (STL-10).	19596535	[redacted]	· Replace 45ft. round pole. with 45ft. S5.7 galvanized steel pole. · Replace (3) Fuse Cutouts in FID 19595269 with the installation of (1) Single-Phase Recloser 200A.
19595269		· Remove, dispose and replace (3) Fuse Cutouts. · Labor to close jumpers.			
22103246		· Install (3) Fault Current Indicators (FCIs).	22103246		· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).
19593241		· Install (3) Fault Current Indicators.	19593241		· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

_X_ **Ground disturbance outside of existing footprint**. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

· Poles - Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact), for the depths of the poles to be installed.

· **Soil testing or boring to be performed as part of pre-construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

· **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

_X_ **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

• Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	FAASt	Vegetation Project
8801-01 8801-03	728827	FAASt [Region 2 -Arecibo Group A] High Density (Vegetation)
8801-02	750067	FAASt [Region 2 -Arecibo Group A] Low Density (Vegetation)

_X_ **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) ?nal debris disposal location; and (4) ?nal debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, ?nal debris disposal location, and ?nal debris disposal method is not yet available.

_X_ **Staging areas, landing area for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area**: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identi?ed any other additional staging areas that
- **Access Roads**: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

_X_ **Fill material**. If the project includes the use of ?ll material, provide the source of the ?ll material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

__Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__Photos of all sides of the facility are provided.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t *Appendix A- LUMA Project Cost Estimate*.

COST ESTIMATE			
COST ELEMENT	**428**	**406**	**PROJECT TOTAL**
PLANNING	$110,111.221	-	$110,111.221
MANAGEMENT	$79,026.590	-	$79,026.590
LPCE DISTRIBUTION AUTOMATION GROUP 19	$1,345,698.505	-	$1,345,698.505
GENERAL CONDITIONS	$72,680.074	-	$72,680.074
COST TOTALS	**$1,607,516.390**	**-**	**$1,607,516.390**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		

FAASt ALLOCATIONS	**FAASt Project # 752808 TOTAL**	**$1,352,947.241**
	FAASt E&M #673691 - 428	$134,857.230
	FAASt A&E # 335168 -428	$119,711.919

428 Project Summary, Version 2:

Work to Be Completed (WTBC): $1,607,516.39

E&M Deduction (#673691) 428: -$134,857.23

A&E Deduction (Global A&E FAASt 335168): -$119,711.92

Project Total Cost: $1,352,947.24

VERSION SUMMARY OF KEY CHANGES:

V0: $2,753,627.24 (WTBC, A&E Deduction)

V1: $0.00 (WTBC)

V2: $1,352,947.24(WTBC, & Version 0 Cost De-obligation)

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: *752808- DR4339PR - DSOW Group 19- Revision 004- V1.pdf*.
2. Refer to detailed cost estimate in document: *752808-DR4339PR-APPENDIX B-Detailed Cost Estimate Revision 004 - V1.xlsx*.
3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.
5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.
6. The following attachments and appendices are provided with this DSOW:

A LUMA Project Cost Estimate

B Project Considerations

C LUMA's Active Projects

D Pole Height Increase Justification

6. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: 'SP 752808- DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.'"

406 HMP Scope

**********Version 1**********

Project number: [752808] FAASt [Automation Program Group 19] (Distribution)

Damage #: 1310158; FAASt [Automation Program Group 19: Arecibo Feeders 8801-01, 8801-02, 8801-03] (Distribution)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Arecibo, Puerto Rico

GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

   The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the feeder or poles. In this project:

   a) Two (2ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with tow (2ea) 50ft (S-8.5) 12-sided galvanized pole.

   b) Existing one (1ea) 40ft concrete pole will be replaced with one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5)12-sided galvanized pole.

   c) Existing three (3ea) 45ft concrete pole will be replaced with three (3ea) 45ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with three (3ea) 45ft (S5.7)12-sided galvanized pole.

   d) Existing five (5ea) 35ft concrete pole will be replaced with five (5ea) 45ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with five (5ea) 45ft (S5.7)12-sided galvanized pole.

   e) Existing three (3ea) 45ft concrete pole will be replaced with three (3ea) 50ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with three (3ea) 50ft (S8.5)12-sided galvanized pole.

   f) Existing five (5ea) 40ft concrete pole will be replaced with five (5ea) 45ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with five

(5ea) 45ft (S5.7)12-sided galvanized pole.

g) Existing one (1ea) 60ft concrete pole will be replaced with one (1ea) 60ft round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 60ft (S8.5)12-sided galvanized pole.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the installation five (5ea) three-phase reclosers and thirty-two (32ea) single-phase recloser.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of fifteen (15ea) communicating fault current indicators (cFCIs).

Mitigation Measures *(Supplementary)*

4. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of four (4ea) 1kVA stainless steel transformers.

5. Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of five (5ea) Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$577,475.71
+ HM (Subrecipient A&E, Management & General Conditions) =	$146,122.01
Hazard Mitigation Total Cost =	**$723,597.72**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$320,428.90
Architecture and Engineering (A&E) =	$ 52,375.13
Construction Cost =	$350,793.69

Hazard Mitigation Total Cost = **$723,597.72**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $723,597.72 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**********Version 0**********

406 Hazard Mitigation measures were not requested by the subrecipient for this project in Version 0. However, the mitigation opportunities will be applied in a future version (V1) of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$3,102,137.89	Uncompleted
3510	1	Lump Sum	($348,510.65)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$1,607,516.39	Uncompleted
9001	1	Lump Sum	($134,857.23)	Uncompleted
3510	1	Lump Sum	($119,711.92)	Uncompleted
9001	1	Lump Sum	($3,102,137.89)	Uncompleted
3510	1	Lump Sum	$348,510.65	Uncompleted

CRC Gross Cost	$1,352,947.24
Total 406 HMP Cost	$723,597.72
Total Insurance Reductions	$0.00
CRC Net Cost	$2,076,544.96
Federal Share (90.00%)	$1,868,890.47
Non-Federal Share (10.00%)	$207,654.49

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/2/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

2/18/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No

Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 19] (Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 19] (Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.
- a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out. d. All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased) or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.

- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant's permanent files.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.
- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harm s way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harm's way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Service's Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: Caribbean_es@fws.gov or jose_cruz-burgos@fws.gov
- 34. The Puerto Rican harlequin butterfly (Atlantea tulita) is endemic to Puerto Rico, occurring in the western portion of the island, in the northern karst region, and in the west-central volcanic-serpentine region. The following measures apply to the Puerto Rican harlequin butterfly through its current range: a. The contractor must inform all personnel about the potential presence of the Puerto Rican harlequin butterfly and its host plant, prickly bush (Oplonia spinosa), in the project areas. A pre-work meeting should inform all project personnel about the need to avoid harming this butterfly and its occupied host plant. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. Educational material (e.g., posters, flyers, or signs with photos or illustrations of all the life stages of the Puerto Rican harlequin butterfly (i.e., eggs, caterpillar, chrysalids, and adult, and its host plant) should be prepared and available to all personnel for reference. b. Before starting any project activity, including removal of vegetation and earth movement, the contractor must clearly delineate the boundaries of the working area in the field to avoid unnecessary habitat impacts. Once the

project areas are clearly marked, and before any work activity, including site preparation, personnel with knowledge and ability to identify the Puerto Rican harlequin butterfly (all life stages) and the prickly bush must survey the areas where the work will be performed for the presence of the species and its host plant. It is important to note that the Puerto Rican harlequin butterfly can be observed year-round in all life stages; thus, oviposition (egg-laying) may occur at any time during the year. c. If the prickly bush is present on the project site, try to avoid cutting the plant, even if no eggs, caterpillars, or chrysalids are present. d. If there is no prickly bush within the project area, but the butterfly is observed flying within the project area, do not harass, harm, pursue, wound, kill, trap, capture, collect, or attempt to engage in any such conduct, the species. e. Adult butterflies are often observed flying near the host plant as part of their mating behavior and for laying eggs. Project-related activities must stop if the prickle bush is found in the project area and the Puerto Rican harlequin butterfly is observed flying in that same area. A temporary 50-meter (164 feet) buffer zone of no activity or human disturbance should be established and clearly marked around that prickly bush until the butterfly moves out on its own.

- f. Once the Puerto Rican harlequin butterfly has moved away, within a period of 24 to 36 hours, a search of the prickly bush that has been buffered should be conducted to determine the presence of any eggs, caterpillars, or chrysalids of the butterfly on the plant. The contractor or the Applicant should send a report of the observation and its findings to caribbean_es@fws.gov after the 36-hour search is concluded. g. If, after the initial search or after the 24 to 36-hour search, any life stage of the Puerto Rican harlequin butterfly is found in the prickly bush, take the following actions: o Clearly mark the host plant with flagging tape. o Establish a 10-meter (32-foot) buffer zone around the bush for its protection. o Eggs are typically found on the prickly bush's newly grown, tender branches. Once the egg hatch, the caterpillar moves and feeds throughout the bush. Therefore, avoid cutting off the prickly bush within the project site even if no eggs, caterpillars, or chrysalids are present. o Work within the 10-meter buffered area may resume when no signs of any live life stage of the butterfly are detected, which usually takes approximately 60 to 120 days. h. For all Puerto Rican harlequin butterfly sightings (all life stages), the time and date of the sighting and the specific location where the butterfly was found must be recorded. Data should also include a photo of the butterfly (if possible) and the habitat where it was observed, site GPS coordinates, and comments on how the butterfly was detected and its behavior. All Puerto Rican harlequin butterfly sighting reports should be sent to the Service&#65533;s Caribbean Ecological Service Field Office at caribbean_es@fws.gov. j. For questions regarding the Puerto Rican harlequin butterfly, the Point of Contacts are: o José Cruz-Burgos, Endangered Species Coordinator: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: jose_cruz-burgos@fws.gov o Carlos Pacheco, Fish and Wildlife Biologist . Mobile: 786-847-5951 . Office Direct Line: 939-320-3113 . Email: carlos_pacheco@fws.gov
- ***DISREGARD PREVIOUS COMMENTS***On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
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- ***Disregard condition related to additional staging areas***
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at close-out.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 19] (Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 8:56 PM PDT

Review Comments

Version 2 reflects the negative cost for PA reconciliation process. Change request - $1,400,680.00 for a total Federal share for this project of $1,868,890.47.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 6:52 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $2,076,544.96 for subaward number 108000 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
3/20/2026	4339DRPRP01080001	20173YP0-06102025	6/9/2025	$619,566.13
3/20/2026	4339DRPRP01080001	20173YP0-03042026	3/3/2026	($619,566.13)

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	2/6/2025	$2,478,264.52	90%	Accepted	4339DRPRP01080001
2	10/8/2026	($1,260,612.00)	90%	Accepted	4339DRPRP01080001
1	8/27/2026	$651,237.95	90%	Accepted	4339DRPRP01080001

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	757689 **P/W #** 108034	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 24] (TL/ Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399041; FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 24
- **Facility Description:** Caguas Feeders: 3405-02, 3501-01, 3501-03
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399041

FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

Introduction

This document is to submit for approval a Detailed Scope of Work ("SOW") to COR3 and FEMA forthe Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority ("PREPA"), the Puerto RicoPublic-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installs advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program is broken into multiple projects being implemented across the island on both transmission and distribution systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The individual projects are interconnected and enhance each other, but each can also be implemented independent of each other, and each confers benefits independently. Automation is necessary to restore the T&D systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757689 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the reclosers, their communication kits, and the communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 3405- 02, 3501-01, and 3501-03.

Key components of this project are (1) pole replacement, (2) the three-phase reclosers, single- phase reclosers, and (3) the communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Reclosers: A three-phase recloser is a protection device that is used on three- phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre- empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damage from future disasters. In this project we are installing seven total three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three-phases if fault currents are low at the location. In this project we are installing a total of 34 single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independent of the feeder reclosers. cFCI help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notification/alarms based on user set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

Facilities Description

The facilities listed below are part of PREPA's electric distribution system. All feeders originate from a substation (GPS Start) and serve customers along the route to various locations (GPS End). The coordinates shown below represent the mainline backbone of the feeder at issue in this project. To avoid duplication of work across projects, LUMA reviewed the FIDsidentified for work across distribution programs. The analysis did not identify any poles on this feeder, where LUMA is installing Distribution Automation ("DA") devices, that require disaster-related replacement. Accordingly, LUMA has not initiated any rebuild projects for this feeder under the Distribution Rebuild Program (also referred to as the "D-Line Program").LUMA also confirmed that none of the poles on this feeder, which will be replaced under the Pole and Conductor Repair Program (also referred to as the "D-Pole Program"), will be replaced again under the DA Program. Because the poles in the DA program are not identified for replacement in either the D-Line or D- Pole Programs and the only cause for their replacement is the proper execution of mitigation

measures, the pole replacement is included in the 406 Hazard Mitigation scope of work of this project. This allocation is consistent with the illustrated scenarios provided in the DA Program position paper and LUMA's Resilience Plan. To further address any concerns regarding the duplication of work across other proposed or planned Hurricane Maria distribution projects, LUMA provides Appendix D which contains a list of all FIDs on the feeder upon which FEMA-eligible work will be performed and the associated proposed scope of work under each distribution program. Please refer to the ***APPENDIX D - LUMA Active Projects*** to show no duplication of scope elements.

Facilities List

Name	Feeder Number	GPS Start	GPS End
Caguas	3405-02	[redacted]	
Caguas	3501-01		
Caguas	3501-03		

Note: Please refer to ***Appendix C — Project Considerations*** *for a list of all GPS locations that this project will impact*.

Below is a breakdown of the scope of work for the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this

group.

4.1

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
6225594	[redacted]	(CP-C1) (K-1)	(CP-C6-XARM) (REC-2-1VER 6.) (K-7-4) (K-5)	• Use existing galvanized steel pole 50'. • Install (1) Three-Phase recloser 3405-02A. • Install and Commission Three-Phase radio communication kit for three-phase recloser. • Install (1) kva transformer
				(4.80/8.32 kv - 120/240 v) for load side. • Use existing secondary conductor for Source s
NEW POLE	[redacted]	(K-6	(50'-S8.5 GALVANIZED STEEL POLE) (S-6) (REC-2-2 VER 3.) (K-6)	• Install new 50' S8.5 12- Sided galvanized steel new location midspan. • Transfer secondary framing from Wood pole to pole installed. • Install (1) Three-Phase recloser 3405-02B. • Install and Commission Three- Phase communication kit for three-phase recloser • Use existing Secondary conductor for load side. • Install (1) 1 kva transformer (4.80/8.32 Kv - 120 for source side.
6225197		35' WOOD POLE) (CP-C1) (STL-10) (K-7-4) (E-2-1)	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-3-C) (STL-10) (K-7-4)	• Remove and dispose 35' wood pole. • Replace pole with 45; S5.7 12-Sided galvanized s pole. • Install (3) single-phase Recloser • Remove, dispose and replace streetlight. • Remove and dispose stub pole.
6225174		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) fuses.
6225199		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) fuses.
N/A		(NONE)	(LABOR & cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicator in segment fid: 15920052
N/A		(NONE)	(LABOR & cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicator in segment fid: 15894044.

Feeder 3501-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
New Pole	[redacted]	(NONE)	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (REC-2-1 VERS6) (K-6) (E-1-2-3 (QTY=1) (F- 1-3 (QTY=1))	• Install a new 50' S8.5 12-Sided galvanized st on midspan. • Install (1) Three-Phase recloser **3501-01A.** • Install and Commission Three- Phase radio communication kit for three-phase recloser • Use secondary conductor from adjacent pole 10650427 to feed recloser a on load side. • Install (1) 1kva transformer (4.80/8.32 kv - 120/240 v) for source side.
				• Install (1) anchor. • Install (1) down guy.
7636018	[redacted]	(45'-C3 WOOD POLE) (CP-C6-XARM) (K-5) (STL-10) (E-1-2-(QTY=1)) (F-1-3 (QTY=1))	(50' S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C3- XARM) (REC-2-1-VER.6) (K-5) (STL-10) (E-1-2-3(QTY=3)) (F-4-2 (QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 45' C3 wood pole. • Replace pole with 50' S8.5 12- Sided galvanized steel pole. • Install (1) Three-Phase recloser **3501-01B** on a radial configuration. • Install and Commission Three- Phase radio communication kit for three-phase recloser • Install (1) 1kva transformer (4.80/8.32kv - 120/24 source side. • Remove, dispose and replace (1) anchor and (1) downguy. Install addtionals (2) down guys and (1) anchor. • Remove, dispose, and replace streetlights.
NEW POLE		(NONE)	(70'-S8 12-SIDED GALVANIZED STEEL POLE) (38KV SC VERTICAL SUSPENSION ASSY. ANGLE 0-10) (OPS- REC-2-1-1) (AH-GS-88.5)	• Install a new 70' S8 12-sided galvanized steel pol midspan. • Install (1) Three-Phase Recloser **3501-01C.** • Install and Commission Three- Phase radio communication kit for three-phase recloser • Install 1kva transformer (4.80/8.32 kv - 120/240 v source side. • Install (1) Anchor and (1) down guy.
7637226		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.

10070962	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
7638447		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
10070589		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
7638363		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) fuses. • Replace with (3) solid blade cutout.
7635056		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
7636028		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
1001762143		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
10072183		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.

10650385	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
10650434		(45'-S3 GALVANIZED STEEL POLE) (CP-C7) (K- 7 A) (STL-10) (ASSY 1509QTY=3))	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (CP-C5-XARM) (REC-3-C) (K-7 A) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Remove and dispose 45' S3 galvanized steel pole • Replace pole with 50' S8.5 12- Sided galvanized steel pole. • Remove and dispose (3) fuses • Install (3) Cutout Mounted Single- Phase Recloser • Remove, dispose and replace streetlight. • Install (2) anchors and (2) down guys. • Remove, dispose and replace framings.
7636020		(45'-CLASS 3 WOOD POLE) (CP-C5-XARM) (CP-C2) (STL-10)	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (CP-C5-XARM) (REC-3-C) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1)) (STL-10)	• Remove and dispose 45' Class 3 Wood pole. • Replace pole with 50' S8.5 12- Sided galvaniz steel pole. • Remove, dispose and replace framings. • Remove and dispose (3) fuses. • Install (3) Cutout Mounted Single- Phase recloser. • Install (1) anchor and (1) down guy. • Remove, dispose and replace streetlight. • Communication lines should remain in wood pole.

7637703	[redacted]	(40'-CLASS 4 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM)	(50'S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (CP-C5-XARM) (REC-3-C) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 40' Class 4 wood pole. • Replace pole with 50' S8.5 12- Sided galvaniz steel pole. • Remove, dispose and replace framings. • Install (3) Cutout Mounted Single- Phase. • Install (1) anchor and (1) down guy.
10650761		(ASSY 1509QTY=3)) (STL-10) (K-7-B)	(REC-3-C) (K-7-B) (STL-10) (290FT 3/0ACSR PRIMARY)	• Use existing steel pole 50'-s8.5. Remove • Remove and dispose (3) Fuses. • Install (3) Cutout Mounted Single- Phase Recloser • Remove, dispose and replace streetlight. • Install 290ft 3/0acsr primary conductor
10650746		(40'-H4 CONCRETE POLE) (CP-C1) (K-7-A) (STL-10)	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C1) (K-7-A) (STL-10)	• Remove and dispose 40' H4 Concrete Pole. • Replace with 45' S5.7 12-Sided galvanized steel p • Remove, dispose and replace framings. • Remove, dispose, and replace Streetlight.
10650729		(40'-H3 CONCRETE POLE) (CP-C6-XARM) (ASSY 1509 (QTY=3)) (K- 5)	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-3-C) (CP-C6-XARM) (K-5)	• Remove and dispose 40' H3 concrete pole. • Replace pole with 45' S5.7 12- Sided galvanized steel pole. • Remove, dispose and replace framings.

		(K-7-2 B)	(E-1- 2-3 (QTY=1)) (F-1-3(QTY=1)) (K-7-2 B)	• Remove and dispose (3) fuses. • Install (3) Cutout Mounted Single- Phase recloser. • Use existing (1) anchor and existing (1) down guy.
7638451	[redacted]	(40'-S3 GALVANIZED STEEL POLE) (CP-C2)	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-3-C) (CP-C6-XARM) (E-1-2- 3(QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 40' S3 galvanized pole. • Replace with 45' S5.7 12-Sided galvanized st pole. • Remove, dispose and replace framings. • Install (3) Cutout Mounted Single- Phase recloser • Install (1) anchor and (1) down guy.
NEW POLE		(NONE)	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-3-C) (CP-C6-XARM) (K-6)	• Install a new 45' S5.7 12-Sided galvanized steel p midspan • Install (3) Cutout Mounted single- phase recloser. • Replace open wire conductor to 1/0 source side load side

10070681	[redacted]	(35' CLASS 4 WOOD POLE) (CP-C3-XARM) (CP-C5-XARM) (K-7-B) (STL-10) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (REC-3-C) (CP-C3-XARM) (CP-C5-XARM) (K-7-B) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3(QTY=1))	• Remove and dispose 35' Class 4 wood pole. • Replace with 50' S8.5 12-Sided galvanize steel pole. • Install (3) Cutout Mounted Single Phase recloser. • Remove, dispose and replace streetlight. • Remove, dispose and replace (1) anchor and(1) guy.
10070989		(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
10071125		(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
7638460		(ASSY 1509 (QTY=1))	(LABOR & REPAIR)	• Remove and dispose (1) Fuses.
10650422		(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
N/A		(NONE)	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicator on Segment 14544804.
N/A		(NONE)	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault current indicator on Segment 8456952.
7639086		(ASSY 1509 (QTY=3))	(ABS-3-XARM) (E1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Use existing galvanized steel Pole 50'-s8.5. • Remove and dispose (3) fuses with • Install (3) horizontal air-break Switch. • Install (1) anchor and (1) Down guy.

Feeder 3501-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

6834387	[redacted]	(40'-C4 WOOD POLE) (CP-B3) (S-3) (E-2-1 (QTY=1)) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1))	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (40'-S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-2-2 Ver.3) (S-6) (K-5) (E-2-1(QTY=1)) (E-1-2-3 (QTY=2)) (F-4-2(QTY=1))	• Remove and dispose 40' C4 wood pole. • Replace pole with 50' S8.5 12- Sided galvan Steel pole. • Remove, dispose and replace primary Frami • Install (1) Three-Phase Recloser Recloser 3 03A. • Install and Commission Three- Phase radio communication kit for three-phase recloser • Install (1) 1kva (4.80/8.32 kv - 120/240 V) fc source side. • Install Secondary framing. • Install 1/0 tpx Secd for load side (190ft). • Remove and dispose. Replace this stub pole 40' S5.7 12- Sided galvanized Steel pole. • Remove, dispose and replace (1) anchor. • Remove, dispose and replace (3) Down guy
NEW POLE		NONE	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (REC-2-2 Ver. 4) (S-6) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1)) (K-6)	• Install new 50' S8.5 12-Sided galvanized ste pole in new location mid span. • Install primary framing. • Install (1) Three-Phase Recloser 3501-03B i Configuration. • Install and Commission Three- Phase radio communication kit for three-phase recloser • Install (1) 1 kva Transformer (4.80/8.32-120/240v) for Source side. • Install secondary Framing. • Install secondary open Wire configuration 1/0 tpx secd (140ft). • Install (1) anchor and (2) Down guys.
6837608		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
6835055		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
7340258		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
6837183		(35'-C4 WOOD POLE) (CP-C12- XARM) (E-1-2-3(QTY-1))	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C12-XARM)	• Remove and dispose 36' C4 wood pole. • Replace pole with 45' S5.7 12- Sided Galvar steel pole.

		(F-1-3(QTY-1))		• Remove, dispose and replace Primary framin • Install solid blade Cutout (fid: 14538193). • Remove and dispose (3) fuses. • Remove and dispose (1) Anchor and (1) dov

6835051	[redacted]	45'-C3 WOOD POLE) (CP-C7-XARM) (S-6) (STL-10) (K-7 A) (K-5) (E-1-2-3(QTY-2)) (F-1-3(QTY-2))	(50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (REC-3-B) (S-6) (CP-B5 XARM) (STL-10) (K-7 A) (K-5) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	• Remove and dispose 45' C3 wood pole • Replace with 50' S8.5 12-Sided galvanized s Pole. • Remove, dispose and replace framings. • Install (3) Cutout Mounted Single- Phase Rec • Remove and dispose (2) fuses. • Remove and dispose (2) Anchor. Replace or one. • Remove and dispose (2) Downguy. Replace only one. • Remove, dispose and replace streetlight.
6834513		(40'-C3 WOOD POLE) (CP-B6 XARM) (E-1-2-3(QTY-2)) (F-1-3(QTY-2))	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-3-B) (CP-B6 XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	• Remove and dispose 40' C3 wood pole. • Replace 45' S5.7 12-Sided galvanized steel Pole. • Remove, dispose and replace framings. • Install (2) Cutout Mounted Single- Phase recl pole • Fid: 6834513. • Remove and dispose (2) anchor. And (2) downguy. Replace (1) anchor and (1) downguy
6837617		(40'-C3 WOOD POLE) (CP-C6 XARM) (CP-C5 XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	(45'-S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-3-C) (CP-C6 XARM)	• Remove and dispose 40' C3 wood • Replace with 45' S5.7 12-Sided galvanized ste Pole. • Remove, dispose and replace framings. • Install (3) Cutout Mounted Single- Phase Reclos • Remove and dispose (1) anchor. And (1) dow • Remove and dispose tap-off that is not In servi
6834559		(ASSY-1509 (QTY=1)	(LABOR & REPAIR)	• Remove and dispose (1) Fuse.
6834934		(ASSY-1509 (QTY=1)	(LABOR & REPAIR)	• Remove and dispose (1) Fuse.
6837612		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
N/A		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicato Segment 14544808.
N/A		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current indicato Segment 14538193.

For more detailed information about the scope of work please refer to the ***APPENDIX B - LUMA Project Cost Estimate***.

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and **APPENDIX C – Project Considerations**.

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations; there are new pole locations included in this scope of

work. Refer to **APPENDIX C – Project Considerations**, column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	Project Title
3501-01	727694 FAASt Region 4 -Caguas Group C] (Vegetation)
3405-02 3501-03	727692 FAASt Region 4 -Caguas Group A] High Density (Vegetation)

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope

of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right-of-way.

2) Debris will be separated and taken to an authorized waste disposal facility in compliance with applicable federal and local regulations.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. The warehouse assigned is the Caguas Regional Warehouse, whose address is # 1 Street, Jose Mercado Corner, Caguas, PR. Coordinates are [redacted]. Refer to document *Warehouse Locations.*

5) Fill, gravel, and sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manlift, 120-ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform*.

7) Specific List of **Permits Required**:

a. Department of Transportation and Public Works - ("DTOP") Endorsements & Municipality Notifications

b. Excavation and Demolition Notification in the Department of Transportation and Public Works Agency - ("DTOP")

c. LUMA will provide proof of all permits.

Proposed 406 Hazard Mitigation Scope of Work

This version of the project will be fully funded using PA 428 funds. A future version of this project may contain PA 406 HM measures.

Project Cost Estimate

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and may be subject to change. LUMA has allocated 10% of the project cost to mitigate potential known risks. For more details, refer to LUMA LPCE **Refer to APPEND IX *B- LUMA Project Cost Estimate.***

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$185,494.10**	**$-**	**$185,494.10**
MANAGEMENT	**$113,805.22**	**$-**	**$113,805.22**
Distribution Automation Group 24	**$2,223,519.81**	**$-**	**$2,223,519.81**
GENERAL CONDITIONS	**$114,130.59**	**$-**	**$114,130.59**
COST TOTALS	**$2,636,949.72**	**$-**	**$2,636,949.72**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 757689- 428		**$1,774,822.40**
	FAAST PROJECT 757689- 406HM		**$-**
	FAAST PROJECT # 757689 TOTAL		**$1,774,822.40**
	FAASt A&E # 335168 - 428		**$299,299.32**
	FAASt A&E # 335168 - 406 HM		**$-**
	FAASt A&E # 335168 TOTAL		**$299,299.32**
	FAASt E&M #673691 - 428		**$562,828.00**
	FAASt E&M #673691 - 406 HM		**$-**
	FAASt E&M #673691 TOTAL		**$562,828.00**

Work To Be Completed (WTBC): $2,636,949.72

A&E Deduction (Global A&E FAASt 335168): $299,299.32

Equipment & Material Deduction (Global FAASt 673691): $562,828.00

Project Total Cost: $1,774,822.40

Project Notes:

1. Refer to detailed SOW provided in document “757689- DR4339-PR- DSOW- Group 24 - Rev. 2.pdf”

2. Refer to detailed cost estimate summary provided in document “757689-DR4339PR-APPENDIX B- LUMA Project Cost Estimate. Rev. 2 xlsx.”.

3. This project is part of a FAAST project, please reference project 136271.

4. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168 A&E, as shown in the table above. The A&E project was obligated to track and account for cost associated with individual FAASt projects.

5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project Group 24 Automation Program FAASt 757689.

6. For attachments, refer to:

   a. 757689-DR4339PR-APPENDIX A - Initial Scope of Work

   b. 757689-DR4339PR-APPENDIX B - LUMA Project Cost Estimate

   c. 757689-DR4339PR-APPENDIX C - Project Considerations

   d. 757689-DR4339PR-APPENDIX D - LUMA Active Projects

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,636,949.72	Uncompleted
3510	1	Lump Sum	($299,299.32)	Uncompleted
9001	1	Lump Sum	($562,828.00)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,774,822.40
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,774,822.40
Federal Share (90.00%)	$1,597,340.16
Non-Federal Share (10.00%)	$177,482.24

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/1/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously

disturbed or hardened surfaces can be provided at close-out.

- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.
- Endangered Species Act (ESA). The below conservation measures apply to the following species: Puerto Rican Plain Pigeon (Patagioenas Inornata Wetmorei) for Feeder 3405-02. 1. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside the breeding season no nest surveys are required, but if a nest is encountered, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: Puerto Rican plain pigeon: April-September. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. For questions, the Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Program Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: jose_cruz-burgos@fws.gov
- - The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. - The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. - Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Executive Order 11988 Floodplain Conditions for Feeders 3501-01 and 3501-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 3501-03: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (3405-02; 3501-01; and 3501-03). 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harms way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation

process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 06/09/2025 4:21 PM PDT

Review Comments

Project has been reviewed, found eligible and reasonable. -CLG 06.09.25

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/03/2025 3:30 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v1

General Info

Project #	757689 **P/W #** 108034	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 24] (TL/ Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399041; FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 24
- **Facility Description:** Caguas Feeders: 3405-02, 3501-01, 3501-03
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399041

FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

********** Version 1 **********

Version 1 created to align the scope and cost in PA and HM. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion.

SOW from previous Versions has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 757689 Automation Program Group 24 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million Residents

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throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757689 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 3405-02, 3501-01, and 3501 03.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault

currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing seven three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of thirty four single-phase reclosers.

(3) Communicating Fault Current Indicators

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic notification/alarms based on user- set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the

operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

7.0 FACILITIES

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project: None

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the names and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 24 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Caguas	3405-02		
Caguas	3501-01		
Caguas	3501-03		

Note: Please refer to APPENDIX B - Project Considerations for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Caguas Warehouse, whose address is #1 Street, Jose Mercado Corner, Caguas, PR. The warehouse coordinates are [redacted]. The staging area will be located at Caguas where coordinates are [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK

The proposed type of work for this project: Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

In the obligated submission (Version 0), LUMA proposed:

- **Removal and replacement of fourteen (14) damaged poles.**
- **Install five (5) new poles.**
- **Install seven (7) Three Phase Reclosers.**
- **Install thirty-four (34) Single Phase Reclosers, remove fuses and close jumpers.**
- **Install eighteen (18) communicating Fault Indicators (cFCIs).**
- **Install seven (7) transformers**

LUMA requests the alignment the scope and cost of Project 757689 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- **Pole replacement to accommodate recloser installation: 406 Mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).**

- **Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone and the additional cost (delta) for the replacement of the fuse cutouts for single-phase reclosers on lateral circuit lines.**

- **Communicating Fault Current Indicators: 406 Mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).**

- **Distribution Transformers: 406 Mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.**

The obligated DSOW included new pole installations. The revised DSOW aligns the scope of these poles with a 406 Mitigation proposal approved by FEMA.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- **Air Break Bypass Switches**

    - **Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in the event of failure or maintenance and maintain the three-phase circuit energized while the situation is resolved..**

- **Due to engineering changes to the project feeders, the updated DSOW now includes four (4) poles that were not included in Version 0 of the project.**

    - **Three (3) new poles installations at new locations.**

    - **One (1) pole to be removed and replaced.**

    - **These changes align the scope with the 406 Mitigation proposal approved by FEMA, where applicable.**

- **For a detailed breakdown of new items to be included in this amendment, refer to the amendment letter of this project.**

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder 3405-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
6225594	[redacted]	(CP-C1) (K-1)	(CP-C6-XARM) (K-7-4) (K-5)	•Existing galvanized steel pole: Remove, dispose and replace primary framings. • Remove, dispose and replace secondary framing (K-7-4). • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.

NEW POLE	[redacted]	NONE	(50ft GALVANIZED ROUND TAPERED POLE) (S-6)	•Install new 50ft galvanized round tapered pole in new location midspan. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
6225197	[redacted]	35ft WOOD POLE) (CP-C1) (STL-10) (K-7-4) (E-2-1)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (K-7-4)	•Remove and dispose of a 35ft wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace streetlight (LED Type). • Remove and dispose stub pole.
6225174	[redacted]	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.

6225199	[redacted]	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
Segment FID 15920052		(NONE)	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 15894044		(NONE)	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Feeder 3501-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

New Pole	[redacted]	**(NONE)**	**((50ft GALVANIZED ROUDN TAPERED POLE) (CP-C6- XARM) (E-1-2-3 (QTY=1) (F- 1-3 (QTY=1))**	**• Install a new 50ft. galvanized round tapered pole.** **• Install (1) anchor.** **• Install (1) down guy.** **• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.**

7636018	[redacted] [redacted]	(45ft-C3 WOOD POLE) (CP-C6-XARM) (K-5) (STL-10) (E-1-2-(QTY=1)) (F-1-3 (QTY=1))	((50ft GALVANIZED ROUND TAPERED POLE) (CP-C3- XARM) (K-5) (STL-10) (E-1-2-3(QTY=3)) (F-4-2 (QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 45ft C3 wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace (1) anchor and (1) downguy. Install additional (2) downguys and (1) anchor. • Remove, dispose, and Replace streetlights (LED Type). • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.

NEW POLE	(NONE)	(70ft GALVANIZED ROUND TAPERED POLE) (38KV SC VERTICAL SUSPENSION ASSY. ANGLE 0-10) (AH-GS-88.5)	• Install a new 70ft galvanized round tapered pole. • Install (1) anchor and (1) downguy. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
7637226	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
10070962	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
7638447	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
10070589	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
7638363	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts and replace with (3) solid blade cutout.

7635056	**(ASSY 1509 (QTY=3)**	**(LABOR & REPAIR)**	**• Remove and dispose (3) Fuse Cutouts.**
7636028	**(ASSY 1509 (QTY=3)**	**(LABOR & REPAIR)**	**• Remove and dispose (3) Fuse Cutouts.**
1001762143	**(ASSY 1509 (QTY=3)**	**(LABOR & REPAIR)**	**• Remove and dispose (3) Fuse Cutouts.**
10072183	**(ASSY 1509 (QTY=3)**	**(LABOR & REPAIR)**	**• Remove and dispose (3) Fuse Cutouts**
10650385	**(ASSY 1509 (QTY=3)**	**(LABOR & REPAIR)**	**• Remove and dispose (3) Fuse Cutouts**

10650434	[redacted]	(45ft-S3 GALVANIZED STEEL POLE) (CP-C7) (K- 7 A) (STL-10) (ASSY 1509QTY=3))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6- XARM) (CP-C5-XARM) (K-7 A) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Remove and dispose of 45ft S3 galvanized steel pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace (3) Fuse Cutouts. • Remove, dispose and replace streetlight (LED Type) • Install (2) anchors and (2) downguys. • Remove, dispose and replace framings.

7636020	[redacted]	(45ft-CLASS 3 WOOD POLE) (CP-C5-XARM) (CP-C2) (STL-10)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6- XARM) (CP-C5-XARM) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1)) (STL 10)	• Remove and dispose 45ft Class 3 wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace (3) Fuse Cutouts. • Install (1) anchor and (1) downguy. • Remove, dispose and replace streetlight (LED Type). • Communication lines should remain in wood pole.

7637703	[redacted]	(40ft-CLASS 4 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6- XARM) (CP-C5-XARM) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 40ft Class 4 wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Install (1) anchor and (1) downguy. • Install (3) Fuse Cutouts
10650761	[redacted]	(ASSY 1509QTY=3)) (STL-10) (K-7-B)	(K-7-B) (STL-10) (290FT 3/0ACSR PRIMARY)	• On existing steel pole: • Remove, dispose and replace (3) Fuse Cutouts. • Remove, dispose and replace streetlight (LED type). • Install 290ft 3/0acsr primary conductor.

10650746	[redacted]	(40ft-H4 CONCRETE POLE) (CP-C1) (K-7-A) (STL-10)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1) (K-7-A) (STL-10)	• Remove and dispose 40ft H4 concrete pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose, and replace Streetlight (LED Type).
10650729	[redacted]	(40ft-H3 CONCRETE POLE) (CP-C6-XARM) (ASSY 1509 (QTY=3)) (K- 5) (K-7-2 B)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (K-5) (E-1- 2-3 (QTY=1)) (F-1 3(QTY=1)) (K-7-2 B)	• Remove and dispose 40ft H3 concrete pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace (3) Fuse Cutouts. • Re-use existing (1) anchor and existing (1) downguy.

7638451	[redacted]	(40ft-S3 GALVANIZED STEEL POLE) (CP-C2)	(50ft GALVANIZED ROUND POLE) (CP-C6-XARM) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 40ft S3 galvanized pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Install (1) anchor and (1) downguy.
NEW POLE	[redacted]	(NONE)	(50ft-GALVANIZED TAPERED STEEL POLE) (CP-C6-XARM) (K-6)	• Install a new 50ft galvanized round tapered pole on midspan. • Install primary framings. • Replace open wire conductor to 1/0 source side and 65' load side.

10070681	[redacted]	(35ft CLASS 4 WOOD POLE) (CP-C3-XARM) (CP-C5-XARM) (K-7-B) (STL-10) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	(50ft GALVANIZED ROUND TAPERED) (CP-C3-XARM) (CP-C5-XARM) (K-7-B) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3(QTY=1))	• Remove and dispose 35ft Class 4 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace primary framings. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (1) anchor and (1) downguy. •Remove, dispose and replace primary framings. •Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (1) anchor and (1) downguy.

10070989	[redacted]	(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
10071125		(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
7638460		(ASSY 1509 (QTY=1))	(LABOR & REPAIR)	• Remove, dispose and replace (1) Fuse Cutouts.
10650422		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
Segment FID 14544804		(NONE)	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 8456952		(NONE)	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
7639086		(ASSY 1509 (QTY=3))	(ABS-3-XARM) (E1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Existing Pole. • Remove and dispose (3) fuse cutouts and replace with (3) Air-Break Switch. • Install (1) anchor and (1) downguy.

Feeder 3501-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

6834387	[redacted]	(40ft-C4 WOOD POLE) (CP-B3) (S-3) (E-2-1 (QTY=1)) (E-1-2-3 (QTY=2)) (F 4-2 (QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (40'-GALVANIZED ROUND TAPERED POLE) (S-6) (K-5) (E-2-1(QTY=1)) (E-1-2-3 (QTY=2)) (F-4-2(Q40TY=1))	• Remove and dispose 40ft C4 pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace primary framing. • Remove and dispose 40ft C4 wood pole (stub pole) and replace with 40ft round tapered steel pole. • Remove, dispose and replace (1) anchor. • Remove, dispose and replace (3) downguy. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.

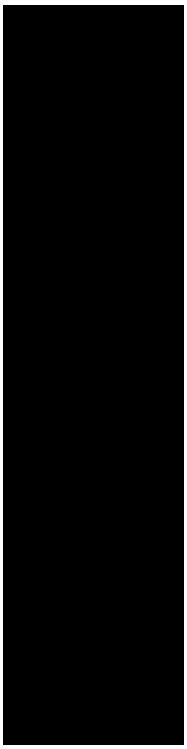
NEW POLE	[redacted]	**NONE**	**(50ft GALVANIZED TAPERED POLE) (S-6) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1)) (K-6)**	**• Install 50ft galvanized round tapered pole in new location mid span.** **• Install primary framing.** **• Install secondary framing.** **• Install secondary open wire configuration to secondary 1/0 triplex (140ft).** **• Install (1) anchor and (2) downguys.** **• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.**
6837608	[redacted]	**(ASSY-1509 (QTY=3)**	**(LABOR & REPAIR)**	**•Remove and dispose (3) Fuse Cutouts.**

6835055 [redacted]	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove and dispose (3) Fuse Cutouts.
7340258	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove and dispose (3) Fuse Cutouts.
6837183	(35ft-C4 WOOD POLE) (CP-C12-XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C12-XARM)	• Remove and dispose 35ft C4 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace primary framing. • Install solid blade cutout. • Remove and dispose (3) fuses. • Remove and dispose (1) anchor and (1) downguy

6835051	[redacted]	45ft-C3 WOOD POLE) (CP-C7-XARM) (S-6) (STL-10) (K-7 A) (K-5) (E-1-2-3(QTY-2)) (F-1-3(QTY-2))	(50ft GALVANIZED ROUND TAPERED POLE) (S-6) (CP-B5 XARM) (STL-10) (K-7 A) (K-5) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	• Remove and dispose 45ft C3 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace (2) Fuse Cutouts. • Remove and dispose (2) anchor. Replace only one. • Remove and dispose (2) downguy. Replace only one. • Remove, dispose and replace streetlight (LED Type).

6834513	[redacted]	(40ft-C3 WOOD POLE) (CP-B6 XARM) (E-1-2-3(QTY-2)) (F-1-3(QTY-2))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-B6 XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	• Remove and dispose 40ft C3 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove and dispose (2) anchor and (2) downguy. Replace only (1) anchor and (1) downguy.
6837617		(40ft-C3 WOOD POLE) (CP-C6 XARM) (CP-C5 XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6 XARM)	•Remove and dispose 40ft C3 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove and dispose (1) anchor and (1) downguy. • Remove and dispose tap-off that is not in service.

6834559 [redacted]	(ASSY-1509 (QTY=1)	(LABOR & REPAIR)	•Remove, dispose and replace (1) Fuse Cutouts.
6834934	(ASSY-1509 (QTY=1)	(LABOR & REPAIR)	•Remove and dispose (1) Fuse Cutouts
6837612	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove, dispose and replace (3) Fuse Cutouts.
Segment FID 14544808	NONE	(LABOR, FCI) (QTY=3)	•Install (3) Fault Current Indicators.
Segment FID 14538193	NONE	(LABOR, FCI) (QTY=3)	•Install (3) Fault Current Indicators.
NEW POLE	NONE	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C12-XARM)	• Install a new midspan 50' round galvanized steel pole. • Install primary and neutral framing. • Install (3) Fuse Cutouts.

NEW POLE 	**NONE**	**(50ft GALVANIZED ROUND TAPERED POLE) (CP-A12)**	**• Install a new midspan 50ft round galvanized steel pole.** **• Install primary and neutral framing.** **• Install (1) Fuse Cutout.**
NEW POLE	**NONE**	**(50ft ROUND TAPERED POLE (CP-C7) (E-1-2-3) (F-1-3) (F-4-2)**	**• Install new midspan 50' round galvanized steel pole at 8' depth.** **• Install spacer deadend primary.** **• Install primary and neutral framing.** **• Install (3) Fuse Cutout.** **• Install (3) downguy and (2) anchor.**

6835042	[redacted]	(CP-C1)	(CP-C6-VERT) (E-1-2-3) (F-4-2)	• Existing pole. • Remove, dispose and replace primary and neutral framing. • Install (3) Downguys and (1) anchor.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the table above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the table above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-

4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL, refer to document:

757689 -DR4339PR - Detailed Scope of Work Group 24 - Rev 05 - V1.pdf

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

X Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- **Poles - Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact), for the depths of the poles to be installed.**

-Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

-Relocation of utilities. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

- **Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the projects #750066 FAASt [Region 4 -Caguas Group A] Low Density (Vegetation) and #727691 FAASt [Region 4 -Caguas Group A] High Density (Vegetation).**

X Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- **Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method are not yet available.**

X Staging areas, landing areas for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that will require.**
- **Access Roads: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.**

X Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- **Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.**

- Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

- Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

-Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

-Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A- LUMA Project Cost Estimate.

Cost Estimate			
Cost Element	**428**	**406**	**Project Total**
PLANNING	**$129,534.38**	**$62,430.23**	**$191,964.61**

MANAGEMENT	**$90,813.07**	**$43,859.34**	**$134,672.41**
LPCE Distribution Automation Group 24	**$1,602,280.31**	**$768,453.82**	**$2,370,734.13**
GENERAL CONDITIONS	**$82,436.39**	**$39,534.47**	**$121,970.86**
COST TOTALS	**$1,905,064.15**	**$914,277.86**	**$2,819,342.01**
	TOTAL INSURANCE PROCEEDS RECEIVED		**$-**
DEDUCTIONS	**DE-OBLIGATION TO FAAST IF APPLICABLE**		**$-**
FAASt ALLOCATIONS	**FAASt Project #757689- - 428**		**$1,594,252.07**
	FAASt Project #757689 – 406 HM		**$914,277.86**
	FAASt Project #757689 Total		**$2,508,529.93**
	FAASt A&E Project #335168 - 428		**$141,012.25**
	FAASt A&E Project #335168 - 406		**$68,290.29**
	FAASt A&E Project #335168 – Total		**$209,302.54**
	FAASt E&M Project #673691 – 428		**$169,799.83**
	FAASt E&M Project #673691 – 406 HM		**$399,788.17**
	FAASt E&M Project #673691 – Total		**$569,588.00**

Work to be Completed (WTBC): $1,905,064.15 - $1,905,064.15 = $0.00 (See project note 6)

A&E Deduction (Global A&E FAASt 335168): -$141,012.25 + $141,012.25 = $0.00 (See project note 6)

E&M Deduction (Global E&M FAASt 673691): -$169,799.83 + $169,799.83 = $0.00 (See project note 6)

Project Total: $1,594,252.07 - $1,594,252.07 = $0.00 (See project note 6)

Summary key changes

Version 0: $1,774,822.40 (WTBC)

Version 1: $0.00 (WTBC)

Project Notes:

1. **Refer to detailed SOW provided in document "757689 -DR4339PR - Detailed Scope of Work Group 24 - Rev 05 - V1.pdf"**
2. **Refer to detailed cost estimate provided in document "757689-DR4339PR-APPENDIX A - LUMA Project Cost Estimate Rev 05 - V1.xlsx".**
3. **This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.**
4. **A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.**
5. **Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.**
6. **This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP**

or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: 'SP 757689- DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.'"

7. For Attachments refer to:

- **757689-DR4339PR-APPENDIX A - LUMA Project Cost Estimate Rev 05 - V1.xlsx**
- **757689-DR4339PR-APPENDIX B-PROJECT CONSIDERATIONS.xlsx**
- **757689-DR4339PR-APPENDIX C- LUMA's Active Projects.xlsx**

406 HMP Scope

Project number: 757689; FAASt [Automation Program Group 24] (TL/Distribution)

Damage #1399041; FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: Caguas, Puerto Rico

GPS Latitude/Longitude: (Start: [redacted]; End: [redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 24 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a natural disaster. Implementing reclosers, their communication kits, and cFCIs is

critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 3405-02, 3501-01 and 3501-03.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeders 3405-02, 3501-01 and 3501-03 is accomplished by replacing round galvanized steel poles with a 12-sided galvanized steel poles as it is stronger than the round poles;, replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and replacing fuse cutouts and manual disconnect switches with a single-phase and three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the three-phase reclosers (wireless connection).

In order to minimize the damage and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a natural disaster.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

   The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for **22ea** poles strengthening (pole class, concrete base, and additional guywire).

   Pole Description:

   a) 45ft S5.7 12-sided galvanized steel poles = 9ea
   b) 50ft S8.5 12-sided galvanized steel poles = 12ea
   c) 70 ft S10 12-sided galvanized steel poles = 1ea

1. **Feeder Reclosers:**

   Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds.

   Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

   The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

   Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 28ea fuse cutouts with **34 ea** single-phase reclosers and the installation of **7ea** three-phase reclosers.

1. **Communicating Fault Current Indicators:**

   Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by

decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 18ea fault current indicators (FCIs) by **18ea** communicating fault current indicators (cFCIs).

Mitigation Measures *(Supplementary)*

1. **Stainless Steel Transformer (1kVA):**

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of 7**ea** 1kVA stainless steel transformers.

1. **Radio Communication Kit for Three-Phase Reclosers:**

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator to know their status and can remotely control the three-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea three-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of **7ea** radio communication kit.

HMP Scope of Work:

a) **Distribution Feeder 3405-02:**

FID 6225594

1. Install (1) Three-Phase Recloser 3405-02A on existing pole.
2. Install and commission three-phase radio communication kit for Three-Phase Recloser.
3. Use existing secondary conductor to feed recloser on source side.
4. Install (1) kVA stainless steel transformer (4.80/8.32kV-120/240V) for load side.

FID NEW POLE

1. Replace 50ft round pole with a 50ft. S8.5 12- side galvanized steel pole in new location midspan.
2. Install (1) Three-Phase Recloser 3405-02B.
3. Install Secondary Framing (K-6).
4. Use secondary conductor for load side.
5. Install and commission three-phase radio communication kit for Three-Phase Recloser.
6. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side

FID 6225197 & 6225174

1. Replace 50ft. round pole with 45ft. 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutouts on FID 6225174 with the installation of (3) Single-Phase Recloser.

FID 15920052

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

FID 15894044

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

b) Distribution Feeder 3501-01:

FID New Pole

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Install (1) three-phase recloser 3501-01A.
3. Install Secondary Framing (K-6). Use secondary conductor from adjacent pole FID 10650427 to feed recloser a on load side.
4. Install and Commission Three-Phase radio communication kit for three-phase recloser.
5. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side.

FID 7636018

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Install (1) three-phase recloser 3501-01B.
3. Install and Commission Three-Phase radio communication kit for three-phase recloser.
4. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side.

FID NEW POLE

1. Replace 70ft round pole with 70ft 12- sided galvanized steel pole on midspan.
2. Install (1) three-phase recloser 3501-01C.
3. Install and Commission Three-Phase radio communication kit for three-phase recloser.
4. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side.

FID 10650434

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase Recloser.

FID 7636020

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase Recloser.

FID 7637703

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase Recloser.

FID 10650761

1. Replace (3) Fuse Cutouts with the installation of (3) Cutout Mounted Single-Phase Recloser on existing pole.

FID 10650746

1. Replace 50ft round pole with 45ft S5.7 galvanized steel pole.

FID 10650729

1. Replace 50ft round pole with 45ft S5.7 galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase

FID 7638451 & 7638460

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.
2. Replace (1) Fuse Cutout on FID 7638460 with the installation of (3) Cutout Mounted Single-Phase Recloser.

FID NEW POLE & 10070989

1. Replace 50ft round pole with 45' S5.712-sided galvanized steel pole.
2. Replace (3) Fuse Cutouts on FID 10070989 with the installation of (3) Cutout Mounted Single-Phase Recloser.

FID 10070681 & 10071125

1. Replace 50ft round pole with 50' S8.5 12-sided galvanized steel pole
2. Replace (3) Fuse Cutouts on FID 10071125 with the installation of (3) Cutout-Mounted Single-Phase recloser.

FID 14544804

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

FID 8456952

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

c) Distribution Feeder 3501-03:

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FID 6834387

1. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
2. Install (1) Three-Phase Recloser 3501- 03A.
3. Install secondary framing (K-7).
4. Install 1/0 TPX Secd and use to feed recloser on load side (190ft)
5. Install and commission three-phase radio communication kit for Three-Phase Recloser
6. Install (1) 1kVA (4.80/8.32kV-120/240) for source side.
7. Replace 40ft round stub pole with 40ft S5.7 galvanized steel pole.

FID NEW POLE

1. Replace 50ft. round pole with 50ft S8.5 12-sided galvanized steel pole in new location mid span.
2. Install (1) Three-Phase Recloser 3501-03B in radial configuration.
3. Install and commission three-phase radio communication kit for Three-Phase Recloser.
4. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for Source

FID 6837183

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.

FID 6835051

1. Replace 50ft round pole with 50ft S8.5 12-Sided galvanized steel Pole.
2. Replace (2) Fuse Cutouts with the installation of (2) Cutout Mounted Single-Phase Recloser.

FID 6834513 & 6834559

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.
2. Replace (1) Fuse Cutout on FID 6834559 with the installation of (2) Cutout Mounted Single-Phase Reclosers.

FID 6837617 & 6837612

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutouts on FID 6837612 with the installation of (3) Cutout Mounted Single-Phase Recloser.

FID NEW POLE

1. Replace round pole with a 50ft S8.5 12- sided galvanized steel pole.

FID NEW POLE

1. Replace (1) 45ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.

FID NEW POLE

1. Replace 50ft round pole with a 50ft. S8.5 12-sided galvanized steel pole.

FID 14544808

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

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FID 14538193

1. Replace (1) 45ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.

(III) Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 739,576.03
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 174,701.84
Hazard Mitigation Total Cost =	**$ 914,277.86**

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(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 399,788.17
Architecture and Engineering (A&E) =	$ 68,290.29
Construction Cost =	$ 446,199.40
Hazard Mitigation Total Cost =	**$ 914,277.86**

(V) HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$ 914,277.86 (Hazard Mitigation Total Cost).** The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents.** ***(HMP, HMP cost estimate, Supporting documents file***).

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,636,949.72	Uncompleted
3510	1	Lump Sum	($299,299.32)	Uncompleted
9001	1	Lump Sum	($562,828.00)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,774,822.40
Total 406 HMP Cost	$914,277.86
Total Insurance Reductions	$0.00
CRC Net Cost	$2,689,100.26
Federal Share (90.00%)	$2,420,190.24
Non-Federal Share (10.00%)	$268,910.02

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/1/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously

disturbed or hardened surfaces can be provided at close-out.

- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.
- Endangered Species Act (ESA). The below conservation measures apply to the following species: Puerto Rican Plain Pigeon (Patagioenas Inornata Wetmorei) for Feeder 3405-02. a. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside breeding season no nest surveys are required. However, some bird species may nest year-round, therefore, if a nest is encountered while the project is being conducted, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: *. Puerto Rican plain pigeon: April-September. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. Office phone: 786-244-0081.
- - The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. - The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. - Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Executive Order 11988 Floodplain Conditions for Feeders 3501-01 and 3501-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 3501-03: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (3405-02; 3501-01; and 3501-03). Part 1 a. Inform all project personnel about the potential presence of the PR boa in areas where the proposed work will be conducted. A pre-construction meeting should be conducted to inform all project personnel about the need to avoid harming the species as well as penalties for harassing or harming PR boas. An educational poster or sign with photo or illustration of the species should be displayed at the project site. b. Prior to any construction activity, including removal of vegetation and earth movements, the boundaries of the project and areas to be excluded and protected should be clearly marked in the project plan and in the field in order to avoid further habitat degradation into forested and conservation areas. c. Once areas are clearly marked, and prior to the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), a biologist or project personnel with experience on this species should survey the areas to be cleared to verify the presence of any PR boa within the work area. d. If a PR boa is found within any of the working or construction areas, activities should stop at that area and information recorded (see #e). Do not capture the boa. If boas need to be moved out of harm's way, designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for safe capture and relocation of the animal: (787) 999-2200 ext. 2911. If immediate relocation is not an option, project-related activities at that area must stop until the boa moves out of harm's way on its own. Activities at other work sites, where no boas have been found after surveying the area, may continue.
- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (3405-02; 3501-01; and 3501-03). Part 2 e. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. PR boa data should also include a photo of the animal (dead or alive), site GPS coordinates, the time and date, and comments on how the animal was detected and its behavior. f. If a PR boa is captured by PRDNER personnel, record the name of that person and information on where the PR boa will be taken. This information should be reported to the Service. g. Measures should be taken to avoid and minimize PR boa casualties by heavy machinery or motor vehicles being used on site. Any heavy machinery left on site (staging) or near potential PR boa habitat (within 50 meters of potential boa habitat), needs to be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the equipment. If PR boas are found within vehicles or equipment, do not capture the animal, and let it move on its own or call PRDNER Rangers for safe capture and relocation of the animal (see #d). If not possible, the animal should be left alone until it leaves the vehicle on its own. h. PR boas may seek shelter in

debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in debris piles as a result of project activities. Debris piles should be placed far away from forested areas. Prior to moving, disposing or shredding, debris piles should be carefully inspected for the presence of boas. If debris piles will be left on site, we recommend they be placed in areas that will not be disturbed in the future. i. If a dead PR boa is found, immediately cease all work in that area and record the information accordingly (see #e). If the PR boa was accidentally killed as part of the project actions, please include information on what conservation measures had been implemented and what actions will be taken to avoid further killings. A dead boa report should be sent by email to the Service at Caribbean_es@fws.gov, within 48 hours of the event. j. Projects must comply with all state laws and regulations. Please contact the PRDNER for further guidance.

- Endangered Species Act (ESA). The below conservation measures apply to the following species: Solanum drymophilum (Bahama nightshade) for Feeder 3501-03. Before initiating any work within the range of listed plant species and in areas with suitable habitat, applicants must conduct plant surveys. In the event that listed species are discovered at the project site, the Service must be notified through the Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov When listed species are discovered at the project site, the conservation measures below apply to each species. a. Where threatened and endangered plants are identified, flag individuals and avoid to the extent feasible. If the plants cannot be avoided, they should be salvaged and replanted as close to the impact area as possible. b. If space allows, leave a 5-foot buffer around individuals and/or clusters c. For trees and palm trees, if space allows, leave a 15-foot buffer around the tree d. When pruning, prune dead branches. If pruning live branches do not prune more than 10%. Please contact the USFWS Field Office if additional pruning is necessary for a listed plant species: Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov
- The Sub-recipient must provide documentation at close-out that proves completion of required Conservation Measures.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/15/2026 12:19 PM PDT

Review Comments

[757689] FAASt [Automation Program Group 24] (TL/ Distribution) include the following activities: Installation of smart reclosers with microprocessor-based controllers and the remote monitoring, communications ready and control capabilities in transmission and distribution lines. Installation of cutout type single phase reclosers, with microprocessor-based controllers. Installation of fault current indicators (communications ready) in strategic locations to improve the outage management and restoration process, specifically by decreasing the time required to detect and locate faults. Project has been reviewed, found eligible and reasonable. Subrecipient and its agents are responsible for complying with all grants and subgrant conditions.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/28/2026 7:19 PM PDT

Review Comments

Recipient review completed. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion. This Version (1) project was created for cost changes and scope of work amendments, in the case of SOW changes, EHP shall review if the DOE Emergency Declaration applies. The project will be signed off by the recipient as is, REC can be reviewed and amended to version V2. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v2

General Info

Project #	757689 **P/W #** 108034	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 24] (TL/ Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399041; FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 24
- **Facility Description:** Caguas Feeders: 3405-02, 3501-01, 3501-03
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399041

FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

********** **Version 2** **********

Version 2 has been created as an administrative amendment due to limitations in IFMIS (The Finance system), which cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Refer to document: Sub-FAAST Transactions - allocation process.pdf

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 757689 Automation Program Group 24 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed,

common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million Residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757689 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 3405-02, 3501-01, and 3501 03.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing seven three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and

distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of thirty four single-phase reclosers.

(3) **Communicating Fault Current Indicators**

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic notification/alarms based on user- set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

7.0 FACILITIES

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project: None

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the names and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 24 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Caguas	3405-02	[redacted]	
Caguas	3501-01		
Caguas	3501-03		

Note: Please refer to APPENDIX B - Project Considerations for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Caguas Warehouse, whose address is #1 Street, Jose Mercado Corner, Caguas, PR. The warehouse coordinates are [redacted]. The staging area will be located at Caguas where coordinates are [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK

The proposed type of work for this project: Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of fourteen (14) damaged poles.
- Install five (5) new poles.
- Install seven (7) Three Phase Reclosers.

- Install thirty-four (34) Single Phase Reclosers, remove fuses and close jumpers.
- Install eighteen (18) communicating Fault Indicators (cFCIs).
- Install seven (7) transformers

LUMA requests the alignment the scope and cost of Project 757689 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 Mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone and the additional cost (delta) for the replacement of the fuse cutouts for single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 Mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 Mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

The obligated DSOW included new pole installations. The revised DSOW aligns the scope of these poles with a 406 Mitigation proposal approved by FEMA.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Air Break Bypass Switches
    - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in the event of failure or maintenance and maintain the three-phase circuit energized while the situation is resolved..
- Due to engineering changes to the project feeders, the updated DSOW now includes four (4) poles that were not included in Version 0 of the project.
    - Three (3) new poles installations at new locations.
    - One (1) pole to be removed and replaced.
    - These changes align the scope with the 406 Mitigation proposal approved by FEMA, where applicable.
- For a detailed breakdown of new items to be included in this amendment, refer to the amendment letter of this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the “Proposed 428 Public Assistance Scope of Work” proposed for feeders of this group.

Feeder 3405-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

6225594	[redacted]	(CP-C1) (K-1)	(CP-C6-XARM) (K-7-4) (K-5)	•Existing galvanized steel pole: Remove, dispose and replace primary framings. • Remove, dispose and replace secondary framing (K-7-4). • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
NEW POLE	[redacted]	NONE	(50ft GALVANIZED ROUND TAPERED POLE) (S-6)	•Install new 50ft galvanized round tapered pole in new location midspan. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
6225197	[redacted]	35ft WOOD POLE) (CP-C1) (STL-10) (K-7-4) (E-2-1)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (K-7-4)	•Remove and dispose of a 35ft wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace streetlight (LED Type). • Remove and dispose stub pole.
6225174	[redacted]	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
6225199	[redacted]	(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
Segment FID 15920052	[redacted]	(NONE)	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 15894044	[redacted]	(NONE)	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Feeder 3501-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

New Pole	[redacted]	(NONE)	((50ft GALVANIZED ROUDN TAPERED POLE) (CP-C6-XARM) (E-1-2-3 (QTY=1) (F- 1-3 (QTY=1))	• Install a new 50ft. galvanized round tapered pole. • Install (1) anchor. • Install (1) down guy. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
7636018	[redacted]	(45ft-C3 WOOD POLE) (CP-C6-XARM) (K-5) (STL-10) (E-1-2-(QTY=1)) (F-1-3 (QTY=1))	((50ft GALVANIZED ROUND TAPERED POLE) (CP-C3-XARM) (K-5) (STL-10) (E-1-2-3(QTY=3)) (F-4-2 (QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 45ft C3 wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace (1) anchor and (1) downguy. Install additional (2) downguys and (1) anchor. • Remove, dispose, and Replace streetlights (LED Type). • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
NEW POLE	[redacted]	(NONE)	(70ft GALVANIZED ROUND TAPERED POLE) (38KV SC VERTICAL SUSPENSION ASSY. ANGLE 0-10) (AH-GS-88.5)	• Install a new 70ft galvanized round tapered pole. • Install (1) anchor and (1) downguy. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
7637226	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
10070962	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
7638447	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
10070589	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
7638363	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts and replace with (3) solid blade cutout.
7635056	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.

7636028	[redacted]	(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
1001762143		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts.
10072183		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts
10650385		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove and dispose (3) Fuse Cutouts
10650434		(45ft-S3 GALVANIZED STEEL POLE) (CP-C7) (K- 7 A) (STL-10) (ASSY 1509QTY=3))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (CP-C5-XARM) (K-7 A) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Remove and dispose of 45ft S3 galvanized steel pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace (3) Fuse Cutouts. • Remove, dispose and replace streetlight (LED Type) • Install (2) anchors and (2) downguys. • Remove, dispose and replace framings.
7636020		(45ft-CLASS 3 WOOD POLE) (CP-C5-XARM) (CP-C2) (STL-10)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (CP-C5-XARM) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1)) (STL 10)	• Remove and dispose 45ft Class 3 wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace (3) Fuse Cutouts. • Install (1) anchor and (1) downguy. • Remove, dispose and replace streetlight (LED Type). • Communication lines should remain in wood pole.
7637703		(40ft-CLASS 4 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (CP-C5-XARM) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 40ft Class 4 wood pole. Replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Install (1) anchor and (1) downguy. • Install (3) Fuse Cutouts

10650761	[redacted]	(ASSY 1509QTY=3)) (STL-10) (K-7-B)	(K-7-B) (STL-10) (290FT 3/0ACSR PRIMARY)	• On existing steel pole: • Remove, dispose and replace (3) Fuse Cutouts. • Remove, dispose and replace streetlight (LED type). • Install 290ft 3/0acsr primary conductor.
10650746		(40ft-H4 CONCRETE POLE) (CP-C1) (K-7-A) (STL-10)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1) (K-7-A) (STL-10)	• Remove and dispose 40ft H4 concrete pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose, and replace Streetlight (LED Type).
10650729		(40ft-H3 CONCRETE POLE) (CP-C6-XARM) (ASSY 1509 (QTY=3)) (K- 5) (K-7-2 B)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (K-5) (E-1- 2-3 (QTY=1)) (F-1 3(QTY=1)) (K-7-2 B)	• Remove and dispose 40ft H3 concrete pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace (3) Fuse Cutouts. • Re-use existing (1) anchor and existing (1) downguy.
7638451		(40ft-S3 GALVANIZED STEEL POLE) (CP-C2)	(50ft GALVANIZED ROUND POLE) (CP-C6-XARM) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 40ft S3 galvanized pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Install (1) anchor and (1) downguy.
NEW POLE		(NONE)	(50ft-GALVANIZED TAPERED STEEL POLE) (CP-C6-XARM) (K-6)	• Install a new 50ft galvanized round tapered pole on midspan. • Install primary framings. • Replace open wire conductor to 1/0 source side and 65' load side.

10070681	[redacted]	(35ft CLASS 4 WOOD POLE) (CP-C3-XARM) (CP-C5-XARM) (K-7-B) (STL-10) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1))	(50ft GALVANIZED ROUND TAPERED) (CP-C3-XARM) (CP-C5-XARM) (K-7-B) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3(QTY=1))	• Remove and dispose 35ft Class 4 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace primary framings. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (1) anchor and (1) downguy. •Remove, dispose and replace primary framings. •Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (1) anchor and (1) downguy.
10070989		(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
10071125		(ASSY 1509 (QTY=3))	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
7638460		(ASSY 1509 (QTY=1))	(LABOR & REPAIR)	• Remove, dispose and replace (1) Fuse Cutouts.
10650422		(ASSY 1509 (QTY=3)	(LABOR & REPAIR)	• Remove, dispose and replace (3) Fuse Cutouts.
Segment FID 14544804		(NONE)	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 8456952		(NONE)	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
7639086		(ASSY 1509 (QTY=3))	(ABS-3-XARM) (E1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Existing Pole. • Remove and dispose (3) fuse cutouts and replace with (3) Air-Break Switch. • Install (1) anchor and (1) downguy.

Feeder 3501-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

6834387	[redacted]	(40ft-C4 WOOD POLE) (CP-B3) (S-3) (E-2-1 (QTY=1)) (E-1-2-3 (QTY=2)) (F 4-2 (QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (40'-GALVANIZED ROUND TAPERED POLE) (S-6) (K-5) (E-2-1(QTY=1)) (E-1-2-3 (QTY=2)) (F-4-2(Q40TY=1))	• Remove and dispose 40ft C4 pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace primary framing. • Remove and dispose 40ft C4 wood pole (stub pole) and replace with 40ft round tapered steel pole. • Remove, dispose and replace (1) anchor. • Remove, dispose and replace (3) downguy. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
NEW POLE		NONE	(50ft GALVANIZED TAPERED POLE) (S-6) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1)) (K-6)	• Install 50ft galvanized round tapered pole in new location mid span. • Install primary framing. • Install secondary framing. • Install secondary open wire configuration to secondary 1/0 triplex (140ft). • Install (1) anchor and (2) downguys. • Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
6837608		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove and dispose (3) Fuse Cutouts.
6835055		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove and dispose (3) Fuse Cutouts.
7340258		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove and dispose (3) Fuse Cutouts.

6837183	[redacted]	(35ft-C4 WOOD POLE) (CP-C12-XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C12-XARM)	• Remove and dispose 35ft C4 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace primary framing. • Install solid blade cutout. • Remove and dispose (3) fuses. • Remove and dispose (1) anchor and (1) downguy
6835051	[redacted]	45ft-C3 WOOD POLE) (CP-C7-XARM) (S-6) (STL-10) (K-7 A) (K-5) (E-1-2-3(QTY-2)) (F-1-3(QTY-2))	(50ft GALVANIZED ROUND TAPERED POLE) (S-6) (CP-B5 XARM) (STL-10) (K-7 A) (K-5) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	• Remove and dispose 45ft C3 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove, dispose and replace (2) Fuse Cutouts. • Remove and dispose (2) anchor. Replace only one. • Remove and dispose (2) downguy. Replace only one. • Remove, dispose and replace streetlight (LED Type).
6834513	[redacted]	(40ft-C3 WOOD POLE) (CP-B6 XARM) (E-1-2-3(QTY-2)) (F-1-3(QTY-2))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-B6 XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	• Remove and dispose 40ft C3 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove and dispose (2) anchor and (2) downguy. Replace only (1) anchor and (1) downguy.
6837617	[redacted]	(40ft-C3 WOOD POLE) (CP-C6 XARM) (CP-C5 XARM) (E-1-2-3(QTY-1)) (F-1-3(QTY-1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6 XARM)	•Remove and dispose 40ft C3 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose and replace framings. • Remove and dispose (1) anchor and (1) downguy. • Remove and dispose tap-off that is not in service.
6834559	[redacted]	(ASSY-1509 (QTY=1)	(LABOR & REPAIR)	•Remove, dispose and replace (1) Fuse Cutouts.

6834934	[redacted]	(ASSY-1509 (QTY=1)	(LABOR & REPAIR)	•Remove and dispose (1) Fuse Cutouts
6837612		(ASSY-1509 (QTY=3)	(LABOR & REPAIR)	•Remove, dispose and replace (3) Fuse Cutouts.
Segment FID 14544808		NONE	(LABOR, FCI) (QTY=3)	•Install (3) Fault Current Indicators.
Segment FID 14538193		NONE	(LABOR, FCI) (QTY=3)	•Install (3) Fault Current Indicators.
NEW POLE		NONE	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C12-XARM)	• Install a new midspan 50' round galvanized steel pole. • Install primary and neutral framing. • Install (3) Fuse Cutouts.
NEW POLE		NONE	(50ft GALVANIZED ROUND TAPERED POLE) (CP-A12)	• Install a new midspan 50ft round galvanized steel pole. • Install primary and neutral framing. • Install (1) Fuse Cutout.
NEW POLE		NONE	(50ft ROUND TAPERED POLE (CP-C7) (E-1-2-3) (F-1-3) (F-4-2)	• Install new midspan 50' round galvanized steel pole at 8' depth. • Install spacer deadend primary. • Install primary and neutral framing. • Install (3) Fuse Cutout. • Install (3) downguy and (2) anchor.
6835042		(CP-C1)	(CP-C6-VERT) (E-1-2-3) (F-4-2)	• Existing pole. • Remove, dispose and replace primary and neutral framing. • Install (3) Downguys and (1) anchor.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the table above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the table above. When existing overhead conductor, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.
B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-

4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL, refer to document:
757689 -DR4339PR - Detailed Scope of Work Group 24 - Rev 05 - V1.pdf

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

[X] Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- Poles - Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact), for the depths of the poles to be installed.

[ ] Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

[ ] Relocation of utilities. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

[X] Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the projects #750066 FAASt [Region 4 -Caguas Group A] Low Density (Vegetation) and #727691 FAASt [Region 4 -Caguas Group A] High Density (Vegetation).

[X] Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method are not yet available.

[X] Staging areas, landing areas for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- Staging Area: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that will require.
- Access Roads: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

[X] Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

[ ] Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

[ ] Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

[ ] Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility. [ ] Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A- LUMA Project Cost Estimate.

Cost Estimate

Cost Element	428	406	**Project Total**
PLANNING	$129,534.38	$62,430.23	$191,964.61
MANAGEMENT	$90,813.07	$43,859.34	$134,672.41
LPCE Distribution Automation Group 24	$1,602,280.31	$768,453.82	$2,370,734.13
GENERAL CONDITIONS	$82,436.39	$39,534.47	$121,970.86
COST TOTALS	**$1,905,064.15**	**$914,277.86**	**$2,819,342.01**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAAST IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAASt Project #757689- - 428		**$1,594,252.07**
	FAASt Project #757689 – 406 HM		$914,277.86
	FAASt Project #757689 Total		**$2,508,529.93**
	FAASt A&E Project #335168 - 428		$141,012.25
	FAASt A&E Project #335168 - 406		$68,290.29
	FAASt A&E Project #335168 – Total		**$209,302.54**
	FAASt E&M Project #673691 – 428		$169,799.83
	FAASt E&M Project #673691 – 406 HM		$399,788.17
	FAASt E&M Project #673691 – Total		**$569,588.00**

Project Cost Summary, 428 Version 2:

Work to be Completed (WTBC): $1,905,064.15

A&E Deduction (Global A&E FAASt 335168): -$141,012.25

E&M Deduction (Global E&M FAASt 673691): -$169,799.83

Project Total: $1,594,252.07

Change requested (Version 2 – Version 1): $**1,594,252.07** - $1,774,822.40 = -$180,570.33

Summary key changes

Version 0: $1,774,822.40 (WTBC)

Version 1: -$148,570.33 (WTBC)

Version 2: -$180,570.33 (WTBC)

Project Notes:

1. Refer to detailed SOW provided in document labeled: “757697-DR4339PR- DSOW Group 32-Rev. 2. pdf.”

2. Refer to detailed Cost Estimate provided in document labeled: “757697-DR4339PR-APPENDIX B - LUMA Project Cost Estimate Rev. 2.xlx.xlsx”

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base cost of equipment and/or materials will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project 2.

5. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

6. Since in previous version the A&E and E&M dollar amount was deducted, now in version 1 a positive value has been added with the same amount to zero out the cost.

7. For Attachments refer to:

- 757689-DR4339PR-APPENDIX A - LUMA Project Cost Estimate Rev 05 - V1.xlsx
- 757689-DR4339PR-APPENDIX B-PROJECT CONSIDERATIONS.xlsx
- 757689-DR4339PR-APPENDIX C- LUMA's Active Projects.xlsx

406 HMP Scope

Project number: 757689; FAASt [Automation Program Group 24] (TL/Distribution)

Damage #1399041; FAASt [Automation Program Group 24: Caguas Feeders: 3405-02, 3501-01, 3501-03] (Distribution)

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: Caguas, Puerto Rico

GPS Latitude/Longitude: (Start: [redacted]; End: [redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 24 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a natural disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 3405-02, 3501-01 and 3501-03.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeders 3405-02, 3501-01 and 3501-03 is accomplished by replacing round galvanized steel poles with a 12-sided galvanized steel poles as it is stronger than the round poles;, replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and replacing fuse cutouts and manual disconnect switches with a single-phase and three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the three-phase reclosers (wireless connection).

In order to minimize the damage and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a natural disaster.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

   The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more

connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for **22ea** poles strengthening (pole class, concrete base, and additional guywire).

Pole Description:

a) 45ft S5.7 12-sided galvanized steel poles = 9ea
b) 50ft S8.5 12-sided galvanized steel poles = 12ea
c) 70 ft S10 12-sided galvanized steel poles = 1ea

1. **Feeder Reclosers:**

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 28ea fuse cutouts with **34 ea** single-phase reclosers and the installation of **7ea** three-phase reclosers.

1. **Communicating Fault Current Indicators:**

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 18ea fault current indicators (FCIs) by **18ea** communicating fault current indicators (cFCIs).

Mitigation Measures *(Supplementary)*

1. **Stainless Steel Transformer (1kVA):**

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of 7**ea** 1kVA stainless steel transformers.

1. **Radio Communication Kit for Three-Phase Reclosers:**

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator to know their status and can remotely control the three-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea three-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of **7ea** radio communication kit.

HMP Scope of Work:

a) Distribution Feeder 3405-02:

FID 6225594

1. Install (1) Three-Phase Recloser 3405-02A on existing pole.
2. Install and commission three-phase radio communication kit for Three-Phase Recloser.
3. Use existing secondary conductor to feed recloser on source side.
4. Install (1) kVA stainless steel transformer (4.80/8.32kV-120/240V) for load side.

FID NEW POLE

1. Replace 50ft round pole with a 50ft. S8.5 12- side galvanized steel pole in new location midspan.
2. Install (1) Three-Phase Recloser 3405-02B.
3. Install Secondary Framing (K-6).
4. Use secondary conductor for load side.
5. Install and commission three-phase radio communication kit for Three-Phase Recloser.
6. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side

FID 6225197 & 6225174

1. Replace 50ft. round pole with 45ft. 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutouts on FID 6225174 with the installation of (3) Single-Phase Recloser.

FID 15920052

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

FID 15894044

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

b) Distribution Feeder 3501-01:

FID New Pole

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Install (1) three-phase recloser 3501-01A.
3. Install Secondary Framing (K-6). Use secondary conductor from adjacent pole FID 10650427 to feed recloser a on load side.
4. Install and Commission Three-Phase radio communication kit for three-phase recloser.
5. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side.

FID 7636018

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Install (1) three-phase recloser 3501-01B.
3. Install and Commission Three-Phase radio communication kit for three-phase recloser.
4. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side.

FID NEW POLE

1. Replace 70ft round pole with 70ft 12- sided galvanized steel pole on midspan.
2. Install (1) three-phase recloser 3501-01C.
3. Install and Commission Three-Phase radio communication kit for three-phase recloser.
4. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for source side.

FID 10650434

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase Recloser.

FID 7636020

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase Recloser.

FID 7637703

1. Replace (1) 50ft round galvanized steel pole with (1) 50ft S8.5 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase Recloser.

FID 10650761

1. Replace (3) Fuse Cutouts with the installation of (3) Cutout Mounted Single-Phase Recloser on existing pole.

FID 10650746

1. Replace 50ft round pole with 45ft S5.7 galvanized steel pole.

FID 10650729

1. Replace 50ft round pole with 45ft S5.7 galvanized steel pole.
2. Replace (3) Fuse Cutout with the installation of (3) Cutout Mounted Single- Phase

FID 7638451 & 7638460

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.
2. Replace (1) Fuse Cutout on FID 7638460 with the installation of (3) Cutout Mounted Single-Phase Recloser.

FID NEW POLE & 10070989

1. Replace 50ft round pole with 45' S5.712-sided galvanized steel pole.
2. Replace (3) Fuse Cutouts on FID 10070989 with the installation of (3) Cutout Mounted Single-Phase Recloser.

FID 10070681 & 10071125

1. Replace 50ft round pole with 50' S8.5 12-sided galvanized steel pole
2. Replace (3) Fuse Cutouts on FID 10071125 with the installation of (3) Cutout-Mounted Single-Phase recloser.

FID 14544804

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

FID 8456952

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

c) Distribution Feeder 3501-03:

FID 6834387

1. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
2. Install (1) Three-Phase Recloser 3501- 03A.
3. Install secondary framing (K-7).
4. Install 1/0 TPX Secd and use to feed recloser on load side (190ft)
5. Install and commission three-phase radio communication kit for Three-Phase Recloser
6. Install (1) 1kVA (4.80/8.32kV-120/240) for source side.
7. Replace 40ft round stub pole with 40ft S5.7 galvanized steel pole.

FID NEW POLE

1. Replace 50ft. round pole with 50ft S8.5 12-sided galvanized steel pole in new location mid span.
2. Install (1) Three-Phase Recloser 3501-03B in radial configuration.
3. Install and commission three-phase radio communication kit for Three-Phase Recloser.
4. Install (1) 1kVA stainless steel transformer (4.80/8.32kV-120/240V) for Source

FID 6837183

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.

FID 6835051

1. Replace 50ft round pole with 50ft S8.5 12-Sided galvanized steel Pole.
2. Replace (2) Fuse Cutouts with the installation of (2) Cutout Mounted Single-Phase Recloser.

FID 6834513 & 6834559

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.
2. Replace (1) Fuse Cutout on FID 6834559 with the installation of (2) Cutout Mounted Single-Phase Reclosers.

FID 6837617 & 6837612

1. Replace (1) 50ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.
2. Replace (3) Fuse Cutouts on FID 6837612 with the installation of (3) Cutout Mounted Single-Phase Recloser.

FID NEW POLE

1. Replace round pole with a 50ft S8.5 12- sided galvanized steel pole.

FID NEW POLE

1. Replace (1) 45ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.

FID NEW POLE

1. Replace 50ft round pole with a 50ft. S8.5 12-sided galvanized steel pole.

FID 14544808

1. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

-

FID 14538193

1. Replace (1) 45ft round galvanized steel pole with (1) 45ft S5.7 12-sided galvanized steel pole.

(III) Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 739,576.03
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 174,701.84
Hazard Mitigation Total Cost =	**$ 914,277.86**

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(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 399,788.17
Architecture and Engineering (A&E) =	$ 68,290.29
Construction Cost =	$ 446,199.40
Hazard Mitigation Total Cost =	**$ 914,277.86**

(V) HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$ 914,277.86 (Hazard Mitigation Total Cost).** The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents.** ***(HMP, HMP cost estimate, Supporting documents file***).

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Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,636,949.72	Uncompleted
3510	1	Lump Sum	($299,299.32)	Uncompleted
9001	1	Lump Sum	($562,828.00)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$562,828.00	Uncompleted
3510	1	Lump Sum	$299,299.32	Uncompleted
9001	1	Lump Sum	($2,636,949.72)	Uncompleted
9001	1	Lump Sum	$1,905,064.15	Uncompleted
3510	1	Lump Sum	($141,012.25)	Uncompleted
9001	1	Lump Sum	($169,799.83)	Uncompleted

CRC Gross Cost	$1,594,252.07
Total 406 HMP Cost	$914,277.86
Total Insurance Reductions	$0.00
CRC Net Cost	$2,508,529.93
Federal Share (90.00%)	$2,257,676.94
Non-Federal Share (10.00%)	$250,852.99

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/1/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously

disturbed or hardened surfaces can be provided at close-out.

- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.
- Endangered Species Act (ESA). The below conservation measures apply to the following species: Puerto Rican Plain Pigeon (Patagioenas Inornata Wetmorei) for Feeder 3405-02. a. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside breeding season no nest surveys are required. However, some bird species may nest year-round, therefore, if a nest is encountered while the project is being conducted, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: *. Puerto Rican plain pigeon: April-September. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. Office phone: 786-244-0081.
- - The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. - The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. - Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Executive Order 11988 Floodplain Conditions for Feeders 3501-01 and 3501-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 3501-03: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (3405-02; 3501-01; and 3501-03). Part 1 a. Inform all project personnel about the potential presence of the PR boa in areas where the proposed work will be conducted. A pre-construction meeting should be conducted to inform all project personnel about the need to avoid harming the species as well as penalties for harassing or harming PR boas. An educational poster or sign with photo or illustration of the species should be displayed at the project site. b. Prior to any construction activity, including removal of vegetation and earth movements, the boundaries of the project and areas to be excluded and protected should be clearly marked in the project plan and in the field in order to avoid further habitat degradation into forested and conservation areas. c. Once areas are clearly marked, and prior to the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), a biologist or project personnel with experience on this species should survey the areas to be cleared to verify the presence of any PR boa within the work area. d. If a PR boa is found within any of the working or construction areas, activities should stop at that area and information recorded (see #e). Do not capture the boa. If boas need to be moved out of harm's way, designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for safe capture and relocation of the animal: (787) 999-2200 ext. 2911. If immediate relocation is not an option, project-related activities at that area must stop until the boa moves out of harm's way on its own. Activities at other work sites, where no boas have been found after surveying the area, may continue.
- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (3405-02; 3501-01; and 3501-03). Part 2 e. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. PR boa data should also include a photo of the animal (dead or alive), site GPS coordinates, the time and date, and comments on how the animal was detected and its behavior. f. If a PR boa is captured by PRDNER personnel, record the name of that person and information on where the PR boa will be taken. This information should be reported to the Service. g. Measures should be taken to avoid and minimize PR boa casualties by heavy machinery or motor vehicles being used on site. Any heavy machinery left on site (staging) or near potential PR boa habitat (within 50 meters of potential boa habitat), needs to be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the equipment. If PR boas are found within vehicles or equipment, do not capture the animal, and let it move on its own or call PRDNER Rangers for safe capture and relocation of the animal (see #d). If not possible, the animal should be left alone until it leaves the vehicle on its own. h. PR boas may seek shelter in

debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in debris piles as a result of project activities. Debris piles should be placed far away from forested areas. Prior to moving, disposing or shredding, debris piles should be carefully inspected for the presence of boas. If debris piles will be left on site, we recommend they be placed in areas that will not be disturbed in the future. i. If a dead PR boa is found, immediately cease all work in that area and record the information accordingly (see #e). If the PR boa was accidentally killed as part of the project actions, please include information on what conservation measures had been implemented and what actions will be taken to avoid further killings. A dead boa report should be sent by email to the Service at Caribbean_es@fws.gov, within 48 hours of the event. j. Projects must comply with all state laws and regulations. Please contact the PRDNER for further guidance.

- Endangered Species Act (ESA). The below conservation measures apply to the following species: Solanum drymophilum (Bahama nightshade) for Feeder 3501-03. Before initiating any work within the range of listed plant species and in areas with suitable habitat, applicants must conduct plant surveys. In the event that listed species are discovered at the project site, the Service must be notified through the Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov When listed species are discovered at the project site, the conservation measures below apply to each species. a. Where threatened and endangered plants are identified, flag individuals and avoid to the extent feasible. If the plants cannot be avoided, they should be salvaged and replanted as close to the impact area as possible. b. If space allows, leave a 5-foot buffer around individuals and/or clusters c. For trees and palm trees, if space allows, leave a 15-foot buffer around the tree d. When pruning, prune dead branches. If pruning live branches do not prune more than 10%. Please contact the USFWS Field Office if additional pruning is necessary for a listed plant species: Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov
- The Sub-recipient must provide documentation at close-out that proves completion of required Conservation Measures.
- ***Disregard previous conditions***
- ***Disregard previous comments***
- ***Disregard previous comments***
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 24] (TL/ Distribution)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 8:55 PM PDT

Review Comments

Version 2 reflects the negative cost for PA reconciliation process. Change request - $180,570.33 for a total Federal share for this project of $2,257,676.94.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 6:19 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $2,508,529.93 for subaward number 108034 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
2	10/8/2026	($162,513.30)	90%	Accepted	4339DRPRP01080341
0	9/17/2025	$1,597,340.16	90%	Accepted	4339DRPRP01080341
1	8/27/2026	$822,850.08	90%	Accepted	4339DRPRP01080341

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	757692 **P/W #** 108035	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399045; FAASt [Automation Program Group 26: Arecibo Feeder: 9004-08] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 26
- **Facility Description:** Arecibo Feeder: 9004-08
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399045 **FAASt [Automation Program Group 26: Arecibo Feeder: 9004-08] (Distribution)**

Introduction

This document is to submit for approval a Detailed Scope of Work ("SOW") to COR3 and FEMA for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & MaintenanceAgreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installsadvanced technology equipment (*i.e.*, reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The strategy is to deploy full automation equipment to the

transmission and distribution systems. While the individual projects are interconnected and enhance each other, each can also be implemented independent of each other, and each confers benefits independently. The Program includes multiple projects being implemented across the island on both systems. Automation is one of several initiatives to complete the final restoration of the transmission and distribution systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757692 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the reclosers, their communication kits, and the communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damages for upcoming occurrences. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeder 9004-08.

Key components of this project are (1) pole replacement, (2) the three-phase reclosers, single- phase reclosers, and (3) the communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre- empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associatedcomponents to function with full capabilities and to prevent loss of service and potential damage from future disasters. In this project we are installing five three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two- phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three-phases if fault currents are low at the location. In this project we are installing a total of 20 single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and

recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independent of the feeder reclosers. cFCI help identify permanentand incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notification/alarms based on user set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders will be using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

Facilities Description

The facilities listed below are part of PREPA's electric distribution system. All feeders originate from a substation (GPS Start) and serve customers along the route to various locations (GPS End). The coordinates shown below represent the mainline backbone of the feeder at issue in this project.

To avoid duplication of work across projects, LUMA reviewed the FIDs identified for work across distribution programs.The analysis did not identify any poles on this feeder, where LUMA is installing Distribution Automation ("DA") devices, that require disaster-related replacement. Accordingly, LUMA has not initiated any rebuild projects for this feeder under the Distribution Rebuild Program (also referred to as the "D-Line Program"). LUMA also confirmed that none of the poles on this feeder, which will be replaced under the Pole and Conductor Repair Program (also referred to as the "D-Pole Program"), will be replaced again under the DA Program. Because the poles in the DA program are not identified for replacement in either the D-Line or D-Pole Programs and the only cause for their replacement is the proper execution of mitigation measures , the pole replacement is included in the 406 Hazard Mitigation scope of work of this project. This allocation is consistent with the illustrated scenarios provided in the DA Program position paper and LUMA's Resilience Plan.

To further address any concerns regarding the duplication of work across other proposed or planned Hurricane Maria distribution projects, LUMA provides Appendix D which contains a list of all FIDs on the feeder upon which FEMA-eligible work will be performed and the associated proposed scope of work under each distribution program. Please refer to the ***APPENDIX D - LUMA Active Projects*** to show no duplication of scope elements.

Facilities List

Name	Feeder Number	GPS Start	GPS End
Arecibo	9004-08	[redacted]	

Note: Please refer to **APPENDIX *C — Project Considerations*** for a list of all GPS locations that this project will impact.

Proposed 428 Public Assistance Scope of Work

For more detailed information about the scope of work please refer to the ***APPENDIX B- LUMA Project Cost Estimate*.**

Feeder 9004-08

POLE FID	Coordinates Lat./ Long	Existing	428 Replacement	Scope of Work
7947904	[redacted]	(65' CONCRETE POLE) (38KV STD VERT TAN) (OPS- CP-C9) (K-5) (STL-10) (E-1-2-3) (F-1-3)	(70- S8 12-SIDED GALVANIZED STEEL POLE) (38KV STD VERT DDE) (OPS-CP-C9) (K-5) (REC-2- 1) (STL-10)	• Remove and dispose of 65' concrete • Replace with 70' S8 12- Sided Gal steel pole. • Remove, dispose and replace 38kv framing. • Remove, dispose and replace primar framing. • Remove, dispose and replace secon framing. • Remove and dispose of the dow ngu • Remove, dispose and replace ancho • Remove, dispose and replace streetl • Install 1 kva transformer (7.62kv/120 source side. • Install (1) three-phase

POLE FID	Coordinates Lat./ Long	Existing	428 Replacement	Scope of Work
				Recloser 9004-08A in radial circuit. • Install and Commission Three-Phase communication kit for three-phase reclo
NEW POLE	[redacted]	N/A	(70' S8 12-SIDED GALVANIZED STEEL POLE) (38KV STD VERT DDE) (OPS-CP-C9) (S-1) (K-5) (REC-2-1)	• Install new 70' S8 12- Sided galv steel pole. • Install 38kv framing. • Install primary framings. • Install secondary framing. • Install secondary triplex conduct recloser from load side. • Install 1 kva transformer (7.62kv feed recloser from source side. • Install (1) Three-Phase Recloser 900 in loop restoration circuit. • Install and Commission Three-Phase communication kit for three-phase recloser

5329164	[redacted]	N/A	(K-5) (3/0 TPX (QTY= 175 FT))	• Install load side secondary framing c three phase recloser 9004- 08B.
29171836		(70' STEEL POLE) (38KV STD VERT TAN) (CP- C1)	(70' S8 12-SIDED GALVANIZED STEEL POLE) (38KV STD VERT DDE) (OPS-CP-C9) (REC-2-1)	• Remove and dispose of 70' steel pol • Replace with a 70' S8 12- Sided Galv Steel pole. • Remove, dispose and replace 3 framing. • Remove, dispose and replace primar framing. • Install 1 kva transformer (7.62kv/120 source side. • Install (1) Three-Phase Recloser 08C in radial circuit. • Install and Commission Three-Ph radio communication kit for three-phase recloser

POLE FID	Coordinates Lat./ Long	Existing	428 Replacement	Scope of Work
26864069	[redacted]	(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose (3) fuses. • Close jumpers.
NEW POLE		N/A	(50' S8 12-SIDED GALVANIZED STEEL POLE) (S- 6) (REC-2) (K-6)	• Install new 50' S8 12- Sided Galvani Steel pole. • Install primary framing. • Install secondary framing. • Install (1) T hree-phase Recloser 90 in Radial circuit. • Install and Commission Three-Phase communication kit for three-phase recloser
6318564		(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose (3) fuses, • Close jumpers.
6320313		(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose (3) fuses. • Close jumpers.

1000630611	[redacted]	(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a cross • Remove and dispose (3) fuses.
10001128		(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a cross • Remove and dispose or a (3) fuses. • Close jumpers.
6320335		(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm • Remove and dispose or a (3) fuses. • Close jumpers.

POLE FID	Coordinates Lat./ Long	Existing	428 Replacement	Scope of Work
7965883	[redacted]	(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm • Remove and dispose or a (3) fuses. • Close jumpers.
20668242		(70 FT STEEL POLE) (38KV STD VERT TAN) (CP- C1)	(70' S8 12-SIDED GALVANIZED STEEL POLE) (38KV STD VERT DDE) (OPS-CP-C9) (REC-2-1)	• Remove and dispose of a 70 ft steel • Replace with 70' S8 12- sided galva steel pole. • Remove, dispose and replace 3 framing. • Remove, dispose and replace p framing. • Install 1 kva transformer (7.62kv/12 source side. • Install Three-phase Recloser 9004-0 radial circuit. • Install and Commission Three-Phase communication kit for three-phase reclo
1000605475		(ASSY-1509 (QTY=3)) (42" CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm • Remove and dispose of a (3) fuse • Close jumpers.

5330505	[redacted]	(40' H4 CONCRETE POLE) (CP-C5-XARM) (CP-A5) (CP-B5-XARM) (T-1) (STL-10) (ASSY-1509 (QTY=3)) (E-1-2-3) (F-1-3)	(50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C5-XARM) (CP-A5) (CP-B5-XARM) (T-1) (REC-3-B) (ASSY-1509) (ASSY-1505- FIG.A) (STL-10)	• Remove and dispose of a 40' H4 Cor pole. • Replace with a 50' S8 12- Sided Galv steel pole. • Remove, dispose and replace pr framing. • Remove, dispose and replace transformer. • Remove, dispose and replace streetl • Remove and dispose of a downguy. • Remove and dispose of anchor. • Remove and dispose of a (3) fuses • Install stand-off bracket assemb • Re-attach riser. • Install (2) Single-Phase Recloser 200

POLE FID	Coordinates Lat./ Long	Existing	428 Replacement	Scope of Work
5329369	[redacted]	(65 FT C3 WODD POLE) (CP-C6- XARM) (S-6) (K-6) (ABS-3-XARM) (ASSY-1509 (QTY=3)) (E-1-2-3) (F-1-3)	(70' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (S-6) (K-6) (ABS-3-XARM) (REC-3-C)	• Remove and dispose of a 65' C3 wo • Replace pole with a 70' S 8 galvanized steel pole. • Remove, dispose and replace framing. • Remove, dispose and replace secon framing. • Remove and dispose of a downguy anchor. • Transfer airbreak switch. • Remove and dispose (3) fuses. • Install (3) Single-Phase Recloser 200

5329596	[redacted]	(35 FT H3 CONCRETE POLE) (CP-C6-XARM) (ASSY1509(QTY=3)) (E-1-2-3) (F-1-3) (72" CROSSARM)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-3-C)	• Remove and dispose of a 35' H3 cor pole. • Replace pole with a 45' S5.7 12-Side Galvanized steel pole. • Remove, dispose and replace primar framing. • Remove and dispose of a 72" cr • Remove and dispose of a down • Remove and dispose of an anchor. • Remove and dispose of a (3) fuse. • Install (3) Single-Phase Recloser 200
6321396		(CP-C6-XARM) (STL-10) (K-5) (ASSY-1509(QTY=3)) (42" CROSSARM)	(CP-C6-XARM) (REC-3-C) (STL- 10) (K-5)	• Remove, dispose and replace primar framing. • Remove, dispose and replace secon framing. • Remove, dispose and replace streetlight. • Remove and dispose of a 42" cross • Remove (3) fuses. • Install (3) single-phase recloser
7965995		N/A	(REC-3-C)	• Install (3) single-phase Recloser 200

POLE FID	Coordinates Lat./ Long	Existing	428 Replacement	Scope of Work
6318738	[redacted]	(40 FT H4 CONCRETE POLE) (CP-C6-XARM) (STL-11) (E-1-2-3) (F-1-3)	(45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-3-C) (STL-11)	• Remove and dispose of a 40' H4 cor pole. • Replace pole with a 45' S5.7 12-Side Galvanized steel pole. • Remove, dispose and replace primar framing. • Remove, dispose and replace streetl • Remove and dispose downguy and anchor. • Install (3) Single-phase Recloser 200

6318413	[redacted]	(40' S3 STEEL POLE) (CP-C6-XARM) (CP-A5) (STL-11) (E-1-2-3) (F-1-3) (ASSY-1509 QTY=3)) (42" CROSSARM)	(45' S5.7 12-SIDED STEEL POLE) (CP-C6-XARM) (CP-A5) (REC-3-C) (STL- 11)	• Remove and dispose of 40' S3 Ste • Replace with 45' S5.7 12- sided ga steel pole. • Remove, dispose and replace prim framing. • Remove, dispose and replace streetlight. • Remove and dispose of a downgu • Remove and dispose of the ancho • Remove and dispose 42" crossarm • Remove and dispose of (3) fuses. • Install (3) Single-Phase Recloser 2
NONE		N/A	(LABOR, cFCI(QTY=3))	• Install (3) Communicating Fault Indicator on segment id 17354375
NONE		N/A	(LABOR, cFCI(QTY=3))	• Install (3) Communicating Fault Indicator on segment id 29171840.

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and ***APPENDIX C – Project Considerations.***

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations; there are some new pole locations included in this scope of work. Refer to ***APPENDIX C – Project Considerations***, column C (soil area and depth impact) for the depths of the poles to be installed.

c. New guy wire/ anchors are to be installed in compliance with the LUMA OverheadElectrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

d. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project 727558 FAASt [Region 3 -Bayamon Group C] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

e. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

f. All work for this program will be performed within the current electrical right- of-way.

2) Debris will be separated and taken to an authorized waste disposal facility in compliance with applicable

federal and local regulations.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. The warehouse assigned is the Arecibo Regional Warehouse, whose address is #681 Street Kilometer 0.1, Islote Ward, Arecibo, PR. Coordinates are [redacted]. Refer to document *Warehouse Locations.*

5) Fill, gravel, and sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manlift, 120- ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform*.

7) Specific List of **Permits Required**:

a. Department of Transportation and Public Works - (DTOP) Endorsements & Municipality Notifications
b. Excavation and Demolition Notification in the Department of Transportation and Public Works Agency - (DTOP)
c. LUMA will provide proof of all permits.

Proposed 406 Hazard Mitigation Scope of Work

This version of the project will be fully funded using PA 428 funds. A future version of this project may contain PA 406 HM measures.

PROJECT COST ESTIMATE (PCE)

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and is subject to being updated. LUMA has allocated 10% of the project cost to mitigate potential known risks. For more details refer to **APPENDIX B - LUMA Project Cost Estimate.**

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$108,675.98**	**$-**	**$108,675.98**
MANAGEMENT	**$66,649.35**	**$-**	**$66,649.35**
Distribution Automation Group 26	**$1,299,552.33**	**$-**	**$1,299,552.33**
GENERAL CONDITIONS	**$69,567.78**	**$-**	**$69,567.78**
COST TOTALS	**$1,544,445.44**	**$-**	**$1,544,445.44**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**

	DE-OBLIGATION TO FAASt IF APPLICABLE	**$-**
FAASt ALLOCATIONS	FAAST 757692 428-	**$938,783.63**
	FAST 757692 406HM-	**$-**
	FAAST 757692 TOTAL	**$938,783.63**
	FAASt A&E # 335168 - 428	**$175,325.33**
	FAASt A&E # 335168 - 406 HM	**$-**
	FAASt A&E # 335168 TOTAL	**$175,325.33**
	FAASt E&M #673691 - 428	**$430,336.48**
	FAASt E&M #673691 - 406 HM	**$-**
	FAASt E&M #673691 TOTAL	**$430,336.48**

Work To Be Completed (WTBC): $1,544,445.44

A&E Deduction (Global A&E FAASt 335168): $175,325.33

Equipment & Material Deduction (Global FAASt 673691): $430,336.48

Project Total Cost: $938,783.63

Project Notes:

1. Refer to detailed SOW provided in document “757692- DR4339-PR- DSOW- Group 26- Rev. 2.pdf”

2. Refer to detailed cost estimate summary provided in document “757692-DR4339PR- Cost Estimate Group 26-Rev. 2.xlsx”.

3. This project is part of a FAAST project, please reference project 136271.

4. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168 A&E, as shown in the table above. The A&E project was obligated to track and account for cost associated with individual FAASt projects.

5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project Group 26 Automation Program FAASt 757692.

6. For attachments, refer to:

    a. 757692-DR4339PR-APPENDIX A - Initial Scope of Work

    b. 757692-DR4339PR-APPENDIX B - LUMA Project Cost Estimate

    c. 757692-DR4339PR-APPENDIX C - Project Considerations

    d. 757692-DR4339PR-APPENDIX D - LUMA Active Projects

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to

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Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,544,445.44	Uncompleted
9001	1	Lump Sum	($430,336.48)	Uncompleted
3510	1	Lump Sum	($175,325.33)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$938,783.63
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$938,783.63
Federal Share (90.00%)	$844,905.27
Non-Federal Share (10.00%)	$93,878.36

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient’s completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Patricia a. Perez, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a

manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.

- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.
- Puerto Rican boa (PR boa; Chilabothrus inornatus) and Virgin Islands Boa (VI boa; Chilabothrus granti) for Feeder 9004-08. 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harm s way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5.For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6.If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7.Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. -Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other

areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. -The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as aresult of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. -In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. -If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. -Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: Mobile: 305-304-1386 Office phone: 786-244-0081 Office Direct Line: 939-320-3120 Email: Caribbean_es@fws.gov or jose_cruz-burgos@fws.gov

- The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 06/09/2025 4:20 PM PDT

Review Comments

Project has been reviewed, found eligible and reasonable. - CLG 6.09.25

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/03/2025 3:19 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v1

General Info

Project #	757692 **P/W #** 108035	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399045; FAASt [Automation Program Group 26: Arecibo Feeder: 9004-08] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 26
- **Facility Description:** Arecibo Feeder: 9004-08
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399045 **FAASt [Automation Program Group 26: Arecibo Feeder: 9004-08] (Distribution)**

********** **VERSION 1** **********

Version 1 has been created to capture change in scope and cost as per Applicant provided documentation. Refer to documents labeled: "757692- DR4339PR- Project Amendment Rqst DA Group 26.pdf", "757692-DR4339PR- DSOW Group 26 Revision 07 - V1.pdf", and "757692-DR4339PR-APPENDIX B- DETAIL COST ESTIMATE Revision 07 - V1.xlsx".

SOW from previous version has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 757692 Automation Program Group 26 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power

Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provide the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to “Subrecipient” herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

PROJECT DESCRIPTION

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program (“Program”) through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA’s transmission and distribution (“T&D”) system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million Residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757692 is one of the Program’s distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System (“EMS”) and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeder 9004-08.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser:

A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser’s wireless communication capability will provide connectivity to LUMA’s EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing five three-phase reclosers.

Single-Phase Reclosers:

A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of twenty single-phase reclosers.

(3) Communicating Fault Current Indicators

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aides the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic notification/alarms based on user- set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and to reduce the total restoration time during an outage event and to prevent physical damages. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for cFCIs, reclosers, and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCI or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

FACILITIES

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 26 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Arecibo	9004-08	[redacted]	

Note: Please refer to APPENDIX B - Project Considerations for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Arecibo Warehouse, whose address is #681 Street, 0.1 KM, Islote Ward, Arecibo, PR. The warehouse coordinates are [redacted]. The staging area will be in Manati in the coordinates [redacted].

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

A map of the project area is not available at this time.

SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

[X] Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

[] Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

[] Subrecipient's request letter included, see Appendix _____.

[] Recipient's approval letter included, see Appendix_____.

[] Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

[] Subrecipient's request letter included, see Appendix_____.

[] Recipient's approval letter included, see Appendix_____.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of eight (8) damaged poles.
- Install two (2) new poles.
- Install five (5) Three-Phase Reclosers.
- Install twenty (20) Single-Phase Reclosers, remove fuses and close jumpers.
- Install six (6) communicating Fault Indicators (cFCIs).
- Install five (5) transformers.

LUMA requests the alignment the scope and cost of Project 757692 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 Mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone and the additional cost (delta) for the replacement of the fuse cutouts for single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 Mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 Mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

The obligated DSOW included new pole installations. This DSOW aligns the scope of this pole with a 406 Mitigation proposal approved by FEMA.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Air Break Bypass Switches

o Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a breakdown of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder 9004-08

POLE FID	Coordinates Lat./ Long	Existing (Remove)	428 Replacement	Scope of Work
7947904	[redacted]	(38KV STD VERT TAN) (OPS- CP-C9) (K-5) (STL-10) (E-1-2-3) (F-1-3)	(38KV STD VERT DDE) (OPS-CP-C9) (K-5) (STL-10)	• Remove, dispose and replace 38kv framing • Remove, dispose and replace primary frami • Remove, dispose and replace secondary fr • Remove and dispose of the downguy. • Remove, dispose and replace anchor. • Remove, dispose and replace streetlight (LE Install and connect one (1) set of Air Break E (ABS-3-XARM) and the framing hardware to them.
NEW POLE		N/A	(70ft ROUND TAPERED POLE) (38KV STD VERT DDE) (OPS-CP-C9) (S-1) (K-5)	• Install new 70ft. round galvanized stee pole. • Install 38kv framing. • Install primary framings. • Install secondary framing. • Install secondary triplex conductor to feed recloser from load side. • Install and connect one (1) set of Air Break Bypass (ABS-3 XARM) and the framing hardware to support them.

POLE FID	Coordinates Lat./ Long	Existing (Remove)	428 Replacement	Scope of Work
5329164	[redacted]	N/A	(K-5) (3/0 TPX (QTY= 175 FT))	• Install load side secondary framing.
29171836		(38KV STD VERT TAN) (CP- C1)	(38KV STD VERT DDE) (OPS-CP-C9)	• Existing Pole: ○ Remove, dispose and replace 38k framing. ○ Remove, dispose and replace prim framing. ○ Install and connect one (1) set of A Bypass (ABS-3-XARM) and the frami hardware to support them.

26864069	[redacted]	(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose (3) Fuse Cutouts • Close jumpers.
NEW POLE		N/A	(50ft GALVANIZED ROUND TAPERED POLE) (S- 6) (K-6)	• Install new 50ft round galvanized stee pole. • Install primary framing. • Install secondary framing. • Labor to feed recloser from existing secondary. • Install and connect one (1) set of Air Brake Bypass (ABS-3 XARM) and the framing hardware to support them.
6318564		(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of crossarm. • Remove and dispose (3) fuses. • Close jumpers.
6320313		(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose of (3) fuses. • Close jumpers.

POLE FID	Coordinates Lat./ Long	Existing (Remove)	428 Replacement	Scope of Work
1000630611	[redacted]	(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose of (3) fuses.
10001128		(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose of (3) fuses. • Close jumpers.
6320335		(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose of a crossarm. • Remove and dispose of (3) fuses. • Close jumpers. • Install (1) Fuse Cutout.
7965883		(ASSY-1509 (QTY=3)) (42In CROSSARM)	(LABOR TO CLOSE JUMPERS(QTY=3))	• Remove and dispose crossarm. • Remove and dispose (3) fuses. • Close jumpers.
20668242		(38KV STD VERT TAN) (CP- C1)	(38KV STD VERT DDE) (OPS-CP-C9)	• Existing Pole: • Remove, dispose and replace 38kv fra • Remove, dispose and replace primary framing. • Install and connect one (1) set of Air Bypass (ABS-3- XARM) and the framing hardware to support them

5330505	[redacted]	(40ft H4 CONCRETE POLE) (CP-C5-XARM) (CP-A5) (CP-B5-XARM) (T-1) (STL-10) (ASSY-1509 (QTY=3)) (E-1-2-3) (F-1-3)	(50FT GALVANIZED ROUND TAPERED POLE) (CP-C5-XARM) (CP-A5) (CP-B5-XARM) (T-1) (ASSY-1509) (ASSY-1505- FIG.A) (STL-10)	• Remove and dispose 40ft. H4 concret replace with 50ft. round galvanized steel • Remove, dispose and replace primary • Remove, dispose and replace 50KVA transformers. • Remove, dispose and replace streetlig Type). • Remove and dispose downguy. • Remove and dispose anchor. • Remove, dispose and replace (2) Fus

POLE FID	Existing (Remove) Coordinates Lat./ Long		428 Replacement	Scope of Wo
				Cutouts. • Install stand-off bracket assembly. • Re-attach riser.
5329369	[redacted]	(65ft C3 WODD POLE) (CP-C6-XARM) (S-6) (K-6) (ABS-3-XARM) (ASSY-1509 (QTY=3)) (E-1-2-3) (F-1-3)	(70ft GALVANIZED ROUND TAPERED POLE) (CP-C6- XARM) (S-6) (K-6) (ABS-3-XARM)	• Remove and dispose 65ft C3 wood p replace with 70ft round galvanized steel • Remove, dispose and replace primary framing. • Remove, dispose and replace second framing. • Remove and dispose downguy and a • Transfer air brake switch. • Remove, dispose and replace (3) Fuse Cutouts.
5329596	[redacted]	(35ft H3 CONCRETE POLE) (CP-C6-XARM) (ASSY1509(QTY=3)) (E-1-2-3) (F-1-3) (72In CROSSARM)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	• Remove and dispose of a 35ft H3 con pole and replace with 50ft round galvani steel pole. • Remove, dispose and replace primary framing. • Remove and dispose 72” crossarm • Remove and dispose downguy. • Remove and dispose anchor. • Remove, dispose and replace (3) Fuse Cutouts.
6321396	[redacted]	(CP-C6-XARM) (STL 10) (K-5) (ASSY-1509(QTY=3)) (42In CROSSARM)	(CP-C6-XARM) (STL- 10) (K-5)	• On existing pole: • Remove, dispose and replace primary framing. • Remove, dispose and replace second framing. • Remove, dispose and replace streetlig (LED Type). • Remove and dispose 42” crossarm • Remove, dispose and replace (3) Fuse Cutouts.
7965995	[redacted]	N/A	(ASSY-1509)	• Install (3) Fuse Cuto

POLE FID	Coordinates Lat./ Long	Existing (Remove)	428 Replacement	Scope of Work
6318738	[redacted]	(40ft H4 CONCRETE POLE) (CP-C6-XARM) (STL-11) (E-1-2-3) (F-1-3)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (STL-11) (ASSY-1509)	• Remove and dispose 40ft H4 concrete and replace with 50ft round galvanized s pole. • Remove, dispose and replace primary framing. • Remove, dispose and replace streetlig (LED Type). • Remove and dispose downguy and ar • Install (3) Fuse Cutouts.
6318413	[redacted]	(40ft S3 STEEL POLE) (CP-C6-XARM) (CP-A5) (STL-11) (E-1-2-3) (F-1-3) (ASSY-1509 QTY=3)) (42In CROSSARM)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (CP-A5) (STL- 11)	• Remove and dispose of 40ft S3 steel replace with 50ft round galvanized steel p • Remove, dispose and replace primary framing. • Remove, dispose and replace streetlight Type). • Remove and dispose downguy. • Remove and dispose anchor. • Remove and dispose 42" crossarm. • Remove, dispose and replace (3) Fuse Cutouts.
10839473	[redacted]	N/A	(LABOR, FCI(QTY=3))	• Install (3) Fault Current Indicators.
29171840	[redacted]	N/A	(LABOR, FCI(QTY=3))	• Install (3) Fault Current Indicators.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established to provide LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the table above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the table above. When existing overhead conductors, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

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CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

[X] Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities, including the extent, location, and depth of the disturbance.

- Poles - Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact), for the depths of the poles to be installed.

[] Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

[] Relocation of utilities. If checked, include a description of the relocation, including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

[] Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project 727540 FAASt [Arecibo Group C] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

[X] Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method are not yet available.

Debris will be separated and taken to an authorized waste disposal facility.

[X] Staging areas, landing areas for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- Staging Area: All materials will be stored and dispatched from the existing LUMA

Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that will require.

- Access Roads: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

[X] Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

[] Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

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The following items are generally intended for buildings:

[] Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

[] Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

[] Photos of all sides of the facility are provided.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) for completing the project are summarized in the table(s) below. The cost estimate(s) were developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A- LUMA Project Cost Estimate.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$82,969.89**	**$53,067.85**	**$136,037.74**
MANAGEMENT	**$44,051.46**	**$28,175.48**	**$72,226.94**
LPCE Distribution Automation Group 26	**$809,974.80**	**$518,062.85**	**$1,328,037.65**
GENERAL CONDITIONS	**$42,954.86**	**$27,474.09**	**$70,428.95**
COST TOTALS	**$979,951.01**	**$626,780.27**	**$1,606,731.28**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	**FAAST PROJECT # 757692- 428**		**$810,056.48**
	FAAST PROJECT # 757692- 406 HM		**$626,780.27**
	FAAST PROJECT # 757692 TOTAL		**$1,436,836.75**
	FAASt A&E # 335168 - 428		**$87,198.52**
	FAASt A&E # 335168 - 406 HM		**$55,772.50**
	FAASt A&E # 335168 TOTAL		**$142,971.02**
	FAASt E&M #673691 - 428		**$82,696.01**
	FAASt E&M #673691 - 406 HM		**$259,575.99**
	FAASt E&M #673691 TOTAL		**$342,272.00**

428 Project Summary, Version 1:

Work to Be Completed (WTBC): $979,951.01

E&M Deduction (#673691) 428: -$82,696.01+ $82,696.01 = $0.00 (See Project Note #5)

A&E Deduction (Global A&E FAASt 335168): - $87,198.52 + $87,198.52 = $0.00 (See Project Note #5)

Project Total Cost: $979,951.01

VERSION SUMMARY OF KEY CHANGES:

V0: $938,783.63 (WTBC, A&E Deduction, E&M Deduction)

V1: $979,951.01 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

Project Notes:

1. Refer to detailed SOW provided in document: 757692-DR4339PR- DSOW Group 26 Revision 07 - V1.pdf

2. Refer to detailed cost estimate in document: 757692-DR4339PR-APPENDIX B- DETAIL COST ESTIMATE Revision 07 - V1.xlsx

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.

6. Since in previous version the A&E and E&M dollar amount was deducted, now in version 1 a positive value has been added with the same amount to zero out the cost.

7. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: SP 757692 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.

406 HMP Scope

Project number: 757692 FAASt [Automation Program Group 26] (TL / Distribution)

Damage #1399045; FAASt [Automation Program Group 26: Arecibo Feeder: 9004-08] (Distribution)

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: Arecibo, Puerto Rico

GPS Latitude/Longitude: ([redacted]; End: [redacted]).

(I) Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 26 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a natural disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeder 9004-08.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeder 9004-08 is accomplished by replacing round galvanized steel poles with a 12-sided galvanized steel poles as it is stronger than the round poles; replacing galvanized transformer by stainless steel transformer (more resistant to corrosion) as the island is located in a highly corrosive environment due to its size and proximity to the coast, replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and replacing fuse cutouts and manual disconnect switches with a single-phase and three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the three-phase reclosers (wireless connection).

In order to minimize the damage and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a natural disaster.

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

   The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for 8**ea** poles strengthening (pole class, concrete base, and additional guywire).

   Pole Description:

   a) 70ft 12-sided galvanized steel poles = 2ea

   b) *70ft 12-sided galvanized steel poles = 1ea

   c) 50ft S8.5 12-sided galvanized steel poles = 2ea

   d) 45ft S5.7 12-sided galvanized steel poles = 3ea

   *As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for one pole:

   a) Feeder 9004-08, 3PH-Recloser Installation – Pole FID 7947904 The proposed design scope includes the replacement of an existing 65-foot H6 concrete distribution pole with a new 70 foot S5.12 steel pole. This upgrade is intended to enhance structural capacity and accommodate additional electrical equipment.

   The decision to utilize a 70-foot pole instead of the standard 65-foot alternative is driven by the need to meet vertical clearance requirements and structural design standards. This is particularly important due to the presence of two independent distribution circuits on a single pole structure, as well as the installation of a three phase (3PH) recloser on the lower circuit (Feeder 9004-08). The increased pole height ensures adequate phase separation, safe working clearances, and compliance with applicable utility standards.

2. **Feeder Reclosers:**

   Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds.

   Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

   The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters.

   Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 20ea fuse cutouts with **20ea** single-phase reclosers and the installation of **5ea** three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of **6ea** fault current indicators (FCIs) by **6ea** communicating fault current indicators (cFCIs).

4. Stainless Steel Transformer (50. kVA):

Galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also prevents against debris impact better that galvanized steel. By upgrading to this material, the subrecipient will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of **1ea** galvanized transformer by **1ea** stainless steel transformer

Mitigation Measures *(Supplementary)*

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of **4ea** 1kVA stainless steel transformers.

2. Radio Communication Kit for Three-Phase Reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator to know their status and can remotely control the three-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea three-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of **5ea** radio communication kit.

(III) HMP Scope of Work:

a) Distribution Feeder 9004-08:

FID 7947904

1. Remove and dispose 65ft H6 Concrete Pole. and install with 70ft 12-sided tapered galvanized steel pole.
2. Install (1) 1 kVA stainless steel transformer (7.62kV/120V) from source side.
3. Install (1) Three-Phase Recloser 9004-08A in radial circuit.
4. Install and commission a three-phase radio communication kit for a Three-Phase Recloser.

FID NEW POLE

5. Replace 70ft round pole with 70ft 12-sided tapered galvanized steel pole.
6. Install (1) 1 kVA stainless steel transformer (7.62kV-120V) to feed recloser from source side.
7. Install (1) Three-Phase Recloser 9004-08B in loop restoration circuit.
8. Install and commission three-phase radio communication kit for Three-Phase Recloser.

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FID 29171836

9. Install (1) 1 kVA stainless steel transformer (7.62kV/120V) from source side.
10. Install (1) Three-Phase Recloser 9004-08C in radial circuit.
11. Install and commission three-phase radio communication kit for Three-Phase Recloser.

FID NEW POLE

12. Replace 50ft. round pole with 50ft. S8.5 12-sided tapered galvanized steel pole.
13. Install (1) Three-Phase Recloser 9004-08D in radial circuit.
14. Install and commission a three-phase radio communication kit for a Three-Phase Recloser.

FID 20668242

15. Install (1) 1 kVA stainless steel transformer (7.62kV/120V) from source side.
16. Install (1) Three-Phase Recloser 9004-08E in radial circuit.
17. Install and commission a three-phase radio communication kit for a Three-Phase Recloser.

FID 5330505

18. Replace 50ft. round pole with a 50ft. S8.5 12-sided tapered galvanized steel pole.
19. Replace 50kVA transformer with a 50kVA stainless steel transformer.
20. Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Recloser 200a.

FID 5329369

21. Replace 70ft round pole with 70ft. 12-sided tapered galvanized steel pole.
22. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.

FID 5329596

23. Replace 50ft round pole with a 45ft. S5.7 12-sided galvanized steel pole.
24. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.

FID 6321396

25. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.

FID 7965995

26. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.

FID 6318738

27. Replace 50ft round pole with 45ft 5.7 12-sided galvanized steel pole.
28. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.

FID 6318413

29. Replace 50ft round pole with 45ft. S5.7 12-sided galvanized steel pole.
30. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.

FID 10839473

31. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators

FID 29171840

32. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators

(IV) Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 498,938.95
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 127,841.32
Hazard Mitigation Total Cost =	**$ 626,780.27**

(V)Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 259,575.99
Architecture and Engineering (A&E) =	$ 55,772.50
Construction Cost =	$ 311,431.78
Hazard Mitigation Total Cost =	**$ 626,780.27**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of **$626,780.27.** In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is $4,991,878,901.09. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents.** ***(HMP, HMP cost estimate, Supporting documents file).***

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Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,544,445.44	Uncompleted
9001	1	Lump Sum	($430,336.48)	Uncompleted
3510	1	Lump Sum	($175,325.33)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	($938,783.63)	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$979,951.01	Uncompleted

CRC Gross Cost	$979,951.01
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$979,951.01
Federal Share (90.00%)	$881,955.91
Non-Federal Share (10.00%)	$97,995.10

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Patricia a. Perez, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a

manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities.

- The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.
- Puerto Rican boa (PR boa; Chilabothrus inornatus) and Virgin Islands Boa (VI boa; Chilabothrus granti) for Feeder 9004-08. 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harm s way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5.For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6.If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7.Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. -Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other

areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. -The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as aresult of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. -In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. -If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. -Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: Mobile: 305-304-1386 Office phone: 786-244-0081 Office Direct Line: 939-320-3120 Email: Caribbean_es@fws.gov or jose_cruz-burgos@fws.gov

- The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- ***Disregard previous condition***
- ***Disregard previous condition***
- Do not discard project condition for Version (0) and add: On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Or-der, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- ***Disregard Previous condition***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under

such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 26] (TL / Distribution) (HM Cost Alignment)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/25/2026 6:55 PM PDT

Review Comments

Version 1 contemplates $881,955.91, (federal share) for the installation of smart reclosers with microprocessor-based controllers and the remote monitoring, communications ready and control capabilities in transmission and distribution lines. Installation of cutout type single phase reclosers, with microprocessor-based controllers. Installation of fault current indicators (communications ready) in strategic locations to improve the outage management and restoration process, specifically by decreasing the time required to detect and locate faults. Reconciliation of HM funding for the installation of real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/29/2026 10:21 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned

Reviewed On Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $979,951.01 for subaward number 108035 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	9/3/2025	$844,905.27	90%	Accepted	4339DRPRP01080351
1	10/8/2026	$37,050.64	90%	Accepted	4339DRPRP01080351

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	757698 **P/W #** 108039	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399059; FAASt [Automation Program Group 33: Bayamon Feeders:1711-01, 1711-04, 1713-03, 9801-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 33
- **Facility Description:** Bayamon Feeders: 1710-01, 1710-03, 1710-05,1711-01, 1711-04, 1713-03, 1714-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399059

FAASt [Automation Program Group 33: Bayamon Feeders:1711-01, 1711-04, 1713-03, 9801-03] (Distribution)

Introduction

This document is to submit for approval a Detailed Scope of Work ("DSOW") to COR3 and FEMA for the Transmission and Distribution Automatio Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this DSOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Powe Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Fundin Letter issued by PREPA and P3A. These collectively provide the necessary consent for LUMA Energy, as agent of PREPA, to undertake work ir connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program (“Program”) installs advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. Although the intent is to deploy automation equipment throughout PREPA’s transmission and distribution (“T&D”) system, the Program is broken into multiple projects being implemented across the island on both transmission and distribution systems. The multiple projects within this Program are designed to fortify the electrical system’s resilience, safeguard its infrastructure, and enhance service reliability. The individual projects are interconnected and enhance each other, but each can also be implemented independent of the other with each conferring benefits independently. Automation is necessary to restore the T&D systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of

the Program and its ability to sustain the power grid in future disasters.

Project 757698 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing reclosers, their communication kits, and the communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damageto the grid during future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1711-01, 1711-04, 1713-03, and 9801-03.

Key components of this project are (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser. A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damage from future disasters. In this project, LUMA will install ten three-phase reclosers.

Single-Phase Reclosers:A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS.This project will install single-phase reclosers on single-phase or two-phase distribution feeders and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project, LUMA will install a total of seven single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCIs operate independent of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics, and help build a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management, and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project will use cellular technology for communications with the operations center. LUMA is using cellular communications service only for reclosers and their associated hardware. The lack of fiber optics as a method of transmitting information does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

FACILITIES

Facilities Description

The facilities listed below are part of PREPA's electric distribution system. All feeders originate from a substation (GPS Start) and serve customers along the route to various locations (GPS End). The coordinates shown below represent the mainline backbone of the feeders at issue in this project.

To avoid duplication of work across projects, LUMA reviewed the FIDs identified for work across distribution programs. The analysis did not identify any poles on these feeders, where LUMA is installing Distribution Automation (DA) devices, that require disaster-related replacement. Accordingly, LUMA has not initiated any rebuild projects for poles on these feeders under the Distribution Rebuild Program (also referred to as the D-Line Program). LUMA also confirmed that none of the poles on these feeders, which will be replaced under the Pole and Conductor Repair Program (also referred to as the D-Pole Program), will be replaced again under the DA Program

To further address any concerns regarding the duplication of work across other proposed or planned Hurricane Maria distribution projects, LUMA provides Appendix D which contains a list of all FIDs on the feeder upon which FEMA-eligible work will be performed and the associated proposed scope of work under each distribution program. Please refer to the ***APPENDIX D - LUMA Active Projects*** to show no duplication of scope elements.

Facilities List

Name	Feeder Number	GPS Start	GPS End
Bayamon	1711-01	[redacted]	
Bayamon	1711-04		
Bayamon	1713-03		
Bayamon	9801-03		

Note: Please refer to **APPENDIX *C — Project Considerations* for a list of all GPS locations that this project will impact**.

PROJECT SCOPE OF WORK

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Proposed 428 Public Assistance Scope of Work

Feeder 1711-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	70' S8 GALVANIZED STEEL POLE) (38KV 70S8 SINGLE CIRCUIT DEADEND VERTICAL ASSY ANGLE 0-10) (CP-C6-XARM) (REC-2-1)	• Install new galvanized 70' S8 12-sided galvanized steel pole in midspan location. • Install (1) Three-Phase Recloser 1711-01A. • Install and Commission radio communication kit for Three-Phase Recloser. • Install (2) 1 kva transformer (7.62/13.20 kv 120/240v) for source and load side.
NEW POLE		NONE	50' S8 GALVANIZED STEEL POLE) (CP-C6 XARM) (ABS-3-XARM) (E1-2-3) (F-1-3)	• Install a new 50' S8 12-Sided galvanized steel pole in mid span. • Install Air-Break switch. • Install (1) Anchor and (1) down guy.
11318114		NONE	cFCI(QTY=3) LABOR	• Install (3) Communicating Fault Current Indicator
6595706		NONE	cFCI(QTY=3) LABOR	• Install (3) Communicating Fault Current Indicator
6595635		NONE	cFCI(QTY=3) LABOR	• Install (3) Communicating Fault Current Indicator

Feeder 1711-04

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(70'-S8 GALVANIZED STEEL POLE) (OPS-REC-2-1 VER. 6) (CP-C6-XARM) (38KV 70S8 STD SC DEADEND VERTICAL ASSY 0-10)	• Install new 70' S8 12-Sided galvanized pole in new location mid span. • Install (1) Three-Phase Recloser 1711-04A. • Install and commission radio communication kit for three-phase recloser. • Install (2) 1kva (7.62/13.20kv - 120/240v) transformers for source side and load side. • Install 38kv standards in new pole.
6344120		(FUSES REMOVAL (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) Fuses.
7957688		(ABS-3-XARM) (FCI (QTY=3))	(LABOR & REPAIR)	• Remove and dispose air-break switch. • Remove (3) fault current indicators.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
13061018	[redacted]	(50 FT H6 CONCRETE POLE) (CP-C6-XARM)	(50 FT S8 STEEL POLE) (CP-C6-XARM) (REC-2-1)	• Remove and dispose 50 ft h6 concrete Pole. • Replace with 50' S8 12-sided Galvanized steel pole. • Remove, dispose and replace primary framing. • Install (2) 1 kva Control transformers (7.62kv - 120v) to feed Recloser from source side and load side. • Install (1) three-Phase recloser **1711-04B** in Loop restoration circuit. • Install and commission radio communication kit for three-phase recloser.
NEW POLE		NONE	(50'-S8 GALVANIZED STEEL POLE) (REC-4-C) (CP-C6-XARM)	• Install new galvanized steel pole 50' S8 12-Sided Galvanized steel pole in new location mid span. • Install (3) Mounted Single-Phase Recloser.
Segment FID **19774609**		NONE	LABOR,cFCI QTY=3	• Install (3) Communicating Fault Current Indicators.

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Feeder 1713-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
6589664	[redacted]	(45FT H6 CONCRETE POLE) (CP-C1) (K-6) (STL-10)	(50FT S8 STEEL POLE) (REC-2-1) (K-6) (CONTROL XFRM, 7.62KV/13.2KV, 120V,1KVA) (E-1-2-3) (F-1-3) (STL-10)	• Remove and dispose 45' Concrete pole. • Replace with 50' S8 12-sided galvanized steel pole. • Remove, dispose and replace primary and secondary f • Remove, dispose and replace streetlights. • Install (1) three-phase recloser. • Install and commission radio communication kit for three recloser. • Adjacent secondary conductor from Transformer with 23354844 will feed the Recloser load side. • Install 1kva control transformer (7.62/13.2kv, 120v) for side. • Install new guy wire and anchor.
1002078084	[redacted]	(CP-C1)	(CP-C6-XARM) (K-7-A) (REC-2 VER. 6) (STL-10) (K-5(QTY=2)) (E-1-2-3(QTY=1)) (F-1-3(QTY=1))	• Existing Pole. • Labor of installing existing streetlight. • Labor of installing existing secondary conductor for so side. • Install (1) Three-Phase Recloser. • Install and commission radio communication kit for the tl phase recloser. • Install secondary conductor 1/0 al tpx - 115 ft for load s • Install (1) down guy and (1) anchor.
1000787695	[redacted]	(40'-H4 CONCRETE POLE) (AC-C1 XARM) (ASSY 1509 (QTY=2))	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (K-6) (K-7-A) (REC-2 VERS 6) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Remove, dispose and replace primary framings. • Remove and dispose (2) fuses. • Use existing secondary conductor for source side. • Remove and dispose 40' H4 Concrete pole. • Replace pole with 50' S8 12-sided galvanized steel pol • Install (1) Three-Phase Recloser 1713-03 on a radial configuration. • Install and commission radio communication kit for three recloser. • Install (1) down guy and (1) anchor.
4948234	[redacted]	(35'-CLASS 3 WOOD POLE) (CP-C6 XARM) (K-6 (QTY 2)) (E-1-2-3 QTY=1)) (F-1-3 (QTY=1)) (STL-10)	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (K-6 (QTY 2)) (REC-2-1 VERS 6) (STL-10)	• Remove, dispose, and replace primary framings. • Use existing secondary conductor for load side. • Remove and dispose (1) anchor and (1) downguy • Remove and dispose 35' Class 3 Wood pole, • Replace pole with 50' S8 12-sided galvanized steel pol • Install (1) three-phase recloser 1713- 03. • Install and commission radio communication kit for Thre recloser. • Install (1) 1 kva transformer (7.62/13.2 kv -120/240v) s side.
NEW POLE	[redacted]	NONE	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2 VER 6) (K-6)	• Install new 50' S8 12-Sided galvanized steel pole in ne location mid span*. • Install primary framing. • Install (1) Three-Phase Recloser 1713-03 on a radial configuration. • Install and commission radio communication kit for Thre recloser. • Use existing secondary conductor for source side.

21650576	[redacted]	(40'-H4 CONCRETE POLE) (AC-C1 XARM) (CP-C5 XARM) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (K-2)	(55'-S8.5 GALVANIZED STEEL POLE) (CP-C5-XARM) (CP-C1) (T-2) (K-5) (K-7-B) (E-1-2-3 (QTY 2)) (F-4-2 (QTY=1))	• Adjacent Pole: Remove and dispose 40' H4 Concrete p • Replace pole with 55' S8.5 12-Sided galvanized steel • Install a new additional (1) down guy. • Install a new additional (1) anchor. • Install primary cond 1/0 cu - 66ft. • Remove, dispose, and replace primary framings. • Install existing 50kva (7.62/13.2 kv-120/240v) transforr • Remove, dispose and Replace (1) down guy. • Remove, dispose and Replace (1) anchor.
4948238		(35'-CLASS 4 WOOD POLE) (AC-C2) (T-1) (K-7-B)	(50'-S8 GALVANIZED STEEL POLE) (CP-C2) (T-1) (K-7-B) (K-5)	• Adjacent Pole: Remove and dispose 35' Class 4 wood • Replace pole with 50' S8 12-Sided galvanized steel. • Remove, dispose, and replace primary framings. • Install existing transformer 50kva (7.62/13.2 kv-120/24 transformer to new pole.
4948232		(35'-CLASS 2 WOOD POLE) (AC-C1) (K-7 A) (STL-10)	(45' S5.7 GALVANIZED STEEL POLE) (CP-C1) (K-7-A) (STL-10)	• Adjacent Pole: Remove and dispose 35' Class 2 Wood • Replace pole with 45' S5.7 12-Sided galvanized steel. • Remove, dispose, and replace primary framings. • Remove, dispose, and replace streetlights.
4948623		(40'-H3 CONCRETE POLE) (AC-C1 XARM) (CP-A5) (T-1) (K-6) (URD-4)	(50'-S8 GALVANIZED STEEL POLE) (45'-5.7 GALVANIZED STEEL POLE) (CP-A5) (CP-C1) (T-1) (K-6) (URD-4) (E-2-1)	• Adjacent Pole: Remove and dispose 40' H3 concrete p • Replace pole with 50' S8 12-Sided galvanized steel pol three-phase recloser 1713-03 installation. • Install a new stubpole 45'-S5.7 12-Sided galvanized ste • Remove, dispose, and replace framings. • Install existing 37.5kva (7.62/13.2 kv-120/240v) transfo • Remove, dispose, and replace streetlights.
4948624		(40'-H3 CONCRETE POLE) (AC-C8) (K-6) (URD-2) (STL-10 (QTY=2))	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C1) (K-6) (URD-2) (STL-10 (QTY=2))	• Adjacent Pole: Remove and dispose 40' H3 concrete p • Replace pole with 45' S5.7 12-Sided galvanized steel. • Remove, dispose, and replace framings. • Remove, dispose, and replace streetlights.
4948224		(35' CLASS 4 WOOD POLE) (AC-C1) (STL-10) (K-5) (K-7-A)) (CP-B5 XARM)	(50'-S8 GALVANIZED STEEL POLE) (CP-C1) (T-2) (K-7-B) (K-4) (STL-10)	• Adjacent Pole: Remove and dispose 35' Class 4 Wood • Replace pole with 50' S8 12-Sided galvanized steel pol • Install secondary conductor 1/0 al tpx 65ft. • Remove, dispose, and replace framings. • Labor to install existing 50 kva (7.62/13.20 kv - 120/24 transformer from service pole fid: 4948151. • Remove, dispose, and replace streetlight.
Segment FID 1001397537		NONE	cFCI Qty=3 LABOR	• Install (3) Communicating Fault Current Indicators.

Feeder 9801-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work

13650737		[redacted]	((ASSY 1506 B) (K-7 B) (E-1-2-3 (QTY2)) (F-1-3 (QTY 2)) (STL-10) (T-2)	(ASSY 1506 B) (REC-2-1VER, 6) (K-7 B) (E-1-2-3(QTY3)) (F-1-3 (QTY 3)) (STL-10)	• Use existing pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) down guy and (1) ancho • Labor to transfer existing 25 kva (4.8/8.32 kv - 120/240 Transformer from pole fid: 13650737 to Pole fid: 13650739. • Remove, dispose, and replace streetlight. • Install (1) Three-Phase Recloser 9801-03A. • Install and commission radio communication kit for the three recloser. • Use existing secondary conductor for load side. • Install 1 kva (4.8/8.32 kv - 120/240 v) for source side. • Install new additional (1) Down guy and (1) anchor.
1001137099			(50'-H4 CONCRETE POLE) (CP-C1) (K-7A) (E-1-2-3) (F-1-3) (50 FT 1/0 AL TRIPLEX SECONDARY CONDUCTOR)	(50'-S8 GALVANIZED STEEL POLE) (S-6) (REC-2-2) (E-1-2-3) (F-1-3)	• Remove and dispose 50' H4 concrete pole. • Replace pole with 50' S8 12-sided Galvanized steel pole. • Install a spacer double dead-end. • Install (1) Three-Phase Recloser 9801-03B. • Install and commission radio communication kit for the thr phase recloser. • Install (2) 1 kva (4.8/8.32 kv -120/240 v) transformers for side and load side. • Remove, dispose, and replace framings. • Remove, dispose, and replace (1) down guy. • Remove, dispose and replace (1) anchor. • Remove out of service secondary conductor.
13650739			(OPS CP C4 XARM) (CP-A5) (ASSY1509 QTY=1) (K-1) (E-1-2-3) (F-1-3) (STL-10)	(OPS CP-C4 XARM) (CPA5) (ASSY 1509TY=1) (T-1)(K-1) (E-1-2-3 (QTY2)) (F-4-2) (STL-10)	• Existing pole: • Remove, dispose, and replace (2) down guys and (1) an • Install existing 25 kva (4.8/8.32 • Kv - 120/240 v) transformer from pole Fid: 13750737. • Remove, dispose, and replace streetlight. • Remove and dispose (1) fuse
7265423			(FUSE REMOVAL (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) fuses
13651343			(FUSE REMOVAL (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) fuses.
1000373351			(FUSE REMOVAL (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) fuses.
13652808			(FUSE REMOVAL (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) fuses
1001137098			SWITCH REMOVAL (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) switch.
10150470			(40'-CLASS 5 WOOD POLE) (CP-A1) (K-7 B) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(45'-S5.7 GALVANIZED STEEL POLE) (CP-A6) (REC-3-A) (K-7 B) (STL-10) (E-1-2-3) (F-1-3)	• Remove and dispose 40' Class 5 wood pole. • Replace pole with 45' S5.7 12-sided Galvanized steel pole • Install (1) cutout mounted single-Phase Recloser (CMR-A) • Remove, dispose, and replace framings. • Remove, dispose, and replace streetlight. • Remove and dispose (2) down guy. replace only one. • Remove and dispose (2) anchors. replace only one.

10150488	[redacted]	(50' CLASS 2 WOOD POLE) (OPS-CP-C4 XARM) (K-7 B) (STL-10) (E-1-2-3) (F-1-3) (ASSY 1509 (QTY=3))	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C4 VERT) (REC-3-C-VERT) (K-7 B) (STL-10) (E-1-2-3) (F-1-3)	• Remove and dispose 50' Class 2 wood pole. • Replace pole with 45' S5.7 12-Sided Galvanized steel pol • Install (3) cutout mounted single-phase recloser (CMR-B) • Remove, dispose, and replace framings. • Remove, dispose, and replace streetlight. • Remove, dispose, and replace (1) down guy and (1) anc • Remove and dispose (3) fuses.
10150479		(40' CLASS 5 WOOD POLE) (CP-C3 XARM) (K-7 B) (E-1-2-3) (F-1-3) (T-1) (25 KVA (4.8/8.32 kV - 120/240 V)) (93 FT 1/0 AL OPEN WIRE SECONDARY CONDUCTOR)	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C3XARM) (K-7 B) (E-1-2-3) (F-1-3) (T-1) (25 KVA (4.8/8.32 kV - 120/240 V)) (93 FT 1/0 AL TRIPLEX SECONDARY CONDUCTOR)	• Adjacent Pole: Adjacent Pole: Remove and dispose 40' Cl wood pole. • Replace pole with 50' S8.5 12-Sided galvanized steel pol • Remove, dispose, and replace framings. • Remove, dispose, and replace 25kva (4.8/8.32 kV-120/24 transformer. • Remove, dispose and replace (1) down guy and (1) anch • Remove, dispose and replace 93 ft of secondary open w conductor with triplex conductor.
10347922		(FUSE REMOVAL (QTY=1))	(LABOR & REPAIR)	• Remove and dispose (1) fuse.
10150482		(FUSE REMOVAL (QTY=1))	(LABOR & REPAIR)	• Remove and dispose (1) fuse.
SEGMENT FID 15920218		NONE	cFCI= 3 LABOR	• Install (3) Communicating Fault Current Indicators.
SEGMENT FID 15905910		NONE	cFCI= 3 LABOR	• Install (3) Communicating Fault Current Indicators.

For more detailed information about the scope of work please refer to the ***APPENDIX B- LUMA Project Cost Estimate.***

Proposed 406 Hazard Mitigation Scope of Work

406 Hazard Mitigation Proposal
This version of the project will be fully funded using PA 428 funds. A future version of this project may contain PA 406 HM measures.

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and APPENDIX C – Project Considerations.

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations. Refer to APPENDIX C – Project Considerations, column C (soil area and depth

impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in the table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	Project Title
1713-03	727558 FAASt Region 3 -Bayamon Group C (Vegetation)
1711-01 **1711-04** **9801-03**	727572 FAASt [Region 3 -Bayamon Group A] High Density (Vegetation)

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right-of-way.

2) Debris will be separated and taken to an approved waste disposal facility.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Warehouse. The warehouse assigned is Sabana Llana District Warehouse, whose address is#654 Calle De Diego Final, Rio Piedras, PR. Coordinates are [redacted]. Refer to document *Warehouse Locations.*

5) Fill, gravel, and sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used includes *a Skid Steer, Excavator, Dump truck, Manlift, 120-ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform trailer*.

7) Specific List of Permits Required:

1. Department of Transportation and Public Works - ("DTOP") Endorsements & Municipality Notifications
2. Excavation and Demolition Notification in the Department of Transportation and Public Works Agency - ("DTOP").

PROJECT COST ESTIMATE (PCE)

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and is subject to being updated. LUMA has allocated 10% of the project cost to mitigate known risks. For more details refer to **APPENDIX B- LUMA Project Cost Estimate.**

COST ESTIMATE

Cost Element	428	406	PROJECT TOTAL
PLANNING	$191,096.94	$-	$191,096.94
MANAGEMENT	$120,485.70	$-	$120,485.70
Distribution Automation Group 33	$2,360,365.00	$-	$2,360,365.00
GENERAL CONDITIONS	$122,680.65	$-	$122,680.65
COST TOTALS	$2,794,628.29	$-	$2,794,628.29
DEDUCTIONS	TOTAL INSURANCE PROCEEDS RECEIVED		$-
	DE-OBLIGATION TO FAASt IF APPLICABLE		$-
FAASt ALLOCATIONS	FAAST PROJECT # 757698 - 428		$1,888,928.21
	FAAST PROJECT # 757698 –406 HM		$-
	FAAST PROJECT # TOTAL:		$1,888,928.21
	FAASt A&E # 335168 - 428		$311,582.64
	FAASt A&E # 335168 - 406 HM		$-
	FAASt A&E # 335168 TOTAL		$311,582.64
	FAASt E&M #673691 - 428		$594,117.44
	FAASt E&M #673691 - 406 HM		$-
	FAASt E&M #673691 TOTAL		$594,117.44

Project Cost Summary, 428 Version 0:

Work to be Completed (WTBC): $ **2,794,628.29**

A&E Deduction (Global A&E FAASt 335168): -$311,582.64

E&M Deduction (Global E&M FAASt 673691): -$594,117.44

Project Total: $1,888,928.21

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document labeled: "757698-DR4339PR- DSOW Group 33 - Revision 02-. pdf."

2. Refer to detailed Cost Estimate provided in document labeled: "757698-DR4339PR-APPENDIX B - LUMA Project Cost Estimate Revision 002).xlsx"

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project Group 36 Automation FAASt 800286.

5. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.

6. **ATTACHMENTS**

757698-DR4339PR-APPENDIX A - Initial Scope of Work

757698-DR4339PR-APPENDIX B - LUMA Project Cost Estimate

757698-DR4339PR-APPENDIX C - Project Considerations

757698-DR4339PR-APPENDIX D - LUMA's Active Project

406 HMP Scope

Mitigation opportunities will be applied in a future version of the Permanent Work Project. In accordance with the Distribution Automation resolution document share with the applicant. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,794,628.29	Uncompleted
3510	1	Lump Sum	($311,582.64)	Uncompleted
9001	1	Lump Sum	($594,117.44)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,888,928.21
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,888,928.21
Federal Share (90.00%)	$1,700,035.39
Non-Federal Share (10.00%)	$188,892.82

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.

Insurance

Additional Information

8/25/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

5/27/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient s contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated 2 manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at closeout.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for

compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (1711-01, 1711-04, 1713-03 and 9801-03): 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harms way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120
- - The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. - The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. - Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Executive Order 11988 - Floodplain Conditions for Feeders 1711-01, 1711-04, 1713-03 and 9801-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 1711-04: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery

must be in a location that would prevent erosion and sedimentation.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/12/2025 6:32 PM PDT

Review Comments

Reviewed, found eligible and reasonable -CLG 09.12

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/18/2025 5:46 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

General Info

Project #	757698 **P/W #** 108039	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399059; FAASt [Automation Program Group 33: Bayamon Feeders:1711-01, 1711-04, 1713-03, 9801-03] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 33
- **Facility Description:** Bayamon Feeders: 1710-01, 1710-03, 1710-05,1711-01, 1711-04, 1713-03, 1714-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399059

FAASt [Automation Program Group 33: Bayamon Feeders:1711-01, 1711-04, 1713-03, 9801-03] (Distribution)

********** **VERSION 1** **********

Version 1 was created to capture changes related to scope of work and costs based on updated Applicant provided documentation; for additional information refer to documents labeled: "757698 - DR4339PR -Project Amendment Request DA Group 33.pdf", "757698-DR4339PR-APPENDIX A - LUMA Project Cost Estimate Revision 04 - V1.xlsx", and "757698-DR4339PR-DSOW- Group 33-Revision 04 - V1.pdf".

SOW from previous version has been removed from current SOW. It can be found in the “Versioning and Amendments” tab in GM.

INTRODUCTION

Pursuant to FEMA’s Post-Fixed Cost Estimate Obligation SOP (the “SOP”) for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work (“SOW”) for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance (“PA”) funding and it may include § 406 hazard mitigation proposals (“HMPs”).

According to the SOP, FEMA “anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness.” SOP at 4.

This document contains the detailed SOW for FEMA PA project 757698 Automation Program Group 33 (Distribution) under DR-4339PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to “Subrecipient” herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

PROJECT DESCRIPTION

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program (“Program”) through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA’s transmission and distribution (“T&D”) system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757698 is one of the Program’s distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System (“EMS”) and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on 1711-01, 1711-04, 1713-03, and 9801-03.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:
(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.
(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser’s wireless communication capability will provide connectivity to LUMA’s EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location.
(3) Communicating Fault Current Indicators

Install communicating fault current indicators (“cFCI”) at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics

and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. The installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate service loss and potential damage in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date.

FACILITIES

FACILITIES LIST – BUILDINGS AND SUBSTATIONS
The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:
• None

FACILITIES LIST – OTHER FACILITIES
The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.
A. Facilities for Automation Group 33 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Bayamon	1711-01	[redacted]	
Bayamon	1711-04		
Bayamon	1713-03		
Bayamon	9801-03		

Note: Please refer to APPENDIX B - Project Considerations for a list of all GPS locations that this project will impact.

B. Staging Area
All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse that will be used for this project is the Minillas Regional Warehouse, whose address is Laurel Avenue, Minillas Industrial Center, Bayamón, PR. The warehouse coordinates are [redacted]. Staging area will be located at the warehouse in coordinates [redacted].

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION
A map of the project area is not available at this time.

SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

[x] Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.
.
[] Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.
[] Subrecipient's request letter included, see Appendix.
[] Recipient's approval letter included, see Appendix.

[] Alternate Project: Does not restore the pre-disaster function of the damaged facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.
[] Subrecipient's request letter included, see Appendix.
[] Recipient's approval letter included, see Appendix.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

4.1 Proposed 428 Public Assistance Scope of Work

Feeder 1711-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	N/A	(70ft GALVANIZED ROUND TAPERED POLE) (38KV SINGLE CIRCUIT DEADEND VERTICAL ASSY ANGLE 0-10) (CP-C6-XARM)	· Install new 70ft galvan round tapered pole. · Install 38kv Single Cir framing. · Install Primary Framin · Install and connect on Air Break Bypass Switch framing hardware to su (ABS-3-XARM)
NEW POLE		N/A	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6 XARM) (ABS-3-XARM) (E1-2-3) (F-1-3)	· Install a new 50ft galva round tapered pole. · Install (1) Air-Break Sw 3-XARM). · Install primary framings · Install (1) anchor and down guy.
11318114		N/A	FCI(QTY=3) LABOR	· Install (3) Fault Curren Indicators.
6595706		N/A	FCI(QTY=3) LABOR	· Install (3) Fault Curren Indicators.
6595635		N/A	FCI(QTY=3) LABOR	· Install (3) Fault Curren Indicators.

Feeder 1711-04

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	N/A	(70ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (38KV STD SC DEADEND VERTICAL ASSY 0-10)	· Install 70ft galvanized stee tapered pole. · Install 38kV standards fran · Install primary framings. · Install and connect one (1) Break Bypass Switches and hardware to support them (ABS-3-XARM)

7957688	[redacted]	(ABS-3-XARM) (FCI (QTY=3))	(LABOR & REPAIR)	· Remove and dispose air-br · Remove and dispose (3) F Current Indicators.
13061018		(50 FT H6 CONCRETE POLE) (CP-C6-XARM)	(50FT GALVANIZED STEEL ROUND TAPERED POLE) (CP-C6-XARM)	· Remove and dispose 50ft H concrete pole and replace w galvanized steel round taper · Remove, dispose and repla framing. · Install and connect one (1) Break Bypass Switches and hardware to support them (ABS-3-XARM)
NEW POLE		N/A	(50FT GALVANIZED ROUND TAPERED STEEL POLE) (CP-C6-XARM)	· Install 50ft galvanized roun pole. · Install primary framings. · Install (3) Fuse Cutouts.
Segment FID **19774609**		N/A	LABOR,FCI QTY=3	· Install (3) Fault Current Indicators.

Feeder 1713-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
6589664	[redacted]	(45FT H6 CONCRETE POLE) (CP-C1) (K-6) (STL-10)	(50FT GALVANIZED ROUND TAPERED POLE) (K-6) (E-1-2-3) (F-1-3) (STL-10)	· Remove and dispose 45ft concre replace with 50ft galvanized steel r tapered pole. · Remove and dispose primary fra · Remove, dispose and replace se framing (K-6). · Install and connect one (1) set of Bypass Switches and the framing h support them. · Remove, dispose and replace str (LED Type). · Install new guy wire and anchor.
1002078084		(CP-C1)	(CP-C6-XARM) (E-1-2-3(QTY=1) (F-1-3(QTY=1))	· On existing pole: · Install and connect one (1) set o Bypass Switches and the framing h support them (ABS-3-XARM). · Install (1) down guy and (1) anch

1000787695	[redacted]	(40ft-H4 CONCRETE POLE) (AC-C1 XARM) (ASSY 1509 (QTY=2))	(50FT GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (K-7-A)	· Remove and dispose 40ft H4 conc · Replace pole with 50ft galvanized tapered pole. · Remove, dispose and replace prir framings. · Install Secondar Framing (K-7-A) · Install and connect one (1) set of A Bypass Switches and the framing ha support them (ABS-3-XARM). · Remove and dispose (2) Fuse Cu · Install (1) down guy and (1) anch
4948234		(35ft-CLASS 3 WOOD POLE) (CP-C6 XARM) (K-6 (QTY 2)) (E-1-2-3 QTY=1))	(50FT GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	· Remove and dispose 35ft Class 3 and replace pole with 50ft galvanize round tapered pole. · Remove, dispose, and replace pri framings. · Remove, dispose, and replace se

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
	[redacted]	(F-1-3 (QTY=1)) (STL-10)	(K-6 (QTY 2)) (STL-10)	framings (K-6). · Remove and dispose (1) anchor an guy. · Install and connect one (1) set of Ai Bypass Switches and the framing har support them (ABS-3- XARM)
NEW POLE		N/A	(50FT GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	· Install 50ft galvanized steel round ta pole. · Install primary framing. · Install and connect one (1) set of A Bypass Switches and the framing ha support them (ABS-3-XARM).
21650576		(40ft-H4 CONCRETE POLE) (AC-C1 XARM) (CP-C5 XARM) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (K-2)	(50FT GALAVANIZED ROUND TAPERED POLE) (CP-C5-XARM) (CP-C1) (T-2) (K-5) (K-7-B) (E-1-2-3(QTY 2)) (F-4-2 (QTY=1))	· Remove and dispose 40ft H4 concre and replace with 50ft galvanized stee tapered pole. · Remove, dispose and replace prima framing. · Remove, dispose (K-2) and replace secondary framing (K-5) (K-7B). · Remove, dispose and replace (1) d Install a new additional (1) downguy. · Remove, dispose and replace (1) a (1) Additional Anchor. · Relocate existing 50kVA (7.62/13.2 120/240V transformer from FID 4948 new pole. · Install 66ft. of primary conductor of Cu.

4948238	[redacted]	(35ft-CLASS 4 WOOD POLE) (AC-C2) (T-1) (K-7-B)	(50FT GALVANIZED ROUND TAPERED POLE) (CP-C2) (T-1) (K-7-B) (K-5)	· Remove and dispose 35ft Class 4 w and replace with 50ft galvanized roun pole. · Remove, dispose, and replace prim framings. · Remove, dispose and replace (K-7- Secondary Framing. Install a new (K- · Reinstall existing transformer 50kV

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
	[redacted]			(7.62/13.2 kV-120/240V) transformer.
4948232		(35ft-CLASS 2 WOOD POLE) (AC-C1) (K-7 A) (STL-10)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1) (K-7-A) (STL-10)	· Remove and dispose 35ft Class 2 w and replace pole with 50ft galvanized tapered pole. · Remove, dispose, and replace prima secondary framings. · Remove, dispose, and replace stre (LED Type).
4948623		(40ft-H3 CONCRETE POLE) (AC-C1 XARM) (CP-A5) (T-1) (K-6) (URD-4)	(50ft GALVANIZED ROUND TAPERED POLE) (50ft ROUND TAPERED POLE) (CP-A5) (CP-C1) (T-1) (K-6) (URD-4) (E-2-1)	· Remove and dispose 40ft H3 concre replace pole with 50ft galvanized stee tapered pole. · Install a new stub pole 50ft galva round tapered pole at coordinates [redacted] · Remove, dispose, and replace pr secondary framings. · Reinstall existing 37.5kVA (7.62/13. kV-120/240V) transformer.
4948624		(40ft-H3 CONCRETE POLE) (AC-C8) (K-6) (URD-2) (STL-10 (QTY=2))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1) (K-6) (URD-2) (STL-10 (QTY=2))	· Remove and dispose 40ft H3 concre replace with 50ft galvanized steel rou pole. · Remove, dispose, and replace prima secondary framings. · Remove, dispose, and replace (2) streetlights (LED Type).
4948224		(35ft CLASS 4 WOOD POLE) (AC-C1) (STL-10) (K-5) (K-7-A)) (CP-B5 XARM)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1) (T-2) (K-7-B) (K-4) (STL-10)	· Remove and dispose 35ft Class 4 w and replace with 50ft galvanized steel pole. · Remove, dispose, and replace prima secondary framings. · Relocate existing 50 kVA (7.62/13.2 120/240V) transformer from service p 4948151 to this pole. · Remove, dispose, and replace stree Type). · Install Secondary conductor 1/0 AL (QTY=65ft)
Segment FID **1001397537**		N/A	FCI Qty=3 LABOR	· Install (3) Fault Current Indicators.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
13650737	[redacted]	((ASSY 1506 B) (K-7 B) (E-1-2-3 (QTY2)) (F-1-3 (QTY 2)) (STL-10) (T-2)	(ASSY 1506 B) (K-7 B) (E-1-2-3(QTY3)) (F-1-3 (QTY 3)) (STL-10)	· Remove, dispose, and replace p framings of existing pole. · Remove, dispose and replace s framings (K-7-B). · Remove, dispose and replace (2 Install (1) additional downguy. · Remove, dispose and replace (2 Install (1) additional anchor. · Labor to transfer existing 25 kV/ kV - 120/240V) transformer to po 13650739. · Install and connect one (1) set c Bypass Switches and the framing support them (ABS-3-XARM). · Remove, dispose, and replace (LED Type).
1001137099		(50ft-H4 CONCRETE POLE) (CP-C1) (K-7A) (E-1-2-3) (F-1-3) (50 FT 1/0 AL TRIPLEX SECONDARY CONDUCTOR)	(50FT ROUND TAPERED POLE) (S-6) (E-1-2-3) (F-1-3)	· Remove and dispose 50ft H4 c and replace with 50ft galvanized tapered pole. · Remove, dispose and repla framing. · Install a spacer double dead-en · Install and connect one (1) set Bypass Switches and the framing support them (ABS-3-XARM). · Remove, dispose, and replace guy. · Remove, dispose and replace (· Remove and dispose out of ser secondary conductor (K-7-A, 50 AL TPX Secondary Conductor).
13650739		(OPS CP C4 XARM) (CP-A5) (ASSY1509 QTY=1)	(OPS CP-C4 XARM) (CPA5) (ASSY 1509TY=1)	· Remove, dispose, and replace guys and (1) anchor. · Remove, dispose and replace p

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
		(K-1) (E-1-2-3) (F-1-3) (STL-10)	(T-1) (K-1) (E-1-2-3 (QTY2)) (F-4-2) (STL-10)	framing. · Install existing 25 kVA (4.8/8.32k transformer from pole FID: 137507 · Remove, dispose, and replace st Type). · Remove and dispose (1) Fuse C
13651343	[redacted]	(FUSE REMOVAL (QTY=3))	(LABOR & REPAIR)	· Remove and dispose (3) Fuse C

1001137098	[redacted]	SWITCH REMOVAL (QTY=3))	(LABOR & REPAIR)	· Remove and dispose of (3) switc
10150470		(40ft-CLASS 5 WOOD POLE) (CP-A1) (K-7 B) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50ft-ROUND TAPERED POLE) (CP-A6) (K-7 B) (STL-10) (E-1-2-3) (F-1-3)	· Remove and dispose 40ft Class 5 and replace with 50ft galvanized ste tapered pole. · Remove, dispose, and replace fr · Remove, dispose, and replace str Type). · Remove and dispose (2) down gu (1) down guy. · Remove and dispose (2) anchors (1) anchor.
10150488		(50ft CLASS 2 WOOD POLE) (OPS-CP-C4 XARM) (K-7 B) (STL-10) (E-1-2-3) (F-1-3) (ASSY 1509 (QTY=3))	(50ft ROUND TAPERED POLE) (CP-C4 VERT) (K-7 B) (STL-10) (E-1-2-3) (F-1-3)	· Remove and dispose 50ft Class 2 and replace with 50ft galvanized st tapered pole. · Remove, dispose, and replace pr secondary framings. · Remove, dispose, and replace st (LED Type). · Remove, dispose, and replace (1 and (1) anchor. · Remove, dispose and replace (3 Cutouts.
10150479		(40ft CLASS 5 WOOD POLE) (CP-C3 XARM) (K-7 B) (E-1-2-3) (F-1-3) (T-1) (25 KVA (4.8/8.32 kV -	(50ft-ROUND TAPERED POLE) (CP-C3XARM) (K-7 B) (E-1-2-3) (F-1-3) (T-1) (25 KVA	· Remove and dispose 40ft Class 5 and replace with 50ft galvanized ste tapered pole. · Remove, dispose, and replace pri secondary framings. · Remove, dispose, and replace 2 (4.8/8.32kV-120/240V) transformer

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
		120/240 V)) (93 FT 1/0 AL OPEN WIRE SECONDARY CONDUCTOR)	(4.8/8.32 kV - 120/240V)) (93 FT 1/0 AL TRIPLEX SECONDARY CONDUCTOR)	· Remove, dispose and replace (and (1) anchor. · Remove, dispose and replace 9 secondary open wire conductor conductor.
10347922	[redacted]	(FUSE REMOVAL (QTY=1))	(LABOR & REPAIR)	· Remove, dispose and replace Cutout.
Segment FID **15920218**		N/A	FCI= 3 LABOR	· Install (3) Fault Current Indica
Segment FID **15905910**		N/A	FCI= 3 LABOR	· Install (3) Fault Current Indica

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within

the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.
2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the tables above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.
3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.
4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductors, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:
A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.
B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).
C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

[x] Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.
• Poles - Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact), for the depths of the poles to be installed.

[] Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

[] Relocation of utilities. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

[x] Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.
• Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the projects #750065 FAAST [Region 3 -Bayamon Group A] Low Density (Vegetation) and #727572 FAAST [Region 3 -Bayamon Group A] High Density (Vegetation).

[x] Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.
• Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method is not yet available.

[x] Staging areas, landing area for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).
• Staging Area: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that it will require.
• Access Roads: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

[x] Fill material. If the project includes the use of fill material, provide the source of the fill
material including the provider's name and address (if known).
• Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

[] Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.
The following items are generally intended for buildings:

[] Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

[] Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.
[] Photos of all sides of the facility are provided.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A- LUMA Project Cost Estimate.

COST ESTIMATE		
Cost Element	**Costs**	
PLANNING	**$126,435.69**	
MANAGEMENT	**$88,292.70**	
LPCE Distribution Automation Group 31	**$1,519,548.92**	
GENERAL CONDITIONS	**$78,032.44**	
COST TOTALS	**$1,812,309.75**	
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**	**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE	**$-**
FAASt ALLOCATIONS	**FAAST PROJECT # 757698- 428**	**$1,494,866.91**
	FAASt A&E # 335168 - 428	**$140,219.72**
	FAASt E&M #673691 - 428	**$177,223.12**

428 Project Summary, Version 1 (see project notes):

Work to Be Completed (WTBC): $1,812,309.75

A&E Deduction (Global A&E FAASt 335168): -$140,219.72

E&M Deduction (#673691) 428: -$177,223.12

Project Total Cost: $1,494,866.91

VERSION SUMMARY OF KEY CHANGES:

V0: $1,888,928.21 (WTBC, A&E Deduction, E&M Deduction)

V1: $1,494,866.91 (WTBC V0 de-obligation, A&E Deduction, E&M Deduction)

Project Notes:
1. Refer to detailed SOW provided in document: 757698-DR4339PR-DSOW- Group 33-Revision 04 - V1.pdf
2. Refer to detailed cost estimate in document: 757698-DR4339PR-APPENDIX A - LUMA Project Cost Estimate Revision 04 - V1.xlsx
3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.
5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.
6. The following attachments and appendices are provided with this DSOW: Appendix A LUMA Project Cost Estimate; Appendix B Project Considerations; Appendix C LUMA's Active Projects; Appendix D Pole Height Increase Justification.

406 HMP Scope

Project number: 757698

Damage number: 1399059; FAASt [Automation Program Group 33: Bayamon Feeders:1711-01, 1711-04, 1713-03, 9801-03] (Distribution)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Bayamon, Puerto Rico

GPS Latitude/Longitude: Start: [redacted]; End: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 33 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a natural disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1711-01, 1711-04, 1713-03 and 9801-03.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeders 1711-01, 1711-04, 1713-03 and 9801-03, is accomplished by replacing round galvanized steel poles with a 12-sided galvanized steel poles as it is stronger than the round poles; replacing galvanized transformer by stainless steel transformer (more resistant to corrosion) as the island is located in a highly corrosive environment due to its size and proximity to the coast; replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and replacing fuse cutouts and manual disconnect switches with a single-phase and installing three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the three-phase reclosers (wireless connection).

In order to minimize the damage and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a natural disaster.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for **20ea** pole strengthening (pole class, concrete base, and additional guywire).

Pole Description:

a) 45ft S5.7 12-sided galvanized steel poles = 5ea

b) 50ft S8.5 12-sided galvanized steel poles = 12ea

c) *55ft S8.5 12-sided galvanized steel poles = 1ea

d) 70ft S8.5 12-sided galvanized steel poles = 2ea

*As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for one pole:

- Feeder 1713-03, WOP 3PH Recloser Installation – Pole FID 21650576: The proposed design scope involves replacing the existing 40-foot H4 concrete pole with a 55-foot, 12-sided, tapered galvanized steel pole (S8.5). The new structure is designed to accommodate the installation of a transformer to serve the three-phase recloser 1713-03 C, in addition to supporting one overhead distribution feeder and a three-phase lateral circuit operating at 13.2 kV (Feeder 1713-03).

The decision to use a 55-foot pole instead of the standard 50-foot alternative is based on the need to comply with vertical clearance requirements and structural design standards associated with the installation of a 50 kVA, 4.16/7.2 kV to 120/240 V – SS pole-mounted distribution transformer, a three-phase main circuit, and a three-phase lateral circuit. Therefore, the increased pole height ensures adequate vertical and horizontal clearances between both distribution circuits and the reliability device.

2. Single-Phase Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds.

A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 7ea fuse cutouts with **7ea** single-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of **21ea** fault current indicators (FCIs) by **21ea** communicating fault current indicators (cFCIs).

4. Stainless Steel Transformer (25 kVA):

To avoid damage in a future event, the Subrecipient proposes as a mitigation measure, replacing transformer material from galvanized steel to high-strength stainless steel transformers at locations situated more than one (1) mile from the seashore (within the one-mile zone, is required by C&S). Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also withstands the impact of debris better than galvanized steel. By upgrading to this material, the Subrecipient will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of **1ea** galvanized transformer by **1ea** stainless steel transformer.

Mitigation Measures *(Supplementary)*

1. Three-Phase Reclosers:

To avoid damage during future events, the Subrecipient proposes as a mitigation measure, the installation of three-phase automatic reclosers to isolate system faults, preserve power service, and prevent cascading failures across the network. These devices will maintain the continuity of electrical service and prevent physical damage by pre-empting or minimizing outages. The three-phase reclosers are communication-ready to enable remote control and visualization that can be operated remotely and transmit data to the operations center, enabling operators to prioritize restoration activities, reduce customer outage times, and minimize the risk of cascading infrastructure damage. Installing three-phase reclosers and associated equipment is essential for the EMS (Energy Management System) and its components to operate at full capacity, as well as for preventing loss of service and potential damage from future disasters. A three-phase recloser is a protective device used on three-phase distribution feeders subject to high fault currents. It is a single unit containing three switches capable of opening to interrupt fault currents and closing automatically to restore power.

As a mitigation strategy, 406 HM will fund the installation of **10ea** three-phase reclosers.

2. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of **11ea** 1kVA stainless steel transformers.

3. Radio Communication Kit for Three-Phase Reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator to know their status and can remotely control the three-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea three-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of **10ea** radio communication kit.

Hazard Mitigation Proposal (HMP) Cost:

Total Net Hazard Mitigation Cost (Base Cost) =	$ 806,199.97
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 194,791.35
Hazard Mitigation Total Cost =	**$ 1,000,991.32**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 400,588.83
Architecture and Engineering (A&E) =	$ 77,375.04
Construction Cost =	$ 523,027.45
Hazard Mitigation Total Cost =	**$1,000,991.32**

HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$1,000,991.32 (Hazard Mitigation Total Cost)**. The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

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***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,794,628.29	Uncompleted
3510	1	Lump Sum	($311,582.64)	Uncompleted
9001	1	Lump Sum	($594,117.44)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	($1,888,928.21)	Uncompleted
9001	1	Lump Sum	$1,812,309.75	Uncompleted
3510	1	Lump Sum	($140,219.72)	Uncompleted
9001	1	Lump Sum	($177,223.12)	Uncompleted

CRC Gross Cost	$1,494,866.91
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,494,866.91
Federal Share (90.00%)	$1,345,380.22
Non-Federal Share (10.00%)	$149,486.69

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.

Insurance

Additional Information

8/25/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

5/27/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient s contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated 2 manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at closeout.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for

compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (1711-01, 1711-04, 1713-03 and 9801-03): 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harms way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120
- - The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. - The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. - Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.
- Executive Order 11988 - Floodplain Conditions for Feeders 1711-01, 1711-04, 1713-03 and 9801-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 1711-04: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery

must be in a location that would prevent erosion and sedimentation.
- The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.
- ***Disregard conditions***
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- ***Disregard previous condition***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 33] (Distribution) (HM Cost Alignment)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 8:54 PM PDT

Review Comments

Version 1 reflects the negative cost for PA reconciliation process. Change request - $394,061.30 for a total Federal share for this project of $1,345,380.22. This amounts are to be transferred accordingly to PREPA's Donor Project.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 9:56 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $1,494,866.91 for subaward number 108039 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	9/25/2025	$1,700,035.39	90%	Accepted	4339DRPRP01080391
1	10/8/2026	($354,655.17)	90%	Accepted	4339DRPRP01080391

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	757700 **P/W #** 108041	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399062; FAASt [Automation Program Group 35: Bayamon Feeders: 1909-07, 1909-08, 1909-09] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 35
- **Facility Description:** Bayamon Feeders: 1909-07, 1909-08, 1909-09
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399062

FAASt [Automation Program Group 35: Bayamon Feeders: 1909-07, 1909-08, 1909-09] (Distribution)

Introduction

This document is to submit for approval a Detailed Scope of Work ("DSOW') to COR3 and FEMA for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this DSOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A. These collectively provide the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installs advanced technology equipment *(i.e.,* reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program is broken into multiple projects being implemented across the island on both transmission and distribution systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The individual projects are interconnected and enhance each other, but each can also be implemented independent of the other, and each confers benefits independently. Automation is necessary to restore the T&D systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757700 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the three-phase reclosers, their communication kits, and the communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate the loss of service and potential damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1909- 07, 1909-08, and 1909-09.

Key components of this project are (1) pole replacement, (2) the three-phase reclosers, and (3) the communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles *(i.e.,* poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults-whether due to independent failures or breakdowns-and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damage from future disasters. In this project, LUMA will install eight three-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCIs operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics, and help build a predictive failure

model.

Data sent to the EMS aids the grid operator in making decisions on operations, management, and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not include fiber optics or communication capability, that is included in other projects. This project will use cellular technology for communications with the operations center. LUMA is using cellular communications service only for reclosers and their associated hardware. The lack of fiber optics, as a method of transmitting information, does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

Facilities	

Facilities Description

The facilities listed below are part of PREPA's electric distribution system All feeders originate from a substation (GPS Start) and serve customers along the route to various locations (GPS End). The coordinates shown below represent the mainline backbone of the feeders at issue in this project.

To avoid duplication of work across projects, LUMA reviewed the FIDs identified for work across distribution programs. The analysis did not identify any poles on these feeders, where LUMA is installing Distribution Automation (DA) devices, that require disaster-related replacement. Accordingly, LUMA has not initiated any rebuild projects for these feeders under the Distribution Rebuild Program (also referred to as the D-Line Program) LUMA also confirmed that none of the poles on these feeders, which will be replaced under the Pole and Conductor Repair Program (also referred to as the D-Pole Program), will be replaced again under the DA Program.

To further address any concerns regarding the duplication of work across other proposed or planned Hurricane Maria distribution projects, LUMA provides Appendix D, which contains a list of all FIDs on the feeder upon which FEMA-eligible work will be performed and the associated proposed scope of work under each distribution program. Please refer to the ***APPENDIX D- LUMA Active Projects*** to show no duplication of scope elements.

Facilities List

Name	Feeder Number	GPS Start	GPS End
Bayamon	1909-07	[redacted]	
Caguas	1909-08		
Bayamon	1909-09		

Note: Please refer to **APPENDIX C** - ***Project Considerations*** for a list of all GPS locations that this project will impact.

Project Scope of Work

Feeder 1909-07

POLEFID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
13058039	[redacted]	(35'-C4-WOOD POLE) (AC-C1)	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C1) (K-6)	• Adjacent Pole: Remove and dispose 35' C4 Wood Pole, • Replace with 45' S5.7 12-Sided Galvanized Steel Pole due to Three-Phase Recloser Installation • Remove, dispose, and replace primary framing.
13057935		(FUSE REMOVAL (QTY=3))	N/A	• Remove and dispose (3) fuses.
13058025		(FUSE REMOVAL (QTY=3))	N/A	• Remove and dispose (3) Fuses.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50'-S8 GALVANIZED STEEL POLE) (CP-C6- XARM) (REC-2) (K-5) (E-1-2-3) (F-1-3)	• Install new 50' S8 12-Sided Galvanized steel pole. • Install (1) Three-Phase recloser 1909-07A in radial configuration. • Install and commission the radio communication kit for the three-phase recloser. • Replace primary Cond 1/0-360ft. • Install secondary Cond 1/0 AL TPX-60ft for source ide to feed recloser. • Install (1) Anchor and (1) Down Guy.
Segment FID **1001115057**		NONE	cFCI= 3 LABOR	• Install (3) Communicating Fault Current Indicators.

Feeder 1909-08

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
1001780114	[redacted]	(50'-S8 GALVANIZED STEEL POLE) (CP-C1) (CP-C8) (STL-10) (K-6)	(60'-S8 GALVANIZED STEEL POLE) (REC-2-1-1) (OPS-CP-C8) (STL-10) (K-6) (E-1-2-3) (QTY=2) (F-4-2(QTY=1))	• Remove and dispose 50'-S8 concrete pole • Replace with 60' S 12-Sided galvanized st pole. • Install (1) three-phase recloser **1909-08A** radial configuration. • Install and commission radio communicatio for the three-phase recloser. • Install (1) 1kva transformer (7.62/13.2kv-120/240v) for source. • Install (2) downguys. • Install (1) anchor. • Remove, dispose, and replace framings. • Remove, dispose, and Replace streetlight.
12258899		(50'-H6 CONCRETE) (CP-C1)	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 Ver. 6) (E-1-2-3(QTY=1)) (F-1-3(QTY=1))	• Remove and dispose 50'-H6 concrete pole. • Replace with 50' S8 12-sided galvanized st pole. • Install (1) three-phase recloser **1909-08B** o radial configuration. • Install and commission radio communication the three-phase recloser. • Install (1) 1kva transformer (7.62/13.20 kv-120/240v) for source side. • Install (1) Down guy. • Install (1) anchor. • Remove, dispose, and replace framings.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50'-S8 GALVANIZED STEEL POLE) (CP-C6XARM) (REC-2-1 Ver.6) (K-1) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1)	• Install new galvanized steel pole 50' S8 12- Galvanized steel pole in location mid span*. • Install (1) three-phase recloser **1909-08C** c radial configuration. • Install and commission radio communication three-phase recloser. • Install (1) down guy and (1) anchor. • Install (1) 1 kva transformer (7.62/13.20 kv 120/240 v) for source side.
12259536	[redacted]	(45'-H6 CONCRETE POLE) (CP-C6-XARM) (E-1-2-3(QTY=1)) (F-1-3(QTY=1)) (STL-10) (K-7-B)	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 Ver. 6) (STL-10) (K-7-B) (E-1-2-3(QTY=2)) (F-1-3(QTY=2))	• Remove and dispose 45'-H6 concrete pole. • Replace with 50' S8.5 12-Sided galvanized pole. • Install (1) three-phase recloser **1909-08D** o configuration. • Install and commission the radio communica for the three-phase recloser. • Install (1) 1kva transformer (7.62/13.2kv- 120/240v) for source side to feed recloser. • Install (1) new additional anchors. • Install (1) new additional Downguy. • Remove, dispose, and Replace primary and secondary framing. • Remove, dispose, and Replace streetlight. • Remove, dispose, and replace (1) downguy • Remove, dispose and replace, (1) anchor.
Segment FID **1001282162**		NONE	cFCI= 3 LABOR	• Install (3) Communicating Fault Current Indic
Segment FID **19541395**		NONE	cFCI= 3 LABOR	• Install (3) Communicating Fault Current Indic

Feeder 1909-09

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 VER.6) (E-1-2-3 (QTY=2)) (F-4-2(QTY=1))	• Install a new galvanized 50' S8 12-sided galvanized steel pole in new location mid sp • Install (1) three-phase recloser **1909-09A** • Install and commission of radio communica kit for the Three-Phase Recloser. • Install (2) 1 kva transformer (7.62/13.20 k 120/240 v) for source side and load side. • Install (2) down guys. • Install (1) Anchor.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15701350	[redacted]	(35'-H3 CONCRETE POLE) (CP-C1) (K-6 (QTY=1) (STL-10)	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 VER.6) (K-6 (QTY=1)) (STL-10) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	• Remove and dispose 35' H3 Concrete pole • Replace with 50' S8 12-sided galvanized s • Install (1) three-phase recloser **1909-09B**. • Install and commission radio communicatic for the three-phase recloser. • Install (2) kva transformer (7.62/13.20 kv - 120/240v) for load and source side. • Install (2) down guys. • Install (1) Anchor. • Remove, dispose and replace framings. • Remove dispose and Replace streetlight.
NEW POLE		NONE	(60'-S10 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 VER. 6) (S-6) (E-1-2-3(QTY=2)) (K-5) (F-4-2 (QTY=1))	• Install a new 60' S10 12-Sided galvanized s pole in new location mid span*. • Install (1) Three-Phase recloser **1909-09C**. • Install and commission radio communication the three-phase recloser. • Install (1) 1 kva transformer (7.62/13.20 kv 120/240 v) for source side. • Install secondary cond 1/0 al tpx -100ft to f recloser from load side. • Install (1) anchor. • Install (2) Downguy.
15701352		(35'-H3 CONCRETE POLE) (CP-C6-XARM) (K-6 (QTY=1) (STL-10)	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (K-6 (QTY=1)) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Adjacent Pole: • Remove and dispose 35' H3 concrete pole • Replace with 50' S8 12-Sided galvanized s • Install (2) anchor. • Install (2) downguys • Remove, dispose, and replace framings. • Remove, dispose, and Replace streetlight.
15655696		(45'-H4 CONCRETE POLE) (CP-C1) (S-1) (K-5)	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (S-6) (K-6) (E-1-2-3(QTY=2)) (F-4-2QTY=2)	• Adjacent Pole: • Remove and dispose 45' H4 Concrete pole • Replace with 50' S8 12-Sided galvanized s • Install (2) downguy. • Install (1) Anchor. • Remove, dispose and replace framings.
15655730		(45'-H4 CONCRETE POLE) (CP-C6-XARM) (S-6) (T-2) (STL-10) (K-4)	(50'-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (S-5) (CP-B5-XARM) (T-2) (STL-10) (K-4(QTY=1))	• Adjacent Pole: • Remove and dispose 45' H4 concrete pole • Replace pole with 50' S8 12-Sided galvaniz steel pole. • Replace transformer for a 25Kva (7.62/13. 120/240V Stainless Steel) • Remove, dispose and replace framings. • Remove, dispose, and Replace streetlight. • Remove, dispose, and Replace 25 kva Transformer (7.62/13.2 kv -120/240 v)

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
7580562	[redacted]	(REMOVE FUSES (QTY=3))	(LABOR AND REPAIR)	• Remove and dispose (3) Fuses.
15706163		(REMOVE FUSES (QTY=3))	(LABOR AND REPAIR)	• Remove and dispose (3) Fuses.
15706169		(REMOVE FUSES (QTY=3))	(LABOR AND REPAIR)	• Remove and dispose (3) Fuses.
1000135621		(REMOVE FUSES (QTY=3))	(LABOR AND REPAIR)	• Remove and dispose (3) Fuses.
Segment FID 1000127106		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indi
Segment FID 1000135608		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indi
NEW POLE		NONE	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C6- XARM) (ASSY 1505-C) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Install a new 45' 12-sided galvanized steel a new mid span. • Install Fuse Cutout Blade. • Install (1) Anchor and (1) downguy.

4.2 Proposed 406 Hazard Mitigation Scope of Work

This version of the project will be fully funded using PA 428 funds. A future version of this project may contain PA 406 HM measures.

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and ***APPENDIX C - Project Considerations.***

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations; there are some new pole locations included in this scope of work. Refer to ***APPENDIX C - Project Considerations,*** column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed in locations noted in the table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	Project Title
1909-07 **1909-08**	740406 FAASt [Region 1-San Juan Group B] (Vegetation)
1909-09	723883 FAASt [Region 1 -San Juan Group A] (Vegetation)

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right-of way.

2) Debris will be separated and taken to an authorized waste disposal facility.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from LUMA's Regional Warehouse. The warehouse assigned to this project is the Sabana Liana Regional Warehouse, whose address is #654 De Diego Street, Rio Piedras, PR. The coordinates are [redacted]. Refer to the document Warehouse Locations.

5) Fill, gravel, and sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is a *Skid Steer, Excavator, Dump truck, Manlift, 120-ton Motor Crane, Boom Trucks, 45-ton Crane,* Zoom *Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator,*

Oil Tanker, Filtering Machine, and Flatbed platform trailer.

7) Specific List of **Permits Required**:

a. Department of Transportation and Public Works - (DTOP) Endorsements & Municipality Notifications
b. Excavation and Demolition Notification in the Department of Transportation and Public Works Agency - (DTOP)

PROJECT COST ESTIMATE

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and is subject to being updated. LUMA has allocated 10% of the project cost to mitigate known risks. For more details, refer to ***APPENDIX B - LUMA Project Cost Estimate.***

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$162,161.76**	**$-**	**$162,161.76**
MANAGEMENT	**$83,198.10**	**$-**	**$83,198.10**
Distribution Automation Group 35	**$1,658,954.19**	**$-**	**$1,658,954.19**
GENERAL CONDITIONS	**$84,122.11**	**$-**	**$84,122.11**
COST TOTALS	**$1,988,436.16**	**$-**	**$1,988,436.16**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 757700 428		**$1,318,515.66**
	FAAST PROJECT #757700- 406 HM		**$-**
	FAAST PROJECT # 757700 TOTAL:		**$1,318,515.66**
	FAASt A&E # 335168 - 428		**$245,359.86**
	FAASt A&E # 335168 - 406 HM		**$-**
	FAASt A&E # 335168 TOTAL		**$245,359.86**

	FAASt E&M #673691 - 428	**$424,560.64**
	FAASt E&M #673691 - 406 HM	**$-**
	FAASt E&M #673691 TOTAL	**$424,560.64**

Work To Be completed: $$1,988,436.16

A&E Deduction (Global A&E FAASt# 335168): $245,359.86

E&M Deduction (FAASt# 673691): $424,560.64

Project Total Cost (FAASt Project# 805521): $1,318,515.66

Project Notes:

1. Refer to detailed SOW provided in document "*757700-DR4339PR- DSOW Group 35. Rev. 1.pdf*.
2. Refer to detailed cost estimate summary provided in document "757700-DR4339PR-Cost Estimate-Group 35. Rev. 1.xlsx".
3. This project is part of a FAAST project, please reference project 136271.
4. The A&E cost included in this project will be reduced and obligated under FAASt Project #335168 A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project Group 35 Automation FAASt 757700.
6. For reference documents Appendix A thru D, see files labeled:
    a. *757700-DR4339PR-APPENDIX A - Initial Scope of Work .pdf*
    b. *757700-DR4339PR-APPENDIX B - LUMA Project Cost Estimate.xlsx*
    c. *757700-DR4339PR-APPENDIX C - Project Considerations.pdf*
    d. *757700-DR4339PR-APPENDIX D - LUMA's Active Project.pdf*

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,988,436.16	Uncompleted
3510	1	Lump Sum	($245,359.86)	Uncompleted
9001	1	Lump Sum	($424,560.64)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,318,515.66
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,318,515.66
Federal Share (90.00%)	$1,186,664.10
Non-Federal Share (10.00%)	$131,851.56

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jesus M. Vela Ayala, PA Senior Insurance Specialist - CRC Atlantic, Guaynabo, PR

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply

with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.

- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage and dispose petroleum products, hazardous materials and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if CONSTRUCTION MANAGEMENT PLAN [757700] FAASt [Automation Program Group 35] (TL / Distribution) 2 any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)** .

Final Reviews

Final Review

Reviewed By Diaz Rodriguez, Sheila M. **Reviewed On** 07/03/2025 12:37 PM PDT

Review Comments

This project has been reviewed, found eligible and cost reasonable, and it is ready to continue the award process.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/15/2025 7:54 PM PDT

Review Comments

This project is full 428, after being obligated, the allocation for the corresponding 406 mitigation funds must be developed. Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v1

General Info

Project #	757700 **P/W #** 108041	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1399062; FAASt [Automation Program Group 35: Bayamon Feeders: 1909-07, 1909-08, 1909-09] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 35
- **Facility Description:** Bayamon Feeders: 1909-07, 1909-08, 1909-09
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1399062

FAASt [Automation Program Group 35: Bayamon Feeders: 1909-07, 1909-08, 1909-09] (Distribution)

********** Version 1 **********

Version 1 created to align the scope and cost in PA and HM. The amendment request includes an updated cost estimate to reflect changes to the scope of work.

Version 0 will be fully de-obligated to reclassify 428 (Public Assistance) costs from the previous version, which will be added to 406 (Mitigation) costs in this version.

SOW from previous Versions has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

Introduction

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 757700 Automation Program Group 35 (Distribution) under DR-4339PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

Project Description

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program is being implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 757700 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1909-07 and 1909-09.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

1. **Pole Replacement to Accommodate the Installation of Reclosers**

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

2. **Feeder Reclosers**

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults —whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or

minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing eight (8) three-phase reclosers.

3. **Communicating Fault Current Indicators**

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date.

Facilities

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

FACILITIES LIST – OTHER FACILITIES

The following list includes the names and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 35 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Bayamon	1909-07	[redacted]	
Bayamon	1909-08		
Bayamon	1909-09		

Note: Please refer to APPENDIX B - Project Considerations for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse that will be used for this project is the Bayamón Regional Warehouse, whose addressis Laurel Avenue, Minillas Industrial Center, Bayamón, PR. The warehouse coordinates are [redacted]. The staging area will be located inside warehouse facilities, at the coordinates [redacted].

SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of eight (8) damaged poles.
- Install five (5) new poles.
- Install eight (8) Three-Phase Reclosers.
- Install fifteen (15) communicating Fault Indicators (cFCIs).
- Install ten (10) transformers.

LUMA requests to align the scope and cost of Project 757700 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

- Pole replacement to accommodate recloser installation: 406 Mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone.
- Communicating Fault Current Indicators: 406 Mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 Mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser. 406 HM will also fund the additional cost (delta) for the replacement of galvanized transformers with stainless steel transformers. The obligated DSOW included new pole installations.

This DSOW aligns the scope of these poles with 406 Mitigation proposal approved by FEMA. As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Air Break Bypass Switches
    - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a breakdown of the scope of work for the “Proposed 428 Public Assistance Scope of Work” proposed for feeders of this group.

Proposed 428 Public Assistance Scope of Work

Feeder 1909-07

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
13058039	[redacted]	(35ft-C4-WOOD POLE) (AC-C1)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1) (K-6)	• Remove and dispose 35ft C4 wood pole and replace with 50ft round galvanized steel pole. • Remove, dispose, and replace primary framing. • Install Secondary framing (K-6)

13057935	[redacted]	(FUSE REMOVAL (QTY=3))	N/A	Remove and dispose (3) Fuse Cutouts.
13058025		(FUSE REMOVAL (QTY=3))	N/A	Remove and dispose (3) fuses.
NEW POLE		NONE	(50ft ROUND TAPERED POLE) (CP-C6-XARM) (E-1-2-3) (F-1-3)	•Install new 50ft galvanized round tapered pole. •Install primary framings. •Remove, dispose and replace primary conductor 1/0 qty= 360ft. •Install (1) anchor and (1) down guy. •Install and connect one (1) set of Air Brake Bypass (ABS3-XARM) and the framing hardware to support them.
Segment FID 1001115057		NONE	FCI= 3 LABOR	Install (3) Communicating Fault Current Indicators.

Feeder 1909-08

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
1001780114	[redacted]	(50ft-S8 POLE) (CP-C1) (CP-C8) (STL-10) (K-6)	(50ft GALVANIZEDPOLE) (OPS-CP-C8) (STL-10) (K-6) (E-1-2-3) (QTY=2) (F-4-2(QTY=1))	•Remove and dispose 50ft S8 pole. Replace with a 50ft S8.5 12-sided galvanized pole. • Install (2) down guys. • Install (1) anchor. • Remove, dispose, and replace primary . • Remove, dispose and replace secondary framings (K-6). • Remove, dispose, and Replace streetlight (LED Type). • Install and connect one (1) set of Air Brake Bypass (ABS-3-XARM) and the framing hardware to support them.

12258899	[redacted]		(50ft-H6 CONCRETE) (CP-C1)	(50ft-S8 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 Ver. 6) (E-1-2-3(QTY=1)) (F-1-3(QTY=1))	• Remove and dispose 50ft H6 concrete pole and replace with 50ft galvanized round tapered pole. • Install (1) down guy. • Install (1) anchor. • Remove, dispose, and replace primary framings. • Install and connect one (1) set of Air Brake Bypass (ABS-3-XARM) and the framing hardware to support them.
NEW POLE			NONE	(50' ROUND TAPERED POLE) (CP-C6XARM) (K-1) (E-1-2-3(QTY=1)) (F-1-3 (QTY=1)	• Install 50ft galvanized round tapered pole. • Install primary framing. • Install secondary framing (K-1). • Install (1) down guy and (1) anchor. • Install and connect one (1) set of Air Brake Bypass (ABS-3- XARM) and the framing hardware to support them
12259536			(45'-H6 CONCRETE POLE) (CP-C6-XARM) (E-1-2-3(QTY=1)) (F-1-3(QTY=1)) (STL-10) (K-7-B)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (STL-10) (K-7-B) (E-1-2-3(QTY=2)) (F-1-3(QTY=2))	• Remove and dispose 45ft H6 concrete pole and replace with 50ft galvanized round tapered pole. • Remove, dispose, and replace primary and secondary framing (K-7-B). • Remove, dispose, and Replace streetlight (LED Type). • Remove, dispose, and replace (1) down guy. • Remove, dispose and replace (1) anchor. • Install (1) new anchor. • Install (1) new down guy. • Install and connect one (1) set of Air Brake Bypass (ABS-3-XARM) and the framing hardware to support them.
Segment FID **1001282162**			NONE	FCI= 3 LABOR	• Install (3) Fault Current Indicators

Segment FID **19541395**	[redacted]	NONE	FCI= 3 LABOR	• Install (3) Fault Current Indicators.

Feeder 1909-09

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50ft-ROUND TAPERED POLE) (CP-C6-XARM) (E-1-2-3 (QTY=2)) (F-4-2(QTY=1))	• Install 50ft galvanized round tapered pole. • Install primary framing. • Install (2) down guys. • Install (1) anchor. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
15701350	[redacted]	(35ft-H3 CONCRETE POLE) (CP-C1) (K-6 (QTY=1) (STL-10)	(50ftROUND TAPERED POLE) (CP-C6-XARM) (K-6 (QTY=1)) (STL-10) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	• Remove and dispose 35ft H3 concrete pole and replace with 50ft galvanized round tapered pole steel. • Install (2) down guys. • Install (1) anchor. • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framings (K-6). • Remove dispose and replace streetlight (LED Type). • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them

NEW POLE	[redacted]	NONE	(50ft ROUND TAPERED POLE) (CP-C6-XARM) (S-6) (E-1-2-3(QTY=2)) (F-4-2 (QTY=1))	•Install 50ft galvanized round tapered pole. •Install primary framing. •Install (1) anchor. •Install (2) down guy. •Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
15701352		(35ft-H3 CONCRETE POLE) (CP-C6-XARM) (K-6 (QTY=1) (STL-10)	50ft-S8 GALVANIZED STEEL POLE) (CPC6-XARM) (K-6 (QTY=1)) (STL-10) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	•Remove and dispose 35ft H3 concrete pole and replace with 50ft galvanized round tapered pole steel. •Install (2) anchor. •Install (2) down guys •Remove, dispose, and replace primary framing. •Remove, dispose and replace secondary framings (K-6). • Remove, dispose, and replace streetlight (LED Type.
15655696		(45ft-H4 CONCRETE POLE) (CP-C1) (S-1) (K-5)	(50ft ROUND TAPERED POLE) (CP-C6-XARM) (S-6) (K-6) (E-1-2-3(QTY=2)) (F-4-2QTY=2)	•Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole. •Install (2) down guy. •Install (1) anchor. •Remove, dispose and replace primary and secondary framings.
15655730		(45ft-H4 CONCRETE POLE) (CP-C6-XARM) (S-6) (T-2) (STL-10) (K-4)	(50ft ROUND TAPERED POLE) (CP-C6-XARM) (S-5) (CP-B5-XARM) (T-2) (STL-10) (K-4(QTY=1))	• Remove and dispose 45ft H4 concrete pole and replace pole with 50ft galvanized round tapered pole. • Remove, dispose and replace transformer 25kVA (7.62/13.2kV-120/240V). •Remove, dispose and replace primary and secondary framings. • Remove, dispose, and replace streetlight (LED/Type).

Segment FID 1000127106	[redacted]	NONE	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 1000135608		NONE	(LABOR, FCI) (QTY=3)	Install (3) Fault Current Indicators.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.
2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the tables above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.
3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.
4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductors, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019)

406 HAZARD MITIGATION OPPORTUNITY

For section 406 Hazard Mitigation Proposal, refer to document: 757700-DR4339PR-DSOW- Group 35- Revision 08 - V1.pdf

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

X Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- Poles - Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact), for the depths of the poles to be installed.

__ Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

__ Relocation of utilities. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding

the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the project #723883 FAASt [Region 1 -San Juan Group A] (Vegetation).

X Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method is not yet available.

X Staging areas, landing area for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area:** All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not yet identified any other additional staging areas that it will require. •

- **Access Roads:** New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the easement.

X Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

__Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__ Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__ Photos of all sides of the facility are provided.

Project Cost Estimate

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A- LUMA Project Cost Estimate

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$201,735.79**	**$126,978.50**	**$328,714.29**
MANAGEMENT	**$136,576.35**	**$75,376.11**	**$211,952.46**
LPCE **Distribution** **Automation Group 35**	**$992,423.29**	**$637,542.56**	**$1,629,965.85**
GENERAL CONDITIONS	**$51,168.61**	**$33,087.35**	**$84,255.96**
COST TOTALS	**$1,381,904.04**	**$872,984.52**	**$2,254,888.56**

DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**	**$-**
	DE-OBLIGATION TO FAAST IF APPLICABLE	**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 757700 - 428	$1,046,283.32
	FAAST PROJECT # 757700 – 406 HM	$872,984.52
	FAAST PROJECT #757700 Total	**$1,919,267.84**
	FAASt A&E # 335168 - 428	$216,956.61
	FAASt A&E # 335168 – 406 HM	$135,648.13
	FAASt A&E # 335168 TOTAL	**$352,604.74**
	FAASt E&M # 673691- 428	$118,664.11
	FAASt E&M # 673691 – 406 HM	$298,924.29
	FAASt E&M # 673691 TOTAL	**$417,588.40**

Work To Be Completed (WTBC): $1,381,904.04

A&E Deduction (Global A&E FAASt 335168): - $216,956.61+ 216,956.61 = $0.00 (See project note 7)

E&M Deduction (Global E&M FAASt 673691): -$118,664.11 + $118,664.11 = $0.00 (See project note 7)

Project Total Cost: $1,381,904.04

Change requested (Version 1 – Version 0): $1,381,904.04 - $1,318,515.66: $63,388.38

Version Summary of Key Changes

Version 0: $1,318,515.66 (WTBC)

Version 1: +$63,388.38 (revised WTBC)

Project Notes:

1. Refer to detailed SOW provided in document "757700-DR4339PR-DSOW- Group 35- Revision 05- V1.pdf"

2. Refer to detailed cost estimate provided in document "757700-DR4339PR-APPENDIX A- LUMA Project Cost Estimate Rev 05.xlsx".

3. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.

4. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

6. Since in previous version the A&E and E&M dollar amount was deducted, now in version 1 a positive value has been added with the same amount to zero out the cost.

7. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: 'SP 757700 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.'"

8. Attachments:

   a. Appendix A: LUMA Project Cost Estimate

   b. Appendix B: Project Considerations

   c. Appendix C: LUMA's Active Projects

   d. Appendix D: Pole Height Increase Justification

406 HMP Scope

Project number: 757000; FAASt [Automation Program Group 35] (TL / Distribution)

Damage #1399062; FAASt [Automation Program Group 35: Bayamon Feeders: 1909-07, 1909-08, 1909-09] (Distribution).

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: Bayamon, Puerto Rico

GPS Latitude/Longitude: (Start: [redacted]; End: [redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 35 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1909-07, 1909-08, 1909-09.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase reclosers, and (3) the installation of cFCIs.

Mitigation Approach:

The mitigation strategy to reduce or eliminate cascading effects and physical damage to critical components, and outage times at Feeders 1909-07, 1909-08, 1909-09 is

accomplished by replacing round galvanized steel poles by 12-sided galvanized steel poles as it is stronger than the round poles (designed to withstand future damage from 160 mph winds); replacing galvanized transformer by stainless steel transformer (more resistant to corrosion) as the island is located in a highly corrosive environment due to its size and proximity to the coast; replacing the fault current indicator (FCI) with a communication fault current indicator (cFCI) for real-time monitoring to prevent and communicate the location of the fault; and installing three-phase recloser on the feeder backbone. Additionally, install 1kVA transformers to power the reclosers; and install communication radios for the operation of the 3PH reclosers (wireless connection).

In order to minimize the damage and increase resilience, the subrecipient is proposing the installation of complementary equipment, technologies, and software systems that will provide visibility to the system, grid intelligence and automation. DA is a mitigation measure designed to protect the Puerto Rico Electric Power Authority's (PREPA) critical electric grid infrastructure and reduce risk to public health and safety from power outages caused by a disaster.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures (Replacement)

1. Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for 12ea poles strengthening (pole class, concrete base, and additional guywire).

Pole Description:

a) 45ft S5.7 12-sided galvanized steel poles = **1ea**

b) 50ft S8.5 12-sided galvanized steel poles = **9ea**

c) *60ft S8.5 12-sided galvanized steel poles = **2ea**

*As part of the installation of the 3PH recloser, the subrecipient increased the pole height to accommodate the 3PH recloser. Pole height increase justification for two each pole:

i. Feeder 1909-08, FID 1001780114: The proposed design scope entails the installation of a new 60-foot, 12-sided tapered galvanized steel pole (S8) at a mid-span location. This structure is intended to support the installation of a three-phase recloser on the upper 13.2 kV circuit, as well as two overhead distribution feeders operating at 13.2 kV (Feeder 1909-08) and 4.16 kV (Feeder 1901-04), respectively.

The decision to use a 60-foot pole, instead of the standard 50-foot alternative, is based on the requirement to comply with vertical clearance regulations and structural design standards associated with the installation of two independent distribution circuits on a single-pole structure, in addition to the integration of a three-phase (3F) recloser on the upper circuit (Feeder 1909-08). Therefore, the increased pole height ensures adequate vertical and horizontal clearances between both distribution circuits and the reliability device, and guarantees compliance with applicable structural codes, including the capacity to withstand wind loads (pole loading analysis) up to 160 mph.

ii. Feeder 1909-09, New Pole: The proposed design scope entails the installation of a new 60-foot, 12-sided tapered galvanized steel pole (S8.5) at a mid-span location. This structure is intended to support the installation of a three-phase recloser on the upper 13.2 kV circuit, as well as two overhead distribution feeders operating at 13.2 kV (Feeder 1909-09) and 4.16 kV (Feeder 1525-03), respectively.

The decision to use a 60-foot pole, instead of the standard 50-foot alternative, is based on the requirement to comply with vertical clearance regulations and structural design standards associated with the installation of two independent distribution circuits on a single-pole structure, in addition to the integration of a three-phase (3F) recloser on the upper circuit (Feeder 1909-09). Therefore, the increased pole height ensures adequate vertical and horizontal clearances between both distribution circuits and the reliability device, and guarantees compliance with applicable structural codes, including the capacity to withstand wind loads (pole loading analysis) up to 160 mph.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to

independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

As a mitigation strategy, 406 HM will fund the installation of **8ea** three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of **15ea** fault current indicators (FCIs) by **15ea** communicating fault current indicators (cFCIs).

4. Stainless Steel Transformer (25 kVA):

Galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also prevents debris impact better that galvanized steel. By upgrading to this material, the subrecipient will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of **1ea** galvanized transformer by 1ea stainless steel transformer.

Mitigation Measures (Supplementary)

1. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of **9ea** 1kVA stainless steel transformers.

2. Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator to know their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

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As a mitigation strategy, 406 HM will fund the installation of **8ea** Radio communication kit.

HMP Scope of Work:

a) Distribution Feeder 1909-07:

FID 13058039

1. Replace 50ft round pole with 45ft. S5.7 12-sided galvanized steel pole.

FID NEW POLE

2. Replace 50ft round pole with 50ft. S8.5 12-sided galvanized steel pole.
3. Install (1) Three-Phase Recloser 1909-07A in radial configuration.
4. Install and commission the radio communication kit for the Three-Phase Recloser.
5. Install Secondary Framing (K-5).
6. Install secondary conductor 1/0 AL TPX-60ft for source side to feed recloser.

Segment FID 1001115057

7. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

b) Distribution Feeder 1909-08:

FID 1001780114

8. Replace 50ft S8 pole with 60ft S8.5 12-sided galvanized steel pole.
9. Install (1) three-phase recloser 1909-08A on a radial configuration.
10. Install and commission radio communication kit for the Three-Phase Recloser.
11. Install (1) 1kVA Stainless Steel Transformer (7.62/13.2kV-120/240V) for source side.

FID 12258899

12. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
13. Install (1) Three-Phase Recloser 1909-08B on a radial configuration.
14. Install and commission radio communication kit for the Three-Phase Recloser.
15. Install (1) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side.

FID NEW POLE

16. Replace 50ft round pole 50ft S8.5 12-Sided Galvanized steel pole.
17. Install (1) Three-Phase Recloser 1909-08C on a radial configuration.
18. Install and commission radio communication kit for Three-Phase Recloser.
19. Install (1) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side.

FID 12259536

20. Replace 50ft round pole with 50ft S8.5 12-Sided galvanized steel pole.
21. Install (1) Three-Phase Recloser 1909-08D on radial configuration.
22. Install and commission the radio communication kit for the Three-Phase Recloser. Install (1) 1kVA transformer (7.62/13.2kV-120/240V) for source side to feed recloser.

FID Segment FID 1001282162

23. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

    FID Segment FID 19541395

24. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

c) Distribution Feeder 1909-09:

FID NEW POLE

25. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
26. Install (1) Three-Phase Recloser 1909-09A in radial configuration.
27. Install and commission of radio communication kit for the Three-Phase Recloser.
28. Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.

    FID 15701350

29. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
30. Install (1) Three-Phase Recloser 1909-09B in radial configuration.
31. Install and commission radio communication kit for the Three-Phase Recloser.
32. Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for load and source side.

    FID NEW POLE

33. Replace 50ft round pole with 60ft S8.5 12-sided galvanized steel pole.
34. Install (1) Three-Phase Recloser 1909-09C.
35. Install Secondary framing (K-5).
36. Install secondary conductor 1/0 al triplex (TPX) 100ft to feed recloser from load side.
37. Install and commission radio communication kit for the Three-Phase Recloser.
38. Install (1) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side.

    FID 1 15701352

39. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.

    FID 15655696

40. Replace 50ft round pole with 50ft S8.5 12-Sided galvanized steel pole.

    FID 15655730

41. Replace 50ft round pole with 50ft S8.5 12-Sided galvanized steel pole.
42. Replace transformer for a 25kVA stainless steel transformer (7.62/13.2kV-120/240V).

    FID Segment FID 1000127106

43. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

    FID Segment FID 1000135608

44. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

(III) Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) = $ 613,735.31

+ HM (Subrecipient A&E, Management & General Conditions) = $ 259,249.21

Hazard Mitigation Total Cost = $ 872,984.52

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) = $ 298,924.29

Architecture and Engineering (A&E) = $ 135,648.13

Construction Cost = $ 438,412.10

Hazard Mitigation Total Cost = $ 872,984.52

(V) HMP Cost-Effectiveness Calculations

FFEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of **$872,984.52.** In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is $4,988,618,672.71. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements. See the Mitigation Profile Documents Tab in Grants Manager for the complete supporting documentation, including the HMP cost estimate and supporting documents file.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,988,436.16	Uncompleted
3510	1	Lump Sum	($245,359.86)	Uncompleted
9001	1	Lump Sum	($424,560.64)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	($1,318,515.66)	Uncompleted
9001	1	Lump Sum	$1,381,904.04	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted

CRC Gross Cost	$1,381,904.04
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,381,904.04
Federal Share (90.00%)	$1,243,713.64
Non-Federal Share (10.00%)	$138,190.40

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jesus M. Vela Ayala, PA Senior Insurance Specialist - CRC Atlantic, Guaynabo, PR

6/4/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply

with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.

- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage and dispose petroleum products, hazardous materials and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if CONSTRUCTION MANAGEMENT PLAN [757700] FAASt [Automation Program Group 35] (TL / Distribution) 2 any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- If there are any further changes to the SOW, including any increase in the extent of ground disturbance, the applicant must notify FEMA beforehand, prior to engaging in further activities not within the current SOW.
- ***Disregard previous conditions***
- ***Disregard previous conditions***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any ad-verse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available in-formation and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the

right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 35] (TL / Distribution) (HM Cost Alignment)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/25/2026 6:56 PM PDT

Review Comments

Project reviewed, found eligible and reasonable. HM to be reconciled in next version. CLG 09/25/26

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/29/2026 9:04 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $1,381,904.04 for subaward number 108041 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	9/17/2025	$1,186,664.10	90%	Accepted	4339DRPRP01080411
1	10/8/2026	$57,049.54	90%	Accepted	4339DRPRP01080411

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	800286 **P/W #** 108077	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 36] (TL / Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1490780; FAASt [Automation Program Group36] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group36
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 36: 2005-10, 2501-01, 2501-02, 2501-03.
- **Approx. Year Built:** 1970
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1490780 **FAASt [Automation Program Group36] (Distribution)**

Introduction

This document is to submit for approval a Detailed Scope of Work ("DSOW") to COR3 and FEMA for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A. These collectively provide the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installs advanced technology equipment *(i.e.,* reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program is broken into multiple projects being implemented across the island on both transmission and distribution systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability.

The individual projects are interconnected and enhance each other, but each can also be implemented independent of the other, and each confers benefits independently. Automation is necessary to restore the T&D systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 800286 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the three-phase reclosers, their communication kits, and the communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of thedistribution power grid on Feeders 1102- 03, 1106-05, 1204-03, 1301-02, and 2005-10.

Key components of this project are: (1) pole replacement, (2) the three-phase and single-phase reclosers, and (3) the communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles *(i.e.,* poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser, and its attachments.

In addition, LUMAis using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults - whether due to independent failures or breakdowns- and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damage from future disasters. In this project LUMA will install nine three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two phase distribution feeders and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three-phases iffault currents are low at the location. In this project LUMA will install a total of 13 single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCIs operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data, that can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notification/alarms based on user set

parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project will use cellular technology for communications with the operations center. LUMA is using cellular communications service only for reclosers and their associated hardware only. The lack of fiber optics, as a method of transmitting information, does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

FACILITIES

Facilities Description

The facilities listed below are part of PREPA's electric distribution system All feeders originate from a substation (GPS Start) and serve customers along the route to various locations (GPS End). The coordinates shown below represent the mainline backbone of the feeders at issue in this project.

To avoid duplication of work across projects, LUMA reviewed the FIDs identified for work across distribution programs. The analysis did not identify any poles on these feeders, where LUMA is installing Distribution Automation (DA) devices, that require disaster-related replacement. Accordingly, LUMA has not initiated any rebuild projects for these feeders under the Distribution Rebuild Program (also referred to as the D-Line Program). LUMA also confirmed that none of the poles on these feeders, which will be replaced under the Pole and Conductor Repair Program (also referred to as the D-Pole Program), will be replaced again under the DA Program.

To further address any concerns regarding the duplication of work across other proposed or planned Hurricane Maria distribution projects, LUMA provides Appendix D which contains a list of all FIDs on the feeder upon which FEMA-eligible work will be performed and the associated proposed scope of work under each distribution program. Please refer to the ***APPENDIX D- LUMA Active Projects*** to show no duplication of scope elements.

Facilities List

Name	Feeder Number	GPS Start	GPS End
San Juan	1102-03	[redacted]	
San Juan	1106-05		
San Juan	1204-03		
San Juan	1301-02		
San Juan	2005-10		

Note: Please refer to ***APPENDIX C*** - ***Project Considerations*** for a list of all GPS locations that this project will impact.

PROJECT SCOPE OF WORK

Below is the "Proposed 428 Public Assistance Scope of Work" for feeders of this group.

Proposed 428 Public Assistance Scope of Work

Feeder- 1102-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15198307	[redacted]	(45 FT C2 WOOD POLE) (OPS-CP-C6-XARM) (ABS-3-XARM) (K-7-4) (STL-10)	(50 FT S8 STEEL POLE) (OPS-CP-C6-XARM) (K-7-4) (REC-2-1) (STL-10)	• Remove and dispose 45' C2 wood pole. • Replace with a 50' S8 12-Sided galvanized steel pole. • Install (1) Three-Phase recloser 1102-03A in a loop restoration circuit. Use Existing secondary to feed three-phase recloser from source side. • Install and commission the radio communication kit for three-phase recloser • Install 1 kva transformer (2.4/7.62kv – 120v) to feed three Phase recloser from load side. • Remove, dispose and replace primary Framing and secondary framing. • Remove, dispose and replace streetlight. • Remove and dispose air-break switch.
15197609	[redacted]	(S-1)	(S-6) (REC-3-C)	• **Existing Pole: Remove, dispose and replace primary framing.** • **Install (3) Single-Phase recloser 200A.**
15197623	[redacted]	(ASSY-1509 (QTY=3))	(LABOR, CLOSE JUMPERS (QTY=3))	• Remove and dispose (3) Fuses • Labor to close Jumpers
15197359	[redacted]	NONE	(LABOR, cFCI (QTY=3))	• Install (3) Communicating Fault Current Indicators.
15197882	[redacted]	NONE	(LABOR, cFCI (QTY=3))	• Install (3) Communicating Fault Current Indicators.

Feeder- 1106-05

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work	
NEW POLE	[redacted]	NONE	60 FT S8 STEEL POLE) (S-6) (CP-C6-XARM) (REC-2-1)	• Install new galvanized steel pole 60' S10 12-Sided Galvanized steel pole in new location mid span*. • Install Primary Framings. • Install (1) Three-Phase Recloser 1106-05A • Install and commission radio communication kit for three-phase recloser. • Install 1 kva Transformer (7.62/13.20 kv -120/240v) for source side	
15196880		(CP-C7) (ASSY-1509 (QTY=3))(QTY=3)	LABOR TO CLOSE JUMPERS (QTY=3)	• Remove and dispose (3) fuses. • Labor to close jumpers.	
15196868		(35 FT C4 WOOD POLE) (S-1)	(45 FT S5.7 STEEL POLE) (S-6) (E-1-2-3) (F-1-3) (REC-3-C)	• Remove and dispose 35' wood pole. • Replace with a 45' S5.7 12-sided galvanized steel pole. • Remove, dispose and replace primary framing, • Install downguy. • Insall Anchor • Install (3) Single-Phase Reclosers 200A.	
15196866		(ASSY-1509 (QTY=3)) (CP-C7)	(LABOR, CLOSE JUMPERS (QTY=3))	• Remove and dispose (3) • Labor to close jumpers.	
1000828279		(45 FT H6 CONCRETE POLE) (OPS-CP-C4-XARM) (STL-10) (K-5) (ASSY-1509 (QTY=3))	(50 FT S8 STEEL POLE) (OPS-CP-C4-XARM) (STL-10) (K-5) (E-1-2-3) (F-1-3) (REC-3-C)	• Remove and dispose 45' concre pole. • Replace with a 50' S8 12-sided galvanized steel pole. • Remove, dispose, and replace primary and secondary framing. • Remove, dispose and Replace streetlight. • Remove and dispose (3) fuses. • Install downguy and acnhior. • Remove and dispose (3) fuses. • Install (3) Single-Phase Recloser.	**Feeder- 1204-03**
15196831		NONE	(LABOR, cFCI (QTY=3))	• Install (3) Communicating Fault Current Indicator.	
POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work	

15202072	[redacted]	(45'-C2 WOOD POLE) (CP-C6 XARM) (S-6) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	(60'-S8.5 GALVANIZED STEEL POLE) (CP-C6 XARM) (S-6) (REC-2-1 Ver. 6) (K-4) (E-1-2-3 (QTY=4)) (F-1-3 (QTY=2)) (F-4-2 (QTY=1)	• Remove and dispose 45' C2 Wood pole. • Replace pole with a 60' S8 12-Sided Galvanized steel pole. • Install (1) Three-Phase Recloser 1204-03A • Install and commission radio communication kit for three-phase recloser. • Install (2) 1 kva Transformer (7.62/13.20 kv -120/240v) for source side and load side. • Remove, dispose and replace anchor and dow guy (1) fuses. • Install (2) additional anchors. • Install (3) additional dow nguys. • Remove, dispose and replace framings.
NEW POLE		NONE	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C6 XARM) (REC-2-1 Ver. 6)	• Install new galvanized steel pole 50' S8.5 12-Sided galvanized steel pole in new location mid span*. • Install (1) Three-Phase Recloser 1204-03B. • Install and commission Radio Communication Kit for the Three-phase Recloser. • Install (2) 1kva (7.62/13.20 kv -120/240 v) for source and Load side.
NEW POLE		NONE	60'-S10 GALVANIZED STEEL POLE) (40'-S5.7 GALVANIZED STEEL POLE) (CP-C6 XARM) (S-6) (REC-2-1 Ver. 6) (E-2-1(QTY=1)) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Install a new 60'-S10 12-Sided Galvanized steel pole. • Install (1) Three-Phase Recloser 1204-03C. • Install and commission the Radio Communication kit for the Three-Phase Recloser. • Install (2) 1kva (7.62/13.20 kv - 120/240 v) for source and load side. • Install 40' S5.7 galvanized steel stub Pole.
15202071	[redacted]	**(ABS-3-XARM (QTY=3))**	**(LABOR & REPAIR)**	**• Remove and dispose (3) air-brake switch.**
15201719		(ASSY-1509 (QTY=3))	(LABOR, (QTY=3))	• Remove and dispose (3) fuses.

Feeder- 1301-02

15201729	[redacted]	(45'-H4 CONCRETE POLE) (CP-C1) (CP-A5) (ASSY 1509 (QTY=1)) (REMOVE EXISTING PRIMARY RISER)	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C6 XARM) (CP-A5) (REC-3-A	• Remove and dispose 45' H4 Concrete pole. • Replace with a 50' S8.5 12-Sided galvanized Steel pole. • Install (1) CutOut Mounted Single-Phase Recloser. • Remove, dispose, and replace framings. • Remove and dispose (1) fuse • Remove Out of service primary Riser.
15201997		(45'-H4 CONCRETE POLE) (CP-C1)	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C6 XARM) (REC-3-C)	• Remove and dispose 45'H4 concrete pole. • Replace with 45' S5.7 12-Sided galvanized Steel pole. • Install (3) Cutout Mounted Single-Phase recloser. • Remove, dispose, and replacer framings
Segment FID 13665918		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicators.
Segment FID 31220910		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicators.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work	
NEW POLE	[redacted]	NONE	(50 FT S8 STEEL POLE) (CP-C6-XARM) (K-5) (REC-2-1)	• Install a new 50' S8 12-Sided Galvanized steel pole as a midspan. • Install primary Framing. • Install (1) three-phase recloser 1301-02A in loop restoration circuit. Use existing secondary to feed Three-phase recloser from load side. • Install 1 kva stainless steel transformer (2.40/7.62kv-120v) to feed three phase recloser from Source side. • Install and commission radio communication kit for three-phase recloser.	**Feeder 2005-10**
13524705		**(CP- C6- XARM)**	**(K- 5)**	**• Remove and dispose primary framing. • Install secondary framing. • Install 1/0 tpx (qty=25 ft). • Install 1/0 acsr primary • Conductor (qty=75 ft) and compression splices (qty=3).**	

22053341	[redacted]	(40 FT C3 WOOD POLE) (CP-C6-XARM) (S-6) (ABS-3-XARM)	(60 FT S8 STEEL POLE) (CP-C6-XARM) (S-6) (REC-2-2)	• Remove and dispose 40' C4 Wood pole. • Replace with a 60' S8 12-Sided Galvanized Steel pole. • Install (1) three-phase recloser 1301-02B in loop restoration Circuit. • Install and commission Radio Communication Kit for the three-phase recloser. • Install (2) 1 kva transformers (2.40/7.62kv-120v) to Feed three phase recloser from source Side and load side. • Remove and dispose air-break switch. • Remove, dispose and replace primary framings.
13525293		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicators.
1001602057		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicators.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	60'-S10 GALVANIZED STEEL POLE) (REC-2-1 VER. 6) (K-1) (CP-C6-XARM) (S-1)	• Install new galvanized steel pole 60' S10 12-Sided Galvanized steel pole in new location mid span*. • Install (1) Three-Phase Recloser 2005-10A • Install and commission radio communication kit for three-phase recloser. • Install (2) 1 kva Transformer (7.62/13.20 kv -120/240v) for source side and load side.
10044885		(40'-H4 CONCRETE POLE) (CP-C1) (E-1-2-3 (QTY=)) (F-1-3 (QTY=1))	(50'-S8 GALVANIZED STEEL POLE) (REC-2-1 VER. 6) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (CP-C6-XARM)	• Remove and dispose 40' H4 Concrete pole. • Replace pole with a 50' S8 12-sided galvanized steel pole. • Install (1) three-Phase recloser 2005-10B. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1 kva transformer • (7.62/13.20 kv-120/240v) for source side and load side. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) anchor and (1) downguy).

Proposed 406 Hazard Mitigation Scope of Work

This version of the project will be fully funded using PA 428 funds. A future version of this project may contain PA 406 HM measures.

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and ***APPENDIX C - Project Considerations***.

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POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
12372255	[redacted]	(45'-H4 CONCRETE POLE) (S-1) (CP-C8) (STL-10)	(60'-S10 GALVANIZED STEEL POLE) (CP-C1) (S-1) (STL-10) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1)) (K-1)	• Adjacent Pole: • Remove, dispose, and replace framings. • Remove, dispose, and replace streetlights. • Remove, dispose, and replace 45' H4 Concrete pole. • Replace pole with 60' S10 12-Sided galvanized steel pole. • Install (1) anchor. • Install (2) DownGuy •
12372254		(45'-H4 CONCRETE POLE) (S-6) (STL-10) (CP-C8) (K-5)	(60'-S10 GALVANIZED STEEL POLE) (CP-C1) (S-6) (STL-10) (K-5)	• Adjacent Pole: • Remove and dispose 45 H4 Concrete pole. • Replace pole with 60 S10 12-sided galvanized steel pole • Remove, dispose, and replace framings • Remove, dispose and replace streetlights. • Labor to Transfer air brake switch to new pole.
Segment FID 18371210		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicators.
Segment FID 1000125552		NONE	(LABOR, cFCI) (QTY=3)	• Install (3) Communicating Fault Current Indicators.

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations; there are some new pole locations included in this scope of work. Refer to ***APPENDIX C - Project Considerations***, column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in the table above, in conformance with LUMA and industry standards.

d. New guy wire/anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. The Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	Project Title
??1102-03 1106-05 1204-03	723883 FAASt [Region 1 -San Juan Group A] (Vegetation)
1301-02 2005-10	727691 FAASt [Region 1 -San Juan Group C] (Vegetation)

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right-of-way.

2) Debris will be separated and taken to an authorized waste disposal facility.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. The warehouse assigned to this project is the Sabana Llana Regional Warehouse, whose address is #654 de Diego Street Final, Rio Piedras, San Juan, PR. Coordinates are [redacted]. Refer to document Warehouse Locations

5) Fill, gravel, and sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manlift, 120-ton Motor Crane, Boom Trucks, 45-ton Crane,Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform trailer*.

7) Specific List of **Permits Required**:
a. Department of Transportation and Public Works - ("DTOP") Endorsements & Municipality Notifications
b. Excavation and Demolition Notification in the Department of Transportation and Public Works Agency - ("DTOP")

PROJECT COST ESTIMATE

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and is subject to being updated. LUMA has allocated 10% of the project cost to mitigate known risks. For more details refer to ***APPENDIX B - LUMA Project Cost Estimate.***

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$188,639.71**	**$-**	**$188,639.71**
MANAGEMENT	**$111,725.24**	**$-**	**$111,725.24**
Distribution Automation Group 36	**$2,188,388.53**	**$-**	**$2,188,388.53**
GENERAL CONDITIONS	**$112,714.44**	$-	**$112,714.44**
COST TOTALS	**$2,601,467.92**	**$-**	**$2,601,467.92**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 800286		**$1,703,712.89**
	FAAST PROJECT # 800286 - 406 HM		**$-**
	FAAST PROJECT # 800286 TOTAL:		**$1,703,712.89**
	FAASt A&E # 335168 - 428		**$300,364.95**
	FAASt A&E # 335168 - 406 HM		**$-**
	FAASt A&E # 335168 TOTAL		**$300,364.95**
	FAASt E&M #673691 - 428		**$597,390.08**
	FAASt E&M #673691 - 406 HM		**$-**
	FAASt E&M #673691 TOTAL		**$597,390.08**

Project Cost Summary, 428 Version 0:

Work to be Completed (WTBC): $ 2,601,467.86

A&E Deduction (Global A&E FAASt 335168): -$300,364.95

E&M Deduction (Global E&M FAASt 673691): -$597,390.08

Project Total: $1,703,712.83

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document labeled: “800286-DR4339PR- DSOW Group 36. Rev. 1. pdf.”
2. Refer to detailed Cost Estimate provided in document labeled: “800286-DR4339PR-Cost Estimate Group 36. Rev. 1.xlsx”
3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project Group 36 Automation FAASt 800286.
5. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.

6. ATTACHMENTS:

800286-DR4339PR-APPENDIX A - Initial Scope of Work 800286-DR4339PR-APPENDIX B - LUMA Project Cost Estimate 800286-DR4339PR-APPENDIX C - Project Considerations 800286-DR4339PR-APPENDIX D - LUMA's Active Project

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,601,467.86	Uncompleted
3510	1	Lump Sum	($300,364.95)	Uncompleted
9001	1	Lump Sum	($597,390.08)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,703,712.83
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,703,712.83
Federal Share (90.00%)	$1,533,341.55
Non-Federal Share (10.00%)	$170,371.28

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/03/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo P.R.

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist
CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 36] (TL / Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 36] (TL / Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.
- The Subrecipient and/or Subrecipient s contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are

uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.

- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at closeout.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage and dispose petroleum products, hazardous materials and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Executive Order 11988 Floodplain Conditions for Feeders 1102-03, 1106-05 and 1204-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant s permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 1301-02: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 36] (TL / Distribution)** .

Final Reviews

Final Review

Reviewed By Diaz Rodriguez, Sheila M. **Reviewed On** 07/01/2025 5:09 PM PDT

Review Comments

This project has been reviewed, found eligible and cost reasonable, and it is ready to continue the award process.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/15/2025 7:59 PM PDT

Review Comments

This project is full 428, after being obligated, the allocation for the corresponding 406 mitigation funds must be developed. Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned

Reviewed On Unsigned

General Info

Project #	800286 **P/W #** 108077	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 36] (TL / Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1490780; FAASt [Automation Program Group36] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group36
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 36: 2005-10, 2501-01, 2501-02, 2501-03.
- **Approx. Year Built:** 1970
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1490780 **FAASt [Automation Program Group36] (Distribution)**

********** **VERSION 1** **********

Version 1 has been created to capture change in scope and cost as per Applicant provided documentation. Refer to documents labeled: "800286-DR4339PR-DSOW- Group 36- Rev 004-V1.pdf", "800286-DR4339PR-APPENDIX A- LUMA PROJECT COST ESTIMATE Rev 04.xlsx" and "800286-DR4339PR- Project Amendment Request DA Group 36 .pdf".

SOW from previous version has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

5.0 Introduction:

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW de?nes the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit

all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 800286 Automation Program Group 36 (Distribution) under DR-4339PR Public Assistance. The document provides a detailed

description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

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6.0 Project Description:

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. Themultiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers bene?ts independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 800286 is one of the Program's distribution-level projects. It installs hardened poles and

advanced technology equipment (speci?cally reclosers and cFCIs) to reduce physical damage and

service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1102-03, 1106-05, 1204-03, 1301-02, and 2005-10.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their bene?t to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamicsof deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(1) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the systemoperator knows their status and can remotely control them. Deployment of the wireless communication devices includes con?guration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing nine
(9) three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or

two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of thirteen single-phase reclosers.

(1) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date

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7.0 FACILITIES LIST:

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 36 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
San Juan	1102-03	[redacted]	
San Juan	1106-05		
San Juan	1204-03		
San Juan	1301-02		
San Juan	2005-10		

Note: Please refer to *APPENDIX B - Project Considerations* for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehousethat will be used for this project is the Minillas Bayamón Regional Warehouse, whose address is Laurel Avenue, Minillas Industrial Center, Bayamón, PR. The warehouse coordinates are [redacted]. A staging area will be located in Bayamón in the coordinates [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION:

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK:

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

- Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.
  - Subrecipient's request letter included, see **Appendix** ___.
  - Recipient's approval letter included, see **Appendix** ___.
- Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.
  - Subrecipient's request letter included, see **Appendix** ___.
  - Recipient's approval letter included, see **Appendix** ___.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of ten (10) damaged poles.
- Install six (6) new poles.
- Install nine (9) Three-Phase Reclosers.
- Install thirteen (13) Single-Phase Reclosers, remove fuses and close jumpers.
- Install twenty-seven (27) communicating Fault Indicators (cFCIs).
- Install fifteen (15) transformers.

LUMA requests the alignment of the scope of work of Project 800286 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including:

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).

- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone and the additional cost (delta) for the replacement of the fuse cutouts for single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

The obligated DSOW included new pole installations. The revised DSOW aligns the scope of these poles with a 406 Mitigation proposal approved by FEMA. As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Air Break Bypass Switches

  - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder- 1102-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15198307	[redacted]	(45 FT C2 WOOD POLE) (OPS-CP-C6-XARM) (ABS-3-XARM) (K-7-4) (STL-10)	(50'ROUND TAPED POLE) (OPS-CP-C6-XARM) (K-7-4) (STL-10)	• Remove and dispose 45ft C2 wood pole. • Replace with a 50ft galvanized round tapered p • Remove, dispose and replace primary framing a secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove and dispose air-break switch. • Install and connect one (1) set of Air Break Byp (ABS-3-XARM) and the framing hardware to sup them.
15197609		(S-1)	(S-6)	• Remove, dispose and replace primary framing existing pole.
15197623		(ASSY-1509 (QTY=3))	(LABOR, CLOSE JUMPERS (QTY=3))	• Remove, dispose and replace (3) Fuse Cutouts. Labor to close Jumpers

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15197359	[redacted]	NONE	(LABOR, FCI (QTY=3))	• Install (3) Fault Current Indicators.
15197882		NONE	(LABOR, FCI (QTY=3))	• Install (3) Fault Current Indicators.

Feeder- 1106-05

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (S-6) (CP-C6-XARM)	• Install galvanized steel pole 50ft galvanized roun tapered pole. • Install primary framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
15196880		(CP-C7) (ASSY-1509 (QTY=3))(QTY=3)	LABOR TO CLOSE JUMPERS (QTY=3)	• Remove and dispose (3) Fuse Cutouts. • Labor to close jumpers.
15196868		(35 FT C4 WOOD POLE) (S-1)	(45' ROUND TAPERED POLE) (S-6) (E-1-2-3) (F-1-3)	• Remove and dispose 35ft wood pole. • Replace with a 45ft galvanized round tapered po • Remove, dispose and replace primary framing, • Install downguy. • Install anchor.
15196866		(ASSY-1509 (QTY=3)) (CP-C7)	(LABOR, CLOSE JUMPERS (QTY=3))	• Remove, dispose and replace (3) fuse cutouts. • Labor to close jumpers.
1000828279		(45 FT H6 CONCRETE POLE) (OPS-CP-C4-XARM) (STL-10) (K-5) (ASSY-1509 (QTY=3))	(50' ROUND TAPERED POLE) (OPS-CP-C4-XARM) (STL-10) (K-5) (E-1-2-3) (F-1-3)	• Remove and dispose 45ft concrete pole. • Replace with a 50ft galvanized round tapered po • Remove, dispose, and replace primary and secc framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install downguy and anchor.
15196831		NONE	(LABOR, FCI (QTY=3))	• Install (3) Fault Current Indicators.

Feeder- 1204-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15202072	[redacted]	(45'-C2 WOOD POLE) (CP-C6 XARM) (S-6) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	(50' ROUND TAPERED POLE) (CP-C6 XARM) (S-6) (K-4) (E-1-2-3 (QTY=4)) (F-1-3 (QTY=2)) (F-4-2 (QTY=1)	• Remove and dispose 45ft C2 wood pole. • Replace pole with a 50ft galvanized round taper pole. • Remove, dispose and replace anchor and down • Install (2) additional anchors. • Install (3) additional downguys. • Remove, dispose and replace framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
NEW POLE		NONE	(50' ROUND TAPERED POLE) (CP-C6 XARM)	• Install galvanized steel pole 50ft galvanized roun tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
NEW POLE		NONE	(50' ROUND TAPERED POLE) (40' ROUND TAPERED POLE) (CP-C6 XARM) (S-6) (E-2-1(QTY=1)) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Install a new 50ft galvanized round tapered pole. • Install framings. • Install downguys. • Install anchor. • Install 40ft galvanized round tapered pole as a st pole with framings in coordinates [redacted]. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
15202071		(ABS-3-XARM (QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) air-brake switch.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15201719	18.3449485, -66.0026743	(ASSY-1509 (QTY=3))	(LABOR, (QTY=3))	• Remove and dispose (3) fuse cutouts.

15201729	[redacted]	(45'-H4 CONCRETE POLE) (CP-C1) (CP-A5) (ASSY 1509 (QTY=1)) (REMOVE EXISTING PRIMARY RISER)	(50' ROUND TAPERED POLE) (CP-C6 XARM) (CP-A5)	• Remove and dispose 45ft H4 concrete pole. • Replace with a 50ft galvanized tapered pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) Fuse Cutout. Labor to remove out of service primary riser.
15201997		(45'-H4 CONCRETE POLE) (CP-C1)	(45' ROUND TAPERED POLE) (CP-C6 XARM)	• Remove and dispose 45ft H4 concrete pole. • Replace with 45ft galvanized round tapered pole • Remove, dispose, and replace framings. • Install (3) Fuse Cutouts.
Segment FID 13665918		NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 31220910		NONE	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Feeder- 1301-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (CP-C6-XARM)	• Install a new 50ft galvanized round tapered pole midspan. • Install primary framing. • Install and connect one (1) set of Air Break Byp (ABS-3-XARM) and the framing hardware to sup them.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
13524705	[redacted]	(CP-C6-XARM)	(K-5)	• Remove and dispose primary framing. • Install secondary framing. • Install 1/0 triplex (qty=25 ft). • Install 1/0 ACSR primary Conductor (qty=75 f compression splices (qty=3).

22053341	[redacted]	(40 FT C3 WOOD POLE) (CP-C6-XARM) (S-6) (ABS-3-XARM)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (S-6)	• Remove and dispose 40ft C4 wood pole. • Replace with a 50ft galvanized round tapered p • Remove and dispose air-break switch. • Remove, dispose and replace primary framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
13525293		NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
1001602057		NONE	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Feeder 2005-10

POLE FID		Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (K-1) (CP-C6-XARM) (S-1)	• Install galvanized steel pole 50ft galvanized roun tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
10044885		(40'-H4 CONCRETE	(50' ROUND TAPERED POLE) (E-	• Remove and dispose 40ft H4 concrete pole.

POLE FID		Existing (Remove)	428 Replacement	Scope of work
		POLE) (CP-C1) (E-1-2-3 (QTY=)) (F-1-3 (QTY=1))	1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (CP-C6-XARM)	• Replace pole with a 50ft galvanized round tape pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) anchor and (downguy. • Install and connect one (1) set of Air Break By (ABS-3-XARM) and the framing hardware to support them.
Segment FID 18371210	[redacted]	NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Segment FID **1000125552**	[redacted]	NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identi?ed in the tables above. Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductors, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL

FEMA PAPPG v.3.1 provides, "Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects." Subrecipient proposes to lessen or eliminate long-term risk to people and property from future natural hazards and their effects by performing the work described in this project to Subrecipient's [Distribution] Design Criteria, which exceeds required codes and standards. Doing so will directly reduce the potential of future, similar negative consequences of damage to the T&D system as occurred after Hurricane Maria by improving the system's physical resilience, functional resiliency, or both.

Below is a description of the proposed mitigation opportunity and the proposed scope of work

10.1 § 406 HAZARD MITIGATION OPPORTUNITY

FEMA's § 428 Alternative Procedures Guide for Permanent Work in Puerto Rico (v.3) states that FEMA will "encourage the concepts of regional infrastructure resiliency" and "provide mitigation opportunities that leverage innovative and renewable technologies."[1] The § 428 Alternative Procedures are intended to allow subrecipients and FEMA "to prioritize the provision of

funding for eligible permanent work in ways that best meet the recovery needs of impacted communities" and provide "flexibility in the use of funds."[2] The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."[3] FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."[4] To that end, LUMA proposes to add feeder reclosers (single and three-phase) and communication fault current indicators ("cFCI") to this project to improve the resiliency of the T&D systems against future hurricane damage and its effects. The Distribution Automation program will add approximately a total of 4,000 three-phase reclosers, 15,000 single-phase reclosers, and 11,000 cFCIs across the island. The addition of feeder reclosers and cFCIs will reduce the potential for widespread loss of service during a disaster event and prevent physical damage, mitigating the negative effects of a future, similar disaster.

Feeder reclosers will improve system resiliency. LUMA requests 406 hazard mitigation funding for nine (9) three-phase reclosers, thirteen (13) single-phase reclosers, also known as trip savers, and nine (9) radio communication kits for those reclosers as described in the table below.

[1] FEMA § 428 Alternative Procedures Guide for Permanent Work for FEMA-4339-DR-PR (v.3) ("Guide") at 6.

[2] *Id.*

[3] *Id.* at 8.

[4] PAPPG v.3 at 97.

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
1102-03	Three-Phase Recloser Radio Communication Kit	1	15198307	[redacted]
1102-03	Single-Phase Recloser	3	15197609	
1106-05	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1106-05	Single-Phase Recloser	3	15196868	

1106-05	Single-Phase Recloser	3	1000828279	[redacted]
1204-03	Three-Phase Recloser Radio Communication Kit	1	15202072	
1204-03	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1204-03	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1204-03	Single-Phase Recloser	1	15201729	
1204-03	Single-Phase Recloser	3	15201997	
1301-02	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1301-02	Three-Phase Recloser Radio Communication Kit	1	22053341	
2005-10	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
2005-10	Three-Phase Recloser	1	10044885	

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
	Radio Communication Kit			[redacted]

Feeder reclosers have microprocessors that monitor the voltage and current on a feeder line to determine whether the recloser should take action to protect the function of that feeder. They protect the feeder line by stopping temporary line faults from causing

an extended outage. An example of a temporary line fault is vegetation touching a power line for a brief period of time. When a feeder recloser detects this type of fault it automatically opens the circuit (briefly stopping the flow of electricity to allow the disturbance to resolve) and then rapidly recloses to restore power. It has been observed that approximately 70% of faults are temporary. This action reduces the frequency, duration, and breadth of disaster-related outages, protecting the public safety. Feeder reclosers prevent temporary line faults from turning into an outage, which speeds restoration after a storm or disaster.

When used on a looped circuit, the reclosers can also contain a power outage to a localized area. The two reclosers nearest the fault will open the circuit (briefly stopping the flow of electricity between them) so the outage is contained to a segment of the customers between the two reclosers. Meanwhile, power continues to reach the remaining customers on the feeder line. See illustration below where the yellow lightning bolt is the fault, and the red squares are the reclosers that have opened to contain the outage to the customers in red.

For diagram see document: "*800286-DR4339PR-DSOW- Group 36- Rev 004-V1.pdf*".

In the same scenario without the reclosers, a larger portion - and potentially all - of the customers served by the feeder would lose power until the fault could be repaired. Thus, feeder reclosers mitigate outages similar to what was experienced during Hurricane Maria by localizing an outage area and preventing cascading outages that can extend the outage time. Power is a critical lifeline. Extended power outages caused by disaster damage like the one after Hurricane Maria have devastating effects on the public health and safety. Mitigation measures that reduce the likelihood of extended, wide-ranging outages will also reduce the life-safety risk of disaster damage.

Feeder reclosers will be installed across the distribution feeder system, providing the operations center with outage and loading information across a wide area. The operations center can use this information to prioritize outage restoration across that area. This can reduce customer outage time and consequently decrease the risk of harm to the public and property. The

ooperations center has the ability to remotely control the reclosers, opening and closing specific reclosers, so as to re-energize the greatest number of customers and localize the outage to the customers on a feeder segment between two reclosers. In contrast, under the current system a feeder that experiences a fault will lose power back to the circuit breaker, at the substation, until the cause of the fault is cleared. Until the fault is cleared all customers on the feeder have no power. The fault needs to be identified by visual inspection. Visual inspection takes much longer than clearing a fault remotely. During a disaster, when numerous feeders experience permanent faults, the ability to localize the outage and re-energize the non-damaged segments in minutes instead of hours or days is a significant reduction of risk to public health and safety.

Reclosers also prevent physical damage to the infrastructure by preventing short circuit currents on a fault getting to the main breaker of a feeder. Reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur. Un-isolated electrical faults lead to sustained arcing, causing extensive equipment and property damage. Prolonged faults create ?re and critical public safety risks.

These reclosers are part of a larger system of protection to be implemented through the Distribution Automation program. In addition to these speci?c critical facilities, Distribution Automation will protect the electrical grid as a whole, a critical facility that spans all of Puerto Rico. Electrical faults can cause outages that cascade across multiple facilities, regions, or even the entire island, disrupting service for customers and other critical facilities far from any speci?c distribution circuit. Additionally, faults and outages can cause frequency deviations and increased wear and tear on all components of the grid, including generation, transmission, and distribution facilities, without geographic limitation. Without reliable infrastructure at all stages of electrical generation, transmission, and distribution, Puerto Ricans will be at heightened and increasing risks of sustained outages with severe impacts on public health and safety. Ultimately, localized grid

resilience investments bene?t all customers, because the interconnected grid as a whole – not any speci?c distribution or transmission line – serves Puerto Rico. In other words, a recloser in the San Juan region could mitigate the cascading effects that would cause an outage at a hospital or ?re station in Arecibo, and vice versa. DHS recognizes the importance of incorporating resilience into critical infrastructure projects, including "identifying key dependencies and interdependencies and ways in which this critical infrastructure asset, system, or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors" and "mapping potential cascading effects from potential infrastructure disruptions." *See*

DHS Supplemental Tool: Incorporating Resilience into Critical InfrastructureProjects, https://www.cisa.gov/sites/default/?les/publications/NIPP-2013-Supplement-Incorporating-Resilience-into-CI-Projects-508.pdf. Puerto Rico's generation, transmission, and distribution systems must function as a single integrated system to deliver power.

Poles will improve system resiliency. Luma requests 406 hazard mitigation for the following poles:

Feeder 1102-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft. S8.5 12-sided Galvanized Steel	1	15198307	[redacted]

Feeder 1106-05

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
60ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
45ft S5.7 12-sided galvanized steel pole	1	15196868	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	1000828279	

Feeder 1204-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
60ft S8.5 12-sided galvanized steel pole	1	15202072	[redacted]

50ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
60ft S10 12-sided galvanized steel pole	1	NEW POLE	
40ft S5.7 12-sided galvanized steel pole	1	NEW POLE	
50ft S8.5 12-sided galvanized steel pole	1	15201729	
45ft S5.7 12-sided galvanized steel pole	1	15201997	

Feeder 1301-02

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
60ft S8.5 12-sided galvanized steel pole	1	22053341	

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
			[redacted]
60ft S10 12-sided galvanized steel pole		NEW POLE	

Feeder 2005-10

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
60ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	10044885	

Higher poles will improve system resiliency. Replacement poles provide the strength required to carry the reclosers and related hardware and withstand hurricane wind speeds. The 428 PA recovery solution includes the replacement of the existing poles (wood/concrete) by new galvanized round steel poles, and for 406 HM the round poles will be replaced with 12-sided galvanized steel poles, as identified in tables §§ 9.1 and 10.2. LUMA selected the poles for replacement after performing an electrical analysis of the feeder line and applying best design practices for reclosers. A 12-sided galvanized steel pole is proposed as replacement for existing wood poles, as it is capable of supporting the load of the reclosers and withstanding the forces generated by 160 mph winds.

None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests § 406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

Additional information to justify these poles are included in *APPENDIX D – Pole Height Increase Justification*.

Communicating fault circuit indicators ("cFCIs") improve system resiliency. LUMA requests 406 hazard mitigation funding for the following twenty-seven (27) cFCIs:

Feeder	Quantity	FID	Coordina Lat, Lo
1102-03	3	15197359	[redacted]
1102-03	3	15197882	
1106-05	3	15196831	

1204-03	3	Segment FID 13665918	[redacted]
1204-03	3	Segment FID 31220910	
1301-02	3	13525293	
1301-02	3	1001602057	
2005-10	3	Segment FID 18371210	
2005-10	3	Segment FID 1000125552	
Total			27

cFCI's allow the operator to locate circuit faults (i.e., outages) faster than the current method, and provides the central monitoring system ("Energy Management System" or "EMS") information it can use to prevent further damage and to prioritize restoration efforts. While reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur, cFCIs offer a fundamentally proactive approach to damage prevention. By detecting incipient (i.e., emerging) faults in their early stages, and enabling timely intervention, cFCIs can prevent the fault from ever fully materializing, thereby directly eliminating the potential for physical damage to system assets.

In the event a feeder line experiences a fault, cFCIs can identify the location of the fault along a feederline and communicate it to the operator. Multiple cFCIs are located along a feeder and its branches. Determining the placement location of cFCIs requires extensive engineering to ensure LUMA will gain maximum benefit from each sensor.[5]

These feeders do not have FCIs, therefore, repair crews would need to visually inspect the feeder line to locate the fault. In comparison, cFCIs will provide repair crews with information that narrows their search to an area between two cFCIs.Thus, the cFCI's information dramatically reduces search time. A smaller search area reduces customer outage time, and consequently, decreases harm to the public and property after a disaster. This feature provides a more specific location of the fault than what is provided by reclosers.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detectionof abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system,

[5] The process for locating the cFCIs is described in Appendix E - "Feeder Automation Deployment and Protection Philosophies."

rreducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure. Note that on this specific project, the cFCIs in the HM scope of work are new. They are not replacing existing FCIs (FCIs are not present).

Benefits of cFCIs include:

- Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.
- Fault Location: cFCIs help quickly locate faults on the line (like short circuits or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.
- Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on cables, breakers, and other components.
- Lightning and Surge Detection: cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis.Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action—preventing physical stress or failure.
- Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.
- Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion —allowing scheduled repairs before damage occurs.
- Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:
- Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.
- Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components.
- Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing—reducing the impact area and protecting healthy parts of the system.
- Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

For more information on cFCIs and how they are integral to fortifying Puerto Rico's electrical infrastructure, please see the T&D Resilience Plan submitted by LUMA to COR3 and the "Distribution Automation, Operation, and System Visibility Roadmap"

Stainless Steel Transformer. LUMA requests §406 hazard mitigation funding for fifteen (15) stainless steel transformers:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
1102-03	1kva stainless steel transformer (2.4/7.62kv – 120v)	1	15198307	[redacted]
1106-05	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	1	NEW POLE	
1204-03	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	15202072	
1204-03	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	NEW POLE	
1204-03	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	NEW POLE	
1301-02	1 kva stainless steel transformer (2.40/7.62kv-120v)	1	NEW POLE	
1301-02	1 kva stainless steel transformer (2.40/7.62kv-120v)	2	22053341	
2005-10	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	NEW POLE	
2005-10	1kva stainless steel transformer	2	10044885	

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
	(7.62/13.20 kv -120/240v)			
Total		15		

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The Stainless-Steel transformer supplies low- voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

LUMA galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Transformer failure poses harm to the equipment and the public due to resulting loss of power. LUMA proposes that this measure be eligible for § 406 hazard mitigation funding. In FAASt no. 165226, stainless steel transformers more than 1 mile from the shoreline were granted 406 HM funding. In addition, the Fixed Cost Estimate was based on pole mounted transformers that are coated steel with a corrosion resistant cover band and not stainless-steel transformers.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall strength, and corrosion resistance. Stainless steel is a high-

strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

Additionally, existing transformers across the island suffer from corrosion, not just the ones close to the seashore. Stainless steel transformers offer superior resistance to corrosion. Corroded transformers have a higher likelihood of failure during a disaster due to debris impacts, fires, and significant water intrusion. Such failure can create unintended electrical paths outside the insulated circuits. This leads to short circuits, which can immediately disrupt transformer function and cause widespread power outages. Additionally, corrosion degrades insulation within the transformer, making it prone to electrical arcing, further increasing the risk of failure or potential for a fire. Oil leaking from a damaged transformer could lead to vegetation damage or groundwater contamination. A stainless-steel transformer is better able to withstand the corrosive effects of that exposure than a galvanized steel transformer. As a result, a stainless-steel transformer will be more resistant to the effects of a disaster like Hurricane Maria and help to protect life and property.

By upgrading to this material, LUMA will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure. LUMA requests that stainless steel galvanized transformers that are more than one mile from the

seashore be eligible for § 406 hazard mitigation funding equal to the difference in price between a stainless steel and galvanized steel transformer.

10.1 § 406 SCOPE OF WORK

Feeder 1102-03

428 Section	406 HM

Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
15198307	[redacted]	• Remove and dispose 45ft C2 wood pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framing (K-7-4). • Remove, dispose and replace streetlight (LED Type). • Remove and dispose air-break switch. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	15198307	[redacted]	• Replace 50ft round pole with a 50ft S8.5 12-Sided galvanized steel pole. • Install (1) Three-Phase recloser 1102-03A in a loop restoration circuit. • Use existing secondary to feed three-phase recloser from source side. • Install and commission the radio communication kit for three-phase recloser • Install (1) 1 kVA stainless steel transformer (2.4/7.62kV–120V) to feed Three-Phase Recloser from load side.
15197609		• Remove, dispose and replace primary framing of existing pole. • Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers	15197609		• Replace (3) Fuse Cutouts on FID 15197623 with the installation of (3) Single-Phase recloser 200A.
15197623					
15197359		Install (3) Fuse Current Indicators.	15197359		• Replace (3) Fuse Current Indicators with the installation of (3) Communicating Fault Current Indicators.
15197882		• Install (3) Fuse Current Indicators.	15197882		• Replace (3) Fuse Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 1106-05

	428 Section			406 HM	
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
NEW POLE	[redacted]	• Install galvanized steel pole 50ft galvanized round tapered pole. • Install primary framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 60ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1106-05A. • Install and commission radio communication kit for three-phase recloser. • Install (1) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side.

15196868	[redacted]	• Remove and dispose 35ft wood pole and replace with a 45ft galvanized round tapered pole. • Remove, dispose and replace primary framing, • Install downguy. • Install anchor.	15196868	[redacted]	• Replace 45ft round pole with a 45ft S5.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts on FID 15196866 with the installation of (3) Single-Phase Reclosers 200A.
15196866		• Remove, dispose and replace (3) fuse cutouts. • Labor to close jumpers.			
1000828279		• Remove and dispose 45ft concrete pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose, and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install downguy and anchor.	1000828279		• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser.
15196831		• Install (3) Fault Current Indicators.	15196831		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 1204-03

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
15202072	[redacted]	• Remove and dispose 45ft C2 wood pole and replace pole with a 50ft galvanized round tapered pole. • Remove, dispose and replace anchor and downguy. • Install (2) additional anchors. • Install (3) additional downguys. • Remove, dispose and replace framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	15202072	[redacted]	• Replace 50ft round pole with a 60ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1204-03A • Install and commission radio communication kit for three-phase recloser. • Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.
NEW POLE		• Install galvanized steel pole 50ft galvanized round tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE		• Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1204-03B. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240v) for source and load side.

NEW POLE	[redacted]	• Install a new 50ft galvanized round tapered pole. • Install framings. • Install downguys. • Install anchor. • Install 40ft galvanized round tapered pole as a stub pole with framings in coordinates [redacted]. • Install and connect one (1) set of Air Brake Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with a 60ft S10 12-sided galvanized steel pole. • Replace 40ft round pole with a 40ft S5.7 12-sided galvanized steel pole stub Pole at coordinates [redacted] • Install (1) Three-Phase Recloser 1204-03C. • Install and commission radio communication kit for the Three-Phase Recloser. • Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source and load side.
15201729		• Remove and dispose 45ft H4 concrete pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose, and replace framings.	15201729		• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole. • Replace (1) Fuse Cutout with the installation of (1) Cutout Mounted Single-Phase Recloser.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		• Remove, dispose and replace (1) Fuse Cutout. • Labor to remove out of service primary riser.			
15201997	[redacted]	• Remove and dispose 45ft H4 concrete pole and replace with 45ft galvanized round tapered pole. • Remove, dispose, and replace framings. • Install (3) Fuse Cutouts.	15201997	[redacted]	• Replace 45ft round pole with 45ft S5.7 12-sided galvanized Steel pole. • Replace (3) Fuse Cutouts with the installation of (3) Cutout Mounted Single-Phase recloser.
Segment FID 13665918		• Install (3) Fault Current Indicators.	Segment FID 13665918		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
Segment FID 31220910		• Install (3) Fault Current Indicators.	Segment FID 31220910		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 1301-02

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work

NEW POLE	[redacted]	• Install a new 50ft galvanized round tapered pole as a midspan. • Install primary framing. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole as a midspan. • Install (1) Three-Phase Recloser 1301-02A in loop restoration circuit. • Install (1) 1kVA stainless steel transformer (2.40/7.62kV-120V) to feed three phase recloser from source side. • Install Secondary framing (K-5). Connect existing secondary to feed three-phase recloser from load side. • Install and commission radio communication kit for three-phase recloser.
22053341		• Remove and dispose 40ft C4 wood pole and replace with a 50ft galvanized round tapered pole. • Remove and dispose air-break switch. • Remove, dispose and replace primary framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	22053341		• Replace 50ft round pole with a 60ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1301-02B in loop restoration Circuit. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1 kVA stainless steel transformers (2.40/7.62kV-120V) to feed three-phase recloser from source side and load side.
13525293		• Install (3) Fault Current Indicators.	13525293		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
1001602057		• Install (3) Fault Current Indicators.	1001602057		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 2005-10

428 Section					406 HM
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
NEW POLE	[redacted]	• Install galvanized steel pole 50ft galvanized round tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 60ft S10 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 2005-10A • Install and commission radio communication kit for three-phase recloser. • Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.

10044885	[redacted]	• Remove and dispose 40ft H4 concrete pole and replace pole with a 50ft galvanized round tapered pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) anchor and (1) downguy. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	**10044885**	[redacted]	• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 2005-10B. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.
Segment FID 18371210		• Install (3) Fault Current Indicators.	**Segment FID 18371210**		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
Segment FID 1000125552		• Install (3) Fault Current Indicators.	**Segment FID 1000125552**		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity

X **Ground disturbance outside of existing footprint**. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- Poles - Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact), for the depths of the poles to be installed.

- **Soil testing or boring to be performed as part of pre-construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

- **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following project 723883 FAASt [Region 1 -San Juan Group A] (Vegetation)

X **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) Final debris disposal location; and (4) Final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method is not yet available.

X **Staging areas, landing area for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area**: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not identi?ed any other additional staging areas that it will require.
- **Access Roads**: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

X **Fill material**. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

- Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

- **Facility is over 45 years old**. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

- **Known renovations to the facility**. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

- Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t *Appendix A- LUMA Project Cost Estimate*.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	$121,053.83	$69,156.23	$190,210.06
MANAGEMENT	$87,095.92	$49,795.21	$136,891.13
LPCE Distribution Automation Group 36	$1,458,293.68	$833,679.05	$2,291,972.73
GENERAL CONDITIONS	$74,028.53	$42,386.12	$116,414.65

COST TOTALS	$1,740,471.96	$995,016.61	$2,735,488.57
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 800286 - 428		$1,427,638.43
	FAAST PROJECT # 800286 - 406 HM		$995,016.61
	FAAST PROJECT # 800286 TOTAL:		**$2,422,655.03**
	FAASt A&E # 335168 - 428		$137,043.71
	FAASt A&E # 335168 - 406 HM		$78,366.54
	FAASt A&E # 335168 TOTAL		**$215,410.25**
	FAASt E&M #673691 - 428		$175,789.83
	FAASt E&M #673691 - 406 HM		$397,237.57
	FAASt E&M #673691 TOTAL		**$573,027.40**

428 Project Summary, Version 1:

Work to Be Completed (WTBC): $1,740,471.96- $1,740,471.96= $0.00 (See project note #5)

E&M Deduction (#673691) 428: -$175,789.83+$175,789.83= $0.00 (See project note #5)

A&E Deduction (Global A&E FAASt 335168): -$137,043.71+$137,043.71= $0.00 (See project note #5)

Version 1 Project Total Cost: $0.00 (See project note #5)

VERSION SUMMARY OF KEY CHANGES:

V0: $2,601,467.86 -$300,364.95- $597,390.08= $1,703,712.83 (WTBC, A&E and E&M Deductions)

V1: PA No Cost change $0 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: "*800286-DR4339PR-DSOW- Group 36- Rev 004-V1.pdf*".

2. Refer to detailed cost estimate in document: *"800286-DR4339PR-APPENDIX A- LUMA PROJECT COST ESTIMATE Rev 04.xlsx"*.

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project. General Conditions, and Contingencies will remain in this project.

5. This project version includes request for cost modification for both 406 HMP and 428 PA costs, one with positive amount and the other negative. The cost change cannot be pro-cessed in the same version due to system limitation. Thus, two separate versions are re-quired to capture cost change. The current version will obligate the positive funds (whether 406 HMP or 428), and the future version will capture the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: "SP 800286 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf"

6. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

7. Regarding the difference of $0.01 in the total amounts between the applicant provided SOW/cost vs. total cost in calculated by GM, the PDMG is aware for more details see email file: "800286 Cost clarification email.pdf"

13.0 ATTACHMENTS/APPENDICES

The following attachments and appendices are provided with this DSOW:

Item	Document Description or Filename
A	LUMA Project Cost Estimate
B	Project Considerations
C	LUMA's Active Projects
D	Pole Height Increase Justification

406 HMP Scope

**********Version 1**********

Project number: [800286] FAASt [Automation Program Group 36] (TL / Distribution)

Damage #: #1490780; FAASt [Automation Program Group36] (Distribution)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Carolina, Puerto Rico

GPS Latitude/Longitude: [redacted]

End GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the feeder or poles. In this project:

a) Existing 45ft wood pole will be replaced by one(1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5) 12-sided galvanized pole.

b) Three (3ea) new 50ft round galvanized poles will be installed as PA recovery solution, and 406 HM will replace round pole with Three (3ea) 60ft (S10) 12-sided galvanized poles.

c) Existing 35ft wood pole will be replaced by one (1ea) 45' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 45ft (S5.7) 12-sided galvanized pole.

d) Existing 45ft H4 concrete poles will be replaced by one (1ea) 50' round galvanized poles (PA recovery solution), and 406 HM will replace round poles with one (1ea) 60ft 12-sided galvanized poles.

e) Existing 45ft H4 concrete poles will be replaced by two (2ea) 50' round galvanized poles (PA recovery solution), and 406 HM will replace round poles with two (2ea) 50ft (S8.5) 12-sided galvanized poles.

f} Existing 40ft wood pole will be replaced by two (2ea) 50' round galvanized pole (PA recovery solution), nd 406 HM will replace round pole with two (2ea) 60ft 12-sided galvanized pole.

g) One (1ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 50ft (S8.5) 12-sided galvanized poles.

h) One (1ea) new 40ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 40ft (S5.7) 12-sided galvanized pole.

i) Existing 45ft H4 concrete pole will be replaced by one (1ea) 45' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 45ft (S5.7) 12-sided galvanized pole.

j) One (1ea) new 50ft round galvanized pole will be installed at the midspan as PA recovery solution, and 406 HM will replace round pole with one (1ea) 50ft (S8,5) 12-sided galvanized poles.

k) Existing 40ft H4 concrete pole will be replaced by one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5) 12-sided galvanized pole.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of thirteen (13ea) fuse cutouts by thirteen (13ea) single-phase reclosers and install nine (9ea) three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of nine (9ea) fault current indicators (FCIs) by nine (9ea) communicating fault current indicators (cFCIs). For a total of twenty-seven (27ea) cFCI.

Mitigation Measures *(Supplementary)*

4. **Stainless Steel Transformer (1kVA):**

   To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

   As a mitigation strategy, 406 HM will fund the installation of fifteen (15ea) 1kVA stainless steel transformers.

5. **Radio communication kit for three phase reclosers:**

   The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

   As a mitigation strategy, 406 HM will fund the installation of nine (9ea) Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 801,118.70
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 193,897.91
Hazard Mitigation Total Cost =	**$ 995,016.61**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 397,237.57
Architecture and Engineering (A&E) =	$ 78,366.54
Construction Cost =	$ 519,412.50
Hazard Mitigation Total Cost =	**$ 995,016.61**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $995,016.61 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**********Version 0**********

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,601,467.86	Uncompleted
3510	1	Lump Sum	($300,364.95)	Uncompleted
9001	1	Lump Sum	($597,390.08)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted

CRC Gross Cost	$1,703,712.83
Total 406 HMP Cost	$995,016.61
Total Insurance Reductions	$0.00
CRC Net Cost	$2,698,729.44
Federal Share (90.00%)	$2,428,856.50
Non-Federal Share (10.00%)	$269,872.94

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/03/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo P.R.

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist
CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 36] (TL / Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 36] (TL / Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.
- The Subrecipient and/or Subrecipient s contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are

uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.

- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at closeout.
- The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage and dispose petroleum products, hazardous materials and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. If transformers: The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.
- Executive Order 11988 Floodplain Conditions for Feeders 1102-03, 1106-05 and 1204-03: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicant s permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 1301-02: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 36] (TL / Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/15/2026 12:24 PM PDT

Review Comments

Project has been reviewed, found eligible and reasonable. Subrecipient and its agents are responsible for complying with all grants and subgrant conditions including any applicable Federal, State and Local requirements. CLG 07.15

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/28/2026 9:29 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review. This project does not comply with the DOE executive order. This means that FEMA is the lead agency for environmental matters.

Project Signatures

Reviewed By Unsigned

Reviewed On Unsigned

v2

General Info

Project #	800286 **P/W #** 108077	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 36] (TL / Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1490780; FAASt [Automation Program Group36] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group36
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 36: 2005-10, 2501-01, 2501-02, 2501-03.
- **Approx. Year Built:** 1970
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1490780 **FAASt [Automation Program Group36] (Distribution)**

********** **Version 2** **********

Version 2 has been created as an administrative amendment due to limitations in IFMIS (The Finance system), which cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Refer to document: Sub-FAAST Transactions - allocation process.pdf.

5.0 Introduction:

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW de?nes the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 800286 Automation Program Group 36 (Distribution) under DR-4339PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

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6.0 Project Description:

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's transmission and distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems. Themultiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers bene?ts independently. Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 800286 is one of the Program's distribution-level projects. It installs hardened poles and

advanced technology equipment (speci?cally reclosers and cFCIs) to reduce physical damage and
service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 1102-03, 1106-05, 1204-03, 1301-02, and 2005-10.
Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their bene?t to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamicsof deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(1) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the systemoperator knows their status and can remotely control them. Deployment of the wireless communication devices includes con?guration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing nine
(9) three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of thirteen single-phase reclosers.

(1) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on user-set parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date

7.0 FACILITIES LIST:

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- None

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 36 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
San Juan	1102-03	[redacted]	
San Juan	1106-05		
San Juan	1204-03		
San Juan	1301-02		

San Juan	2005-10	[redacted]

Note: Please refer to *APPENDIX B - Project Considerations* for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehousethat will be used for this project is the Minillas Bayamón Regional Warehouse, whose address is Laurel Avenue, Minillas Industrial Center, Bayamón, PR. The warehouse coordinates are [redacted]. A staging area will be located in Bayamón in the coordinates [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION:

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK:

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

- Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.
  - Subrecipient's request letter included, see **Appendix** ___.
  - Recipient's approval letter included, see **Appendix** ___.
- Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.
  - Subrecipient's request letter included, see **Appendix** ___.
  - Recipient's approval letter included, see **Appendix** ___.

In the obligated submission (Version 0), LUMA proposed:

- Removal and replacement of ten (10) damaged poles.
- Install six (6) new poles.
- Install nine (9) Three-Phase Reclosers.
- Install thirteen (13) Single-Phase Reclosers, remove fuses and close jumpers.
- Install twenty-seven (27) communicating Fault Indicators (cFCIs).
- Install fifteen (15) transformers.

LUMA requests the alignment of the scope of work of Project 800286 with the approved 406 mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including:

- Pole replacement to accommodate recloser installation: 406 mitigation will fund the additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).
- Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone and the additional cost (delta) for the replacement of the fuse cutouts for single-phase reclosers on lateral circuit lines.
- Communicating Fault Current Indicators: 406 mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).
- Distribution Transformers: 406 mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser.

The obligated DSOW included new pole installations. The revised DSOW aligns the scope of these poles with a 406 Mitigation proposal approved by FEMA. As detailed in the appendix of the amendment request letter, LUMA requests the following

component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Air Break Bypass Switches

  - Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a list of the "Proposed 428 Public Assistance Scope of Work" proposed for feeders of this group.

Feeder- 1102-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15198307	[redacted]	(45 FT C2 WOOD POLE) (OPS-CP-C6-XARM) (ABS-3-XARM) (K-7-4) (STL-10)	(50'ROUND TAPED POLE) (OPS-CP-C6-XARM) (K-7-4) (STL-10)	• Remove and dispose 45ft C2 wood pole. • Replace with a 50ft galvanized round tapered p • Remove, dispose and replace primary framing a secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove and dispose air-break switch. • Install and connect one (1) set of Air Break Byp (ABS-3-XARM) and the framing hardware to sup them.
15197609		(S-1)	(S-6)	• Remove, dispose and replace primary framing existing pole.
15197623		(ASSY-1509 (QTY=3))	(LABOR, CLOSE JUMPERS (QTY=3))	• Remove, dispose and replace (3) Fuse Cutouts. Labor to close Jumpers

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15197359	[redacted]	NONE	(LABOR, FCI (QTY=3))	• Install (3) Fault Current Indicators.
15197882		NONE	(LABOR, FCI (QTY=3))	• Install (3) Fault Current Indicators.

Feeder- 1106-05

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (S-6) (CP-C6-XARM)	• Install galvanized steel pole 50ft galvanized roun tapered pole. • Install primary framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
15196880		(CP-C7) (ASSY-1509 (QTY=3))(QTY=3)	LABOR TO CLOSE JUMPERS (QTY=3)	• Remove and dispose (3) Fuse Cutouts. • Labor to close jumpers.
15196868		(35 FT C4 WOOD POLE) (S-1)	(45' ROUND TAPERED POLE) (S-6) (E-1-2-3) (F-1-3)	• Remove and dispose 35ft wood pole. • Replace with a 45ft galvanized round tapered po • Remove, dispose and replace primary framing, • Install downguy. • Install anchor.
15196866		(ASSY-1509 (QTY=3)) (CP-C7)	(LABOR, CLOSE JUMPERS (QTY=3))	• Remove, dispose and replace (3) fuse cutouts. • Labor to close jumpers.
1000828279		(45 FT H6 CONCRETE POLE) (OPS-CP-C4-XARM) (STL-10) (K-5) (ASSY-1509 (QTY=3))	(50' ROUND TAPERED POLE) (OPS-CP-C4-XARM) (STL-10) (K-5) (E-1-2-3) (F-1-3)	• Remove and dispose 45ft concrete pole. • Replace with a 50ft galvanized round tapered po • Remove, dispose, and replace primary and secc framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install downguy and anchor.
15196831		NONE	(LABOR, FCI (QTY=3))	• Install (3) Fault Current Indicators.

Feeder- 1204-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
15202072	[redacted]	(45'-C2 WOOD POLE) (CP-C6 XARM) (S-6) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	(50' ROUND TAPERED POLE) (CP-C6 XARM) (S-6) (K-4) (E-1-2-3 (QTY=4)) (F-1-3 (QTY=2)) (F-4-2 (QTY=1)	• Remove and dispose 45ft C2 wood pole. • Replace pole with a 50ft galvanized round taper pole. • Remove, dispose and replace anchor and down • Install (2) additional anchors. • Install (3) additional downguys. • Remove, dispose and replace framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.

NEW POLE	NONE	(50' ROUND TAPERED POLE) (CP-C6 XARM)	• Install galvanized steel pole 50ft galvanized roun tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
NEW POLE	NONE	(50' ROUND TAPERED POLE) (40' ROUND TAPERED POLE) (CP-C6 XARM) (S-6) (E-2-1(QTY=1)) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Install a new 50ft galvanized round tapered pole. • Install framings. • Install downguys. • Install anchor. • Install 40ft galvanized round tapered pole as a st pole with framings in coordinates [redacted]. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
15202071	(ABS-3-XARM(QTY=3))	(LABOR & REPAIR)	• Remove and dispose (3) air-brake switch.

POLE FID	Coordinates Lat, Long			Scope of work
15201719		(ASSY-1509 (QTY=3))	(LABOR, (QTY=3))	• Remove and dispose (3) fuse cutouts.
15201729		(45'-H4 CONCRETE POLE) (CP-C1) (CP-A5) (ASSY 1509 (QTY=1)) (REMOVE EXISTING PRIMARY RISER)	(50' ROUND TAPERED POLE) (CP-C6 XARM) (CP-A5)	• Remove and dispose 45ft H4 concrete pole. • Replace with a 50ft galvanized tapered pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) Fuse Cutout. Labor to remove out of service primary riser.
15201997		(45'-H4 CONCRETE POLE) (CP-C1)	(45' ROUND TAPERED POLE) (CP-C6 XARM)	• Remove and dispose 45ft H4 concrete pole. • Replace with 45ft galvanized round tapered pole • Remove, dispose, and replace framings. • Install (3) Fuse Cutouts.
Segment FID 13665918		NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 31220910		NONE	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Feeder- 1301-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (CP-C6-XARM)	• Install a new 50ft galvanized round tapered pole midspan. • Install primary framing. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
13524705	[redacted]	(CP-C6-XARM)	(K-5)	• Remove and dispose primary framing. • Install secondary framing. • Install 1/0 triplex (qty=25 ft). • Install 1/0 ACSR primary Conductor (qty=75 f compression splices (qty=3).
22053341		(40 FT C3 WOOD POLE) (CP-C6-XARM) (S-6) (ABS-3-XARM)	(50' ROUND TAPERED POLE) (CP-C6-XARM) (S-6)	• Remove and dispose 40ft C4 wood pole. • Replace with a 50ft galvanized round tapered p • Remove and dispose air-break switch. • Remove, dispose and replace primary framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
13525293		NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
1001602057		NONE	(LABOR, FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Feeder 2005-10

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' ROUND TAPERED POLE) (K-1) (CP-C6-XARM) (S-1)	• Install galvanized steel pole 50ft galvanized roun tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypa (ABS-3-XARM) and the framing hardware to supp them.
10044885		(40'-H4 CONCRETE	(50' ROUND TAPERED POLE) (E-	• Remove and dispose 40ft H4 concrete pole.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
		POLE) (CP-C1) (E-1-2-3 (QTY=)) (F-1-3 (QTY=1))	1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (CP-C6-XARM)	• Replace pole with a 50ft galvanized round tape pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) anchor and (downguy. • Install and connect one (1) set of Air Break By (ABS-3-XARM) and the framing hardware to support them.
Segment FID 18371210	[redacted]	NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.
Segment FID 1000125552	[redacted]	NONE	(LABOR,FCI) (QTY=3)	• Install (3) Fault Current Indicators.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identi?ed in the tables above. Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact) for the depths of the galvanized tapered poles.
3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductors, assemblies, and attached components are not being replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL

FEMA PAPPG v.3.1 provides, "Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects." Subrecipient proposes to lessen or eliminate long-term risk to people and property from future natural hazards and their effects by performing the work described in this project to Subrecipient's [Distribution] Design Criteria, which exceeds required codes and standards. Doing so will directly reduce the potential of future, similar negative consequences of damage to the T&D system as occurred after Hurricane Maria by

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improving the system's physical resilience, functional resiliency, or both.

Below is a description of the proposed mitigation opportunity and the proposed scope of work

10.1 § 406 HAZARD MITIGATION OPPORTUNITY

FEMA's § 428 Alternative Procedures Guide for Permanent Work in Puerto Rico (v.3) states that FEMA will "encourage the concepts of regional infrastructure resiliency" and "provide mitigation opportunities that leverage innovative and renewable technologies."[1] The § 428 Alternative Procedures are intended to allow subrecipients and FEMA "to prioritize the provision of funding for eligible permanent work in ways that best meet the recovery needs of impacted communities" and provide "flexibility in the use of funds."[2] The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."[3] FEMA defines hazard mitigation as "any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects."[4] To that end, LUMA proposes to add feeder reclosers (single and three-phase) and communication fault current indicators ("cFCI") to this project to improve the resiliency of the T&D systems against future hurricane damage and its effects. The Distribution Automation program will add approximately a total of 4,000 three-phase reclosers, 15,000 single-phase reclosers, and 11,000 cFCIs across the island. The addition of feeder reclosers and cFCIs will reduce the potential for widespread loss of service during a disaster event and prevent physical damage, mitigating the negative effects of a future, similar disaster.

Feeder reclosers will improve system resiliency. LUMA requests 406 hazard mitigation funding for nine (9) three-phase reclosers, thirteen (13) single-phase reclosers, also known as trip savers, and nine (9) radio communication kits for those reclosers as described in the table below.

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
1102-03	Three-Phase Recloser Radio Communication Kit	1	15198307	[redacted]
1102-03	Single-Phase Recloser	3	15197609	
1106-05	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1106-05	Single-Phase Recloser	3	15196868	
1106-05	Single-Phase Recloser	3	1000828279	
1204-03	Three-Phase Recloser Radio Communication Kit	1	15202072	
1204-03	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1204-03	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	

1204-03	Single-Phase Recloser	1	15201729	[redacted]
1204-03	Single-Phase Recloser	3	15201997	
1301-02	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
1301-02	Three-Phase Recloser Radio Communication Kit	1	22053341	
2005-10	Three-Phase Recloser Radio Communication Kit	1	NEW POLE	
2005-10	Three-Phase Recloser	1	10044885	

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
	Radio Communication Kit			[redacted]

Feeder reclosers have microprocessors that monitor the voltage and current on a feeder line to determine whether the recloser should take action to protect the function of that feeder. They protect the feeder line by stopping temporary line faults from causing an extended outage. An example of a temporary line fault is vegetation touching a power line for a brief period of time. When a feeder recloser detects this type of fault it automatically opens the circuit (briefly stopping the flow of electricity to allow the disturbance to resolve) and then rapidly recloses to restore power. It has been observed that approximately 70% of faults are temporary. This action reduces the frequency, duration, and breadth of disaster-related outages, protecting the public safety. Feeder reclosers prevent temporary line faults from turning into an outage, which speeds restoration after a storm or disaster.

When used on a looped circuit, the reclosers can also contain a power outage to a localized area. The two reclosers nearest the fault will open the circuit (briefly stopping the flow of electricity between them) so the outage is contained to a segment of the customers between the two reclosers. Meanwhile, power continues to reach the remaining customers on the feeder line. See illustration below where the yellow lightning bolt is the fault, and the red squares are the reclosers that have opened to contain the outage to the customers in red.

For diagram see document: "*800286-DR4339PR-DSOW- Group 36- Rev 004-V1.pdf*".

In the same scenario without the reclosers, a larger portion - and potentially all - of the customers served by the feeder would lose power until the fault could be repaired. Thus, feeder reclosers mitigate outages similar to what was experienced during Hurricane Maria by localizing an outage area and preventing cascading outages that can extend the outage time. Power is a critical lifeline. Extended power outages caused by disaster damage like the one after Hurricane Maria have devastating effects on the public health and safety. Mitigation measures that reduce the likelihood of extended, wide-ranging outages will also reduce the life-safety risk of disaster damage.

Feeder reclosers will be installed across the distribution feeder system, providing the operations center with outage and loading information across a wide area. The operations center can use this information to prioritize outage restoration across that area. This can reduce customer outage time and consequently decrease the risk of harm to the public and property. The operations center has the ability to remotely control the reclosers, opening and closing specific reclosers, so as to re-energize the greatest number of customers and localize the outage to the customers on a feeder segment between two reclosers. In contrast, under the current system a feeder that experiences a fault will lose power back to the circuit breaker, at the substation, until the cause of the fault is cleared. Until the fault is cleared all

customers on the feeder have no power. The fault needs to be identified by visual inspection. Visual inspection takes much longer than clearing a fault remotely. During a disaster, when numerous feeders experience permanent faults, the ability to localize the outage and re-energize the non-damaged segments in minutes instead of hours or days is a significant reduction of risk to public health and safety.

Reclosers also prevent physical damage to the infrastructure by preventing short circuit currents on a fault getting to the main breaker of a feeder. Reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur. Un-isolated electrical faults lead to sustained arcing, causing extensive equipment and property damage. Prolonged faults create ?re and critical public safety risks.

These reclosers are part of a larger system of protection to be implemented through the Distribution Automation program. In addition to these speci?c critical facilities, Distribution Automation will protect the electrical grid as a whole, a critical facility that spans all of Puerto Rico. Electrical faults can cause outages that cascade across multiple facilities, regions, or even the entire island, disrupting service for customers and other critical facilities far from any speci?c distribution circuit. Additionally, faults and outages can cause frequency deviations and increased wear and tear on all components of the grid, including generation, transmission, and distribution facilities, without geographic limitation. Without reliable infrastructure at all stages of electrical generation, transmission, and distribution, Puerto Ricans will be at heightened and increasing risks of sustained outages with severe impacts on public health and safety. Ultimately, localized grid resilience investments bene?t all customers, because the interconnected grid as a whole – not any speci?c distribution or transmission line – serves Puerto Rico. In other words, a recloser in the San Juan region could mitigate the cascading effects that would cause an outage at a hospital or ?re station in Arecibo, and vice versa. DHS recognizes the importance of incorporating resilience into critical infrastructure projects, including "identifying key dependencies and interdependencies and ways in which this critical infrastructure asset, system, or network could impact other components of critical infrastructure systems, whether within the same sector or across sectors" and "mapping potential cascading effects from potential infrastructure disruptions." *See* DHS Supplemental Tool: Incorporating Resilience into Critical Infrastructure Projects, https://www.cisa.gov/sites/default/?les/publications/NIPP-2013-Supplement-Incorporating-Resilience-into-CI-Projects-508.pdf. Puerto Rico's generation, transmission, and distribution systems must function as a single integrated system to deliver power.

Poles will improve system resiliency. Luma requests 406 hazard mitigation for the following poles:

Feeder 1102-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft. S8.5 12-sided Galvanized Steel	1	15198307	[redacted]

Feeder 1106-05

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
60ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
45ft S5.7 12-sided galvanized steel pole	1	15196868	[redacted]

50ft S8.5 12-sided galvanized steel pole	1	1000828279	[redacted]

Feeder 1204-03

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
60ft S8.5 12-sided galvanized steel pole	1	15202072	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	NEW POLE	
60ft S10 12-sided galvanized steel pole	1	NEW POLE	
40ft S5.7 12-sided galvanized steel pole	1	NEW POLE	
50ft S8.5 12-sided galvanized steel pole	1	15201729	
45ft S5.7 12-sided galvanized steel pole	1	15201997	

Feeder 1301-02

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
50ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
60ft S8.5 12-sided galvanized steel pole	1	22053341	

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
			[redacted]
60ft S10 12-sided galvanized steel pole		NEW POLE	

Feeder 2005-10

§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
60ft S8.5 12-sided galvanized steel pole	1	NEW POLE	[redacted]
50ft S8.5 12-sided galvanized steel pole	1	10044885	

Higher poles will improve system resiliency. Replacement poles provide the strength required to carry the reclosers and related hardware and withstand hurricane wind speeds. The 428 PA recovery solution includes the replacement of the existing poles (wood/concrete) by new galvanized round steel poles, and for 406 HM the round poles will be replaced with 12-sided galvanized steel poles, as identified in tables §§ 9.1 and 10.2. LUMA selected the poles for replacement after performing an electrical analysis of the feeder line and applying best design practices for reclosers. A 12-sided galvanized steel pole is proposed as replacement for existing wood poles, as it is capable of supporting the load of the reclosers and withstanding the forces generated by 160 mph winds.

None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests § 406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

Additional information to justify these poles are included in *APPENDIX D – Pole Height Increase Justification*.

Communicating fault circuit indicators ("cFCIs") improve system resiliency. LUMA requests 406 hazard mitigation funding for the following twenty-seven (27) cFCIs:

Feeder	Quantity	FID	Coordina Lat, Lo
1102-03	3	15197359	[redacted]
1102-03	3	15197882	

1106-05	3	15196831	[redacted]
1204-03	3	Segment FID 13665918	
1204-03	3	Segment FID 31220910	
1301-02	3	13525293	
1301-02	3	1001602057	
2005-10	3	Segment FID 18371210	
2005-10	3	Segment FID 1000125552	
Total			27

cFCI's allow the operator to locate circuit faults (i.e., outages) faster than the current method, and provides the central monitoring system ("Energy Management System" or "EMS") information it can use to prevent further damage and to prioritize restoration efforts. While reclosers play a crucial role in reactively limiting physical damage by isolating electrical faults once they occur, cFCIs offer a fundamentally proactive approach to damage prevention. By detecting incipient (i.e., emerging) faults in their early stages, and enabling timely intervention, cFCIs can prevent the fault from ever fully materializing, thereby directly eliminating the potential for physical damage to system assets.

In the event a feeder line experiences a fault, cFCIs can identify the location of the fault along a feederline and communicate it to the operator. Multiple cFCIs are located along a feeder and its branches. Determining the placement location of cFCIs requires extensive engineering to ensure LUMA will gain maximum benefit from each sensor.[5]

These feeders do not have FCIs, therefore, repair crews would need to visually inspect the feeder line to locate the fault. In comparison, cFCIs will provide repair crews with information that narrows their search to an area between two cFCIs.Thus, the cFCI's information dramatically reduces search time. A smaller search area reduces customer outage time, and consequently, decreases harm to the public and property after a disaster. This feature provides a more specific location of the fault than what is provided by reclosers.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detectionof abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system,reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure. Note that on this specific project, the cFCIs in the HM scope of work are new.They are not replacing existing FCIs (FCIs are not present).

Benefits of cFCIs include:

- Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.

- Fault Location: cFCIs help quickly locate faults on the line (like short circuits

or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.

- Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on cables, breakers, and other components.
- Lightning and Surge Detection: cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis.Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action—preventing physical stress or failure.

- Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.
- Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion —allowing scheduled repairs before damage occurs.
- Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:
- Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.
- Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components.
- Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing—reducing the impact area and protecting healthy parts of the system.
- Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

For more information on cFCIs and how they are integral to fortifying Puerto Rico's electrical infrastructure, please see the T&D Resilience Plan submitted by LUMA to COR3 and the "Distribution Automation, Operation, and System Visibility Roadmap"

Stainless Steel Transformer. LUMA requests §406 hazard mitigation funding for fifteen (15) stainless steel transformers:

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
1102-03	1kva stainless steel transformer (2.4/7.62kv – 120v)	1	15198307	[redacted]
1106-05	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	1	NEW POLE	
1204-03	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	15202072	
1204-03	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	NEW POLE	
1204-03	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	NEW POLE	

1301-02	1 kva stainless steel transformer (2.40/7.62kv-120v)	1	NEW POLE	[redacted]
1301-02	1 kva stainless steel transformer (2.40/7.62kv-120v)	2	22053341	
2005-10	1kva stainless steel transformer (7.62/13.20 kv -120/240v)	2	NEW POLE	
2005-10	1kva stainless steel transformer	2	10044885	

Feeder	§ 406 Hazard Mitigation Item	Quantity	FID	Coordinates Lat, Long
	(7.62/13.20 kv -120/240v)			
Total		15		

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The Stainless-Steel transformer supplies low- voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

LUMA galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Transformer failure poses harm to the equipment and the public due to resulting loss of power. LUMA proposes that this measure be eligible for § 406 hazard mitigation funding. In FAASt no. 165226, stainless steel transformers more than 1 mile from the shoreline were granted 406 HM funding. In addition, the Fixed Cost Estimate was based on pole mounted transformers that are coated steel with a corrosion resistant cover band and not stainless-steel transformers.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall strength, and corrosion resistance. Stainless steel is a high- strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

Additionally, existing transformers across the island suffer from corrosion, not just the ones close to the seashore. Stainless steel transformers offer superior resistance to corrosion. Corroded transformers have a higher likelihood of failure during a disaster due to debris impacts, fires, and significant water intrusion. Such failure can create unintended electrical paths outside the insulated circuits. This leads to short circuits, which can immediately disrupt transformer function and cause widespread power outages. Additionally, corrosion degrades insulation within the transformer, making it prone to electrical arcing, further increasing the risk of failure or potential for a fire. Oil leaking from a damaged transformer could lead to vegetation damage or groundwater

contamination. A stainless-steel transformer is better able to withstand the corrosive effects of that exposure than a galvanized steel transformer. As a result, a stainless-steel transformer will be more resistant to the effects of a disaster like Hurricane Maria and help to protect life and property.

By upgrading to this material, LUMA will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure. LUMA requests that stainless steel galvanized transformers that are more than one mile from the seashore be eligible for § 406 hazard mitigation funding equal to the difference in price between a stainless steel and galvanized steel transformer.

10.1 § 406 SCOPE OF WORK

Feeder 1102-03

428 Section			406 HM		
Pole FID	**Coordinates Lat, Long**	**Scope of Work**	**Pole FID**	**Coordinates Lat, Long**	**Scope of Work**
15198307	[redacted]	• Remove and dispose 45ft C2 wood pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose and replace primary framing. • Remove, dispose and replace secondary framing (K-7-4). • Remove, dispose and replace streetlight (LED Type). • Remove and dispose air-break switch. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	**15198307**	[redacted]	• Replace 50ft round pole with a 50ft S8.5 12-Sided galvanized steel pole. • Install (1) Three-Phase recloser 1102-03A in a loop restoration circuit. • Use existing secondary to feed three-phase recloser from source side. • Install and commission the radio communication kit for three-phase recloser • Install (1) 1 kVA stainless steel transformer (2.4/7.62kV–120V) to feed Three-Phase Recloser from load side.
15197609		• Remove, dispose and replace primary framing of existing pole.	**15197609**		• Replace (3) Fuse Cutouts on FID 15197623 with the installation of (3) Single-Phase recloser 200A.
15197623		• Remove, dispose and replace (3) Fuse Cutouts. • Labor to close jumpers			
15197359		Install (3) Fault Current Indicators.	**15197359**		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
15197882		• Install (3) Fault Current Indicators.	**15197882**		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 1106-05

428 Section	406 HM

Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
NEW POLE	[redacted]	• Install galvanized steel pole 50ft galvanized round tapered pole. • Install primary framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 60ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1106-05A. • Install and commission radio communication kit for three-phase recloser. • Install (1) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side.
15196868		• Remove and dispose 35ft wood pole and replace with a 45ft galvanized round tapered pole. • Remove, dispose and replace primary framing, • Install downguy. • Install anchor.	15196868		• Replace 45ft round pole with a 45ft S5.7 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts on FID 15196866 with the installation of (3) Single-Phase Reclosers 200A.
15196866		• Remove, dispose and replace (3) fuse cutouts. • Labor to close jumpers.			
1000828279		• Remove and dispose 45ft concrete pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose, and replace primary and secondary framing. • Remove, dispose and replace streetlight (LED Type). • Remove, dispose and replace (3) Fuse Cutouts. • Install downguy and anchor.	1000828279		• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole. • Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser.
15196831		• Install (3) Fault Current Indicators.	15196831		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 1204-03

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
15202072	[redacted]	• Remove and dispose 45ft C2 wood pole and replace pole with a 50ft galvanized round tapered pole. • Remove, dispose and replace anchor and downguy. • Install (2) additional anchors. • Install (3) additional downguys. • Remove, dispose and replace framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	15202072	[redacted]	• Replace 50ft round pole with a 60ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1204-03A • Install and commission radio communication kit for three-phase recloser. • Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.

NEW POLE	[redacted]	• Install galvanized steel pole 50ft galvanized round tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1204-03B. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240v) for source and load side.
NEW POLE		• Install a new 50ft galvanized round tapered pole. • Install framings. • Install downguys. • Install anchor. • Install 40ft galvanized round tapered pole as a stub pole with framings in coordinates [redacted]. • Install and connect one (1) set of Air Brake Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE		• Replace 50ft round pole with a 60ft S10 12-sided galvanized steel pole. • Replace 40ft round pole with a 40ft S5.7 12-sided galvanized steel pole stub Pole at coordinates [redacted]. • Install (1) Three-Phase Recloser 1204-03C. • Install and commission radio communication kit for the Three-Phase Recloser. • Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source and load side.
15201729		• Remove and dispose 45ft H4 concrete pole and replace with a 50ft galvanized round tapered pole. • Remove, dispose, and replace framings.	15201729		• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole. • Replace (1) Fuse Cutout with the installation of (1) Cutout Mounted Single-Phase Recloser.

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
		• Remove, dispose and replace (1) Fuse Cutout. • Labor to remove out of service primary riser.			
15201997	[redacted]	• Remove and dispose 45ft H4 concrete pole and replace with 45ft galvanized round tapered pole. • Remove, dispose, and replace framings. • Install (3) Fuse Cutouts.	15201997	[redacted]	• Replace 45ft round pole with 45ft S5.7 12-sided galvanized Steel pole. • Replace (3) Fuse Cutouts with the installation of (3) Cutout Mounted Single-Phase recloser.
Segment FID 13665918		• Install (3) Fault Current Indicators.	Segment FID 13665918		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
Segment FID 31220910		• Install (3) Fault Current Indicators.	Segment FID 31220910		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 1301-02

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
NEW POLE	[redacted]	• Install a new 50ft galvanized round tapered pole as a midspan. • Install primary framing. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole as a midspan. • Install (1) Three-Phase Recloser 1301-02A in loop restoration circuit. • Install (1) 1kVA stainless steel transformer (2.40/7.62kV-120V) to feed three phase recloser from source side. • Install Secondary framing (K-5). Connect existing secondary to feed three-phase recloser from load side. • Install and commission radio communication kit for three-phase recloser.
22053341		• Remove and dispose 40ft C4 wood pole and replace with a 50ft galvanized round tapered pole. • Remove and dispose air-break switch. • Remove, dispose and replace primary framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	22053341		• Replace 50ft round pole with a 60ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 1301-02B in loop restoration Circuit. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1 kVA stainless steel transformers (2.40/7.62kV-120V) to feed three-phase recloser from source side and load side.
13525293		• Install (3) Fault Current Indicators.	13525293		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
1001602057		• Install (3) Fault Current Indicators.	1001602057		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

Feeder 2005-10

428 Section			406 HM		
Pole FID	Coordinates Lat, Long	Scope of Work	Pole FID	Coordinates Lat, Long	Scope of Work
NEW POLE	[redacted]	• Install galvanized steel pole 50ft galvanized round tapered pole. • Install framings. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	NEW POLE	[redacted]	• Replace 50ft round pole with 60ft S10 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 2005-10A • Install and commission radio communication kit for three-phase recloser. • Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.

10044885	[redacted]	• Remove and dispose 40ft H4 concrete pole and replace pole with a 50ft galvanized round tapered pole. • Remove, dispose, and replace framings. • Remove, dispose and replace (1) anchor and (1) downguy. • Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.	10044885	[redacted]	• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole. • Install (1) Three-Phase Recloser 2005-10B. • Install and commission radio communication kit for the three-phase recloser. • Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.
Segment FID 18371210		• Install (3) Fault Current Indicators.	Segment FID 18371210		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.
Segment FID 1000125552		• Install (3) Fault Current Indicators.	Segment FID 1000125552		• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity

X **Ground disturbance outside of existing footprint**. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- Poles - Refer to *APPENDIX B - Project Considerations,* column C (soil area and depth impact), for the depths of the poles to be installed.

- **Soil testing or boring to be performed as part of pre-construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

- **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

- Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following project 723883 FAASt [Region 1 -San Juan Group A] (Vegetation)

X **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) Final debris disposal location; and (4) Final debris disposal method.

- Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method is not yet available.

X **Staging areas, landing area for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Area**: All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse locations are described in Section 7.2 above. LUMA has not identi?ed any other additional staging areas that it will require.
- **Access Roads**: New access roads are not needed for this project. All poles to be installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

X **Fill material**. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following

document: LUMA Vendor Directory List.

- Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

- **Facility is over 45 years old**. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

- **Known renovations to the facility**. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

- Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t *Appendix A- LUMA Project Cost Estimate*.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	$121,053.83	$69,156.23	$190,210.06
MANAGEMENT	$87,095.92	$49,795.21	$136,891.13
LPCE Distribution Automation Group 36	$1,458,293.68	$833,679.05	$2,291,972.73
GENERAL CONDITIONS	$74,028.53	$42,386.12	$116,414.65
COST TOTALS	$1,740,471.96	$995,016.61	$2,735,488.57
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 800286 - 428		$1,427,638.42
	FAAST PROJECT # 800286 - 406 HM		$995,016.61
	FAAST PROJECT # 800286 TOTAL:		**$2,422,655.03**
	FAASt A&E # 335168 - 428		$137,043.71
	FAASt A&E # 335168 - 406 HM		$78,366.54
	FAASt A&E # 335168 TOTAL		**$215,410.25**
	FAASt E&M #673691 - 428		$175,789.83
	FAASt E&M #673691 - 406 HM		$397,237.57
	FAASt E&M #673691 TOTAL		**$573,027.40**

428 Project Summary, Version 2:

Work to Be Completed (WTBC): $1,740,471.96

E&M Deduction (#673691) 428: -$175,789.83

A&E Deduction (Global A&E FAASt 335168): -$137,043.71

Version 2 Project Total Cost: $1,427,638.42 See project note 7.

VERSION SUMMARY OF KEY CHANGES:

V0: $2,601,467.86 -$300,364.95- $597,390.08= $1,703,712.83 (WTBC, A&E and E&M Deductions)

V1: PA No Cost change $0 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

V2: -$276,074.41(Reconcile funding)

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: "*800286-DR4339PR-DSOW- Group 36- Rev 004-V1.pdf".*

2. Refer to detailed cost estimate in document: *"800286-DR4339PR-APPENDIX A- LUMA PROJECT COST ESTIMATE Rev 04.xlsx".*

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project. General Conditions, and Contingencies will remain in this project.

5. This project version includes request for cost modification for both 406 HMP and 428 PA costs, one with positive amount and the other negative. The cost change cannot be pro-cessed in the same version due to system limitation. Thus, two separate versions are re-quired to capture cost change. The current version will obligate the positive funds (whether 406 HMP or 428), and the future version will capture the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: "SP 800286 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf"

6. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

7. Regarding the difference of $0.01 in the total amounts between the applicant provided SOW/cost vs. total cost in calculated by GM, the PDMG is aware for more details see email file: "800286 Cost clarification email.pdf" and "SP800286 - DR4339PR - Email Cost Clarification".

13.0 ATTACHMENTS/APPENDICES

The following attachments and appendices are provided with this DSOW:

Item	Document Description or Filename
A	LUMA Project Cost Estimate
B	Project Considerations
C	LUMA's Active Projects
D	Pole Height Increase Justification

406 HMP Scope

**********Version 1**********

Project number: [800286] FAASt [Automation Program Group 36] (TL / Distribution)

Damage #: #1490780; FAASt [Automation Program Group36] (Distribution)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Carolina, Puerto Rico

GPS Latitude/Longitude: [redacted]

End GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program ("Program") through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA's Transmission and Distribution ("T&D") system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently. Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. **Pole Replacement to Accommodate the Installation of Reclosers:**

   The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

   As a mitigation strategy, 406 HM will fund the additional cost (delta) for pole strengthening (pole, concrete base, and additional guywire) for recovery work to the feeder or poles. In this project:

   a) Existing 45ft wood pole will be replaced by one(1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5) 12-sided galvanized pole.

   b) Three (3ea) new 50ft round galvanized poles will be installed as PA recovery solution, and 406 HM will replace round pole with Three (3ea) 60ft (S10) 12-sided galvanized poles.

   c) Existing 35ft wood pole will be replaced by one (1ea) 45' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 45ft (S5.7) 12-sided galvanized pole.

   d) Existing 45ft H4 concrete poles will be replaced by one (1ea) 50' round galvanized poles (PA recovery solution), and 406 HM will replace round poles with one (1ea) 60ft 12-sided galvanized poles.

   e) Existing 45ft H4 concrete poles will be replaced by two (2ea) 50' round galvanized poles (PA recovery solution), and 406 HM will replace round poles with two (2ea) 50ft (S8.5) 12-sided galvanized poles.

   f} Existing 40ft wood pole will be replaced by two (2ea) 50' round galvanized pole (PA recovery solution), nd 406 HM will replace round pole with two (2ea) 60ft 12-sided galvanized pole.

   g) One (1ea) new 50ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 50ft (S8.5) 12-sided galvanized poles.

   h) One (1ea) new 40ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with one (1ea) 40ft (S5.7) 12-sided galvanized pole.

i) Existing 45ft H4 concrete pole will be replaced by one (1ea) 45' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 45ft (S5.7) 12-sided galvanized pole.

j) One (1ea) new 50ft round galvanized pole will be installed at the midspan as PA recovery solution, and 406 HM will replace round pole with one (1ea) 50ft (S8,5) 12-sided galvanized poles.

k) Existing 40ft H4 concrete pole will be replaced by one (1ea) 50' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with one (1ea) 50ft (S8.5) 12-sided galvanized pole.

2. Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of thirteen (13ea) fuse cutouts by thirteen (13ea) single-phase reclosers and install nine (9ea) three-phase reclosers.

3. Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of nine (9ea) fault current indicators (FCIs) by nine (9ea) communicating fault current indicators (cFCIs). For a total of twenty-seven (27ea) cFCI.

Mitigation Measures *(Supplementary)*

4. Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of fifteen (15ea) 1kVA stainless steel transformers.

5. Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 2ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of nine (9ea) Radio communication kit.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 801,118.70
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 193,897.91
Hazard Mitigation Total Cost =	**$ 995,016.61**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 397,237.57
Architecture and Engineering (A&E) =	$ 78,366.54
Construction Cost =	$ 519,412.50
Hazard Mitigation Total Cost =	**$ 995,016.61**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is $995,016.61 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**********Version 0**********

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,601,467.86	Uncompleted
3510	1	Lump Sum	($300,364.95)	Uncompleted
9001	1	Lump Sum	($597,390.08)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$300,364.95	Uncompleted
9001	1	Lump Sum	$597,390.08	Uncompleted
9001	1	Lump Sum	($2,601,467.86)	Uncompleted
3510	1	Lump Sum	($137,043.71)	Uncompleted
9001	1	Lump Sum	($175,789.83)	Uncompleted
9001	1	Lump Sum	$1,740,471.96	Uncompleted

CRC Gross Cost	$1,427,638.42
Total 406 HMP Cost	$995,016.61
Total Insurance Reductions	$0.00
CRC Net Cost	$2,422,655.03
Federal Share (90.00%)	$2,180,389.53
Non-Federal Share (10.00%)	$242,265.50

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/03/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo P.R.

5/12/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist
CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 36] (TL / Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 36] (TL / Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 36] (TL / Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:00 PM PDT

Review Comments

Version 2 reflects the negative cost for PA reconciliation process. Change request - $276,074.41for a total Federal share for this project of $2,180,389.53.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 10:02 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $2,422,655.03 for subaward number 108077 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
2	10/8/2026	($248,466.97)	90%	Accepted	4339DRPRP01080771
0	9/17/2025	$1,533,341.55	90%	Accepted	4339DRPRP01080771
1	8/27/2026	$895,514.95	90%	Accepted	4339DRPRP01080771

General Info

Project #	800361 **P/W #** 108078	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1490781; FAASt [Automation Program Group 37] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 37
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 37: Caguas Region Feeder 2701-02 Caguas Region Feeder 3406-01 Caguas Region Feeder 3602-03 Caguas Region Feeder 3701-02
- **Approx. Year Built:** 1970
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1490781 **FAASt [Automation Program Group 37] (Distribution)**

2.1 Introduction

This document is to submit for approval a Detailed Scope of Work (DSOW) to COR3 and FEMA for the Transmission and Distribution Automation Program under DR-4339-PR Public Assistance. The document provides a description of the project, including scope, schedule, and cost estimates. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair, restore, or replace the eligible facilities.

LUMA submits this detailed SOW according to the Transmission and Distribution Operations & Maintenance Agreement between Puerto Rico Electric Power Authority (PREPA), the Puerto Rico Public-Private Partnerships Authority (P3A), and LUMA Energy, and following the Consent to Federal Funding Letter issued by PREPA and P3A. These collectively provide the necessary consent for LUMA Energy, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the Transmission and Distribution System submitted to FEMA.

2.2 Background

In order to rebuild the entire electrical grid, the Transmission & Distribution Automation Program ("Program") installs advanced technology equipment (*i.e.*, reclosers and communicating fault current indicators) to reduce service interruptions to the electrical grid caused by disaster-related damage. Although the intent is to deploy automation equipment throughout PREPA's transmission

and distribution ("T&D") system, the Program is broken into multiple projects being implemented across the island on both transmission and distribution systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability. The individual projects are interconnected and enhance each other, but each can also be implemented independent of each other, and each confers benefits independently. Automation is necessary to restore the T&D systems. The 3.5 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 800361 is one of the Program's distribution-level projects. It installs hardened poles, advanced technology equipment (specifically three-phase reclosers and communicating fault current indicators), and online protection devices to reduce service interruptions to the distribution grid that could be caused by disaster-related damage. Implementing the three-phase reclosers, their communication kits, and the communicating fault current indicators is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and potential damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 2701- 02, 3406-01, 3602-03, and 3701-02.

Key components of this project are: (1) pole replacement, (2) the three-phase and single-phase reclosers, and (3) the installation of communicating fault current indicators. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight and operational components of the devices and also increases the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will be used to determine whether a recloser pole and/or pole adjacent to the recloser will maintain structural integrity. If not, higher-class (strength) structures/poles made of steel or concrete will be installed to comply with codes and standards. This includes adjacent poles (*i.e.*, poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design and industry standards so they can support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. LUMA will replace all wood poles where three-phase reclosers are being installed, irrespective of their current condition, to address the compounded structural demands and spacing prerequisites, ensuring the resilience and reliability of the electrical grid infrastructure.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults —whether due to independent failures or breakdowns— and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

Implementation of three-phase reclosers will preserve the continuity of electric services by pre- empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities and to prevent loss of service and potential damage from future disasters. In this project LUMA will install four three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two- phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three-phases if fault currents are low at the location. In this project LUMA will install a total of six single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independent of the feeder reclosers. cFCIs

help identify permanent and incipient faults in the distribution system and collect voltage and current data, that can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notification/alarms based on user set

parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is will use cellular technology for communications with the operations center. LUMA is using cellular communications service only for reclosers and their associated hardware only. The lack of fiber optics, as a method of transmitting information, does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on this feeder, nor does it prohibit the incorporation of fiber optics at a later date.

3.1 Facilities Description

The facilities listed below are part of PREPA's electric distribution system. All feeders originate from a substation (GPS Start) and serve customers along the route to various locations (GPS End). The coordinates shown below represent the mainline backbone of the feeders at issue in this project.

To avoid duplication of work across projects, LUMA reviewed the FIDs identified for work across distribution programs. The analysis did not identify any poles on these feeders, where LUMA is installing Distribution Automation ("DA") devices, that require disaster-related replacement. Accordingly, LUMA has not initiated any rebuild projects for these feeders under the Distribution Rebuild Program (also referred to as the D-Line Program). LUMA also confirmed that none of the poles on these feeders, which will be replaced under the Pole and Conductor Repair Program (also referred to as the D-Pole Program), will be replaced again under the DA Program.

To further address any concerns regarding the duplication of work across other proposed or planned Hurricane Maria distribution projects, LUMA provides Appendix D which contains a list of all FIDs on the feeder upon which FEMA-eligible work will be performed and the associated proposed scope of work under each distribution program. Please refer to the ***APPENDIX D - LUMA Active Projects*** to show no duplication of scope elements.

3.2 Facilities List

Name	Feeder Number	GPS Start	GPS End
Caguas	2701-02	[redacted]	
Caguas	3406-01		
Caguas	3602-03		
Caguas	3701-02		

Note: Please refer to ***APPENDIX C - Project Considerations*** for a list of all GPS locations that this project will impact.

4.0 PROJECT SCOPE OF WORK

Below is "Proposed 428 Public Assistance Scope of Work" for feeders of this group.

4.1 Proposed 428 Public Assistance Scope of Work

Feeder 2701-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
5421009	[redacted]	(ASSY-1509)	(E-1-2-3) (F-1-3)	• Adjacent Pole: • Remove and dispose fuse cutout. • Install (3) Fuse cutout blades switch. • Install Surge arresters. • Install Downguy
11039169		(45 FT C2 WOOD POLE) (CP-C6-XARM) (E-1-2-3) (F-1-3)	(50 FT S8.5 STEEL POLE) (CP-C6-XARM)	• Adjacent Pole: • Adjacent Pole: Remove and dispose 45' class 2 wood Pole. • Replace pole for a 50' S8.5 12- Sided Galvanized steel pole. • Install Three-Phase Horizontal Fuse Blade. • Remove, dispose and Replace Crossarm and primary Framing. • Remove and dispose fuse • Cutout. • Install Surge Arresters. • Remove and dispose anchor • And downguy
5420894	18.21528, -65.72892	(45 FT C2 WOOD POLE) (CP-C12-XARM) (K-7) (STL-10)	(50 FT S8.5 STEEL POLE) (REC-2) (K-7) (STL-10)	• Remove and dispose 45' class 2 wood Pole. • Replace pole with for a 50' S8.5 12-Sided Galvanized steel pole. • Install (1) three-phase recloser 2701-02A radial feeder. • Install and Commission radio communication kit for three-phase recloser. • Remove, dispose and replace Primary and secondary

				Framings.
				• Remove, dispose and Replace
				Streetlight.
				• Use 25kva tx bank (4.80/8.32kv
				120v) on source side
10517058	[redacted]	(ASSY-1509)	NONE	• Remove and dispose fuse cutout. • Replace with (3) Fuse cutout blades switch
11039409		(35 FT C4	(50 FT S8.5 STEEL	• Remove and dispose and 35' CLASS 4 WOO
		WOOD	POLE)	POLE Replace pole with a 50' S8.5 12-Sided Galvar
		POLE)	(REC-2-1)	steel pole. • Install (1) three-phase recloser 2701-02B ra
		(CP-C1)		• Feeder. • Install and commission radio communication three- phase recloser. • Install (1) 1kva transformer (4.80/8.32KV-12 for the source side. • Remove, dispose, and Replace Primary fram
10170621		N/A	(LABOR,cFCI(QTY=3))	• Install (3) Communicating Fault Current Indica
11039728		(35 FT C4	(50 FT S8.5 STEEL	• Remove and dispose 45' class 2 wood Pole.
		WOOD POLE)	POLE)	with a 50' 8.5 S8 12-Sided Galvanized Steel Pole.
		(CP-C1)	(ABS-3-XARM)	• Remove, dispose, and replace primary framin • Install Air Break Switch.
			(LABOR,cFCI(QTY=3))	• Install (3) Communicating Fault Current Indicat

Feeder 3406-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50' S8.5 STEEL POLE) (REC-2-2) (E-1-2-3) (F-1-3)	• Install a new 50' S8.5 12-Sided galvanized stee pole. • Install spacer and primary framings. • Install (1) three-phase recloser 3406-01A loop feeder. • Install and commissioning of the Radio Commun Kit for the Three-Phase Recloser. • Install (2) 1Kva (4.80/8.32Kv- 120V) transform • Install AAAC spacer span. • Install (1) anchor and (1) downguy.

NEW POLE	[redacted]	NONE	(50' S8.5 STEEL POLE) (CP-C6-XARM) (REC-3-C)	• Install a new 50' S8.5 12-Sided galvanized stee pole. • Install primary and secondary framings. • Install (3) Single-phase recloser radial feeder. •?
1000746928	[redacted]	(SOLID BLADE QTY=3)	(REMOVE FUSES QTY =3)	• Remove and dispose (3) Fuses. Replace with (Fuse Cutout Solid blades.
1001368329	[redacted]	N/A	(LABOR,cFCI(QTY=3))	• Install (3) Communicating Fault Current Indicato

Feeder 3602-03

POLE FID	Coordinate s Lat, Long	Existing (Remove)	428 Replacement	Scope of work
1001191193	[redacted]	(45'-H4 CONCRETE POLE) (CP-C1) (E-1-2-3(QTY=2) (F-1-3 (QTY=2))	(50' S8.5 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-1 VER 7)	• Remove and dispose 45' H4 Concrete pole. • Replace with 50' S8.5 12-Sided galvanized s pole. • Install (1) three-phase Recloser 3602-03A c configuration. • Install and commission radio communication for three- phase recloser. • Install (2) 1kva Transformer (8.32/4.80) for source side and load side to feed recloser. • Remove, dispose and Replace Primary framin • Remove and dispose (2) Downguys and (2) anchors.
11004187	[redacted]	(45' WOOD POLE)	(50'-S8.5 GALVANIZED STEEL POLE)	• Remove and dispose 45' wood pole.

POLE FID	Coordinate s Lat, Long	Existing (Remove)	428 Replacement	Scope of work
		(CP-C3-VERT) (CP-A5) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (K-7-4)	(CP-C3-VERT) (CP-A5) (REC-3-A) (STL-10) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1)) (K-7-4)	• Replace with a 50' S8.5 12-sided galvanized pole. • Remove, dispose and replace primary and secondary framing. • Remove, dispose and replace Streetlight. • Remove, dispose (2) downguy. Replace onl one. • Remove, dispose and replace (1) anchor. • Install (1) Cutout Monted Single- Phase Recl
10599697	[redacted]	(45'-S5.7 GALVANIZED STEEL POLE) (CP- A4) (REC-3-A) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	(45'-S3 GALVANIZED STEEL POLE) (CP-A4) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2))	• Remove and dispose 45' S5 steel pole. • Replace 45' S5.7 12-sided galvanized steel pole. • Install (1) cutout mounted single- phase rec • Install new additional (1) downguy and (1) anchor. • Remove, dispose and replace primary framir • Remove, dispose and replace (1) anchor an downGuy.

1001715052	[redacted]	(50'-H4 CONCRETE POLE) (CP-C4) (CP-A5) (K-4) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=2))	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C4) (CP-A5) (REC-3-A) (K-4) (E-1-2-3 (QTY=4)) (F-4-2 (QTY=2))	• Remove and dispose 50' H4 concrete pole. pole with 50' S8.5 12-sided galvanized steel • Install (1) CutOut Mounted single-phase recloser. • Install new addition (2) down guys • Remove, dispose, and replace primary and secondary Framing. • Remove, dispose and Replace (2) anchors. • Remove, dispose and replace (2) down Guy
1001714773		(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	• Remove and dispose (1) fuse. • Labor to close Jumpers.
10599702		(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	• Remove and dispose (1) fuse. • Labor to close Jumpers.
10593268		(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	• Remove and replace (1) fuse. • Labor to close Jumpers.
10593257		(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	• Remove and dispose (1) fuse. • Labor to close Jumpers.
Segment FID 14524508		N/A	(LABOR, cFCI(QTY=3))	• Install (3) Communicating Fault Current Indic
Segment FID 1001714763		N/A	(LABOR, cFCI(QTY=3))	• Install (3) Communicating Fault Current Indic

Feeder 3701-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C6-XARM) (REC-2-VER. 6) (K- 5(QTY=2))	• Install new 50' S8.5 12-sided galvanized steel po in new location mid span*. • Install (1) Three-Phase Recloser 3701-02A. Instal commission radio communication kit for three- phas recloser. • Install primary Framing. • Install secondary cond 1/0 al Tpx - 70ft source s 90ft load side To feed recloser
7514577		(CP-C1) (40-CLASS3-WOOD) (STL-10) (E-1-2-3(QTY:2)) (F1-3(QTY=1))	(50'-S8.5 GALVANIZED STEEL POLE) (STL-10) (CP-C6-XARM) (REC-2-1-VER. 6) (K-6) (E-1-2-(QTY=3)) (F1-3(QTY=1)) (F-4-2(QTY=1))	• Remove and dispose 40' wood pole. • Replace with a 50'S8.5 12-Sided galvanized steel p • Remove, dispose and replace primary framing. • Remove, dispose, and replace (2) anchors and do guys. • Labor to Use existing secondary Conductor for loa side. • Remove, dispose, and replace streetlight. • Install (1) Three-Phase Recloser 3701-02B.

7514579		(40' CLASS 3 WOOD POLE) (CP-C6- XARM) (T-1) (K-6) (K-5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C6-XARM) (T-1) (K-6) (K-5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	• Adjacent Pole: • Remove, dispose and replace primary framing. • Remove, dispose and replace 50kva (4.80/8.32 kv 120/240 v). • Remove, dispose and replace (2) anchor and (1) d guy.
7514588		(40' CLASS 3 WOOD POLE) (CP-C6-XARM) (K-5) (K-6) (CP-A5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C6-XARM) (K-5) (K-6) (CP-A5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	• Adjacent Pole: • Remove, dispose and replace primary framings. • Remove, dispose and repl (2) downguys and (1) anch
7515080		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose (3) Fuses. • Labor to close jumpers.
3041816		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose (1) Fuse. • Labor to close jumpers.
7514589		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose Fuses. • Labor to close jumpers.
7517032		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose Fuses. • Labor to close jumpers.
7514328		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose Fuses. • Labor to close jumpers.

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
7514661		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose Fuses. • Labor to close jumpers.
7514322		(ASSY1509)	(LABOR & REPAIR)	• Remove and dispose Fuses. • Labor to close jumpers.
7518213		(35'-C4 WOOD POLE) (CP-A6) (K-6) (K-5) (STL-10) (ASSY-1509 (QTY=1))	(45'-S5.7 GALVANIZED STEEL POLE) (CP-A6) (REC-3-A) (K-6) (K-5) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Remove and dispose 35' C4 Wood pole. Replace p with a 45' S5.7 12-Sided galvanized steel pole. • Install (1) Mounted single-phase recloser. • Install (1) down guy. • Install (1) ancho • Transfer primary and secondary framing. • Remove and dispose (1) fuse. • Remove, dispose, and Replace streetlight.

7517312	[redacted]	(45'-S3 STEEL POLE) (CP-A6) (K-7-A) (T-1)	(50'-S8.5 GALVANIZED STEEL POLE) (CP-A6) (REC-3-A) (K-7-A)	• Remove and dispose 45' steel pole. • Replace with a 50' S8.5 12-soded galvanized steel • Install (1) cutout mounted single- phase recloser. • Remove, dispose and replace primary and second framing. • Labor to remove and dispose Transformer.
7515194		(50'-C2 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM) (K-6) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (ASSY-1509 (QTY=3))	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C7) (REC-3-C) (K-6)	• Remove and dispose 50' C2 wood pole. Replace w 50' S8.5 12-sided galvanized steel pole. • Install (3) Cutout mounted single - phase recloser. • Remove and dispose (3) Fuses. • Remove and dispose (1) downguy and (1) anchor
7515195		(40'-C3 WOOD POLE) (CP-C6-XARM) (K-7-B) (K-5) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (E-2-1)	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C6-XARM) (K-7-B) (K-5) (STL-10) (T-1)	• Adjacent Pole: • Remove and dispose 40' C3 Wood Pole. Replace p with a 50'-S8.5 12-sided galvanized steel pole. • Remove, dispose, and replace primary and second framing. • Remove dispose and replace streetlight. • Remove and dispose stub pole. • Labor to transfer 37.5 KVA (4.80/8.32-120/240V) new pole. • Remove and dispose (1) downguy and (1) Anchor
7515189		(35'-C4 WOOD POLE) (CP-C1)	(50'-S8.5 GALVANIZED STEEL POLE) (CP-C1)	• Adjacent Pole: • Remove and dispose 35' C4 wood pole. Replace p with a

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
				50' S8.5 12-sided galvanized steel pole • Remove, dispose and replace framings.
3126238	[redacted]	(45'-C3 WOOD POLE) (CP-A6) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	(45'-S5.7 GALVANIZED STEEL POLE) (CP-A6) (REC-3-A) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	• Remove, dispose, and replace 45' C3 wood pole. Replace pole with 45'-S5.7 12-Sided galvanized ste pole. • Install (1) cutout mounted single- phase recloser. • Remove, dispose and replace primary and second framing. • Remove, dispose and replace (1) anchor and (1) guy.
NEW POLE		NONE	(45'-S5.7 GALVANIZED STEEL POLE) (CP-C6 XARM) (REC-3-C) (K-1)	• Install new 45'-S5.7 12-sided galvanized steel pole in new location mid span*. • Install primary and secondary framing. • Install (3) cutout mounted single- phase reclosers
10325939		ASSY-1509 (3)	CLOSE JUMPERS	• Remove and dispose (3) Fuses. • Close Jumpers
7519119		ASSY-1509 (2)	CLOSE JUMPERS	• Remove and dispose (2) Fuses. • Close Jumpers

7517419	[redacted]	ASSY-1509 (1)	CLOSE JUMPERS	• Remove and dispose (1) Fuse. • Close Jumpers
7520015		ASSY-1509 (1)	CLOSE JUMPERS	• Remove and dispose (1) Fuse. • Close Jumpers
SEGMENT FID 7512260		N/A	(LABOR, cFCI(QTY=3))	• Install (3) Communicating Fault Current Indicators.
SEGMENT FID 8199518		N/A	(LABOR, cFCI(QTY=3))	• Install (3) Communicating Fault Current Indicators.
7517049		ASSY-1509 (3)	SOLID BLADE CUTOUT (3)	• Remove and dispose (3) fuses. • Replace with (3) Fuse Cutout Solide Blades.

4.2 Proposed 406 Hazard Mitigation Scope of Work

Scope Notes:

1) The work will be performed in accordance with the notes below, the Distribution Construction Standards (Concrete Base Standard) and LUMA Overhead Electrical Distribution System Manual V4, and***APPENDIX C - Project Considerations***.

Pole Replacement

a. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within 3 feet.

b. Most pole installations are to replace existing pole locations; there are some new pole locations included in this scope of work. Refer to ***APPENDIX C - Project Considerations***, column C (soil area and depth impact) for the depths of the poles to be installed.

c. Adjacent poles will be installed, in locations noted in the table above, in conformance with LUMA and industry standards.

d. New guy wire/ anchors are to be installed in compliance with the LUMA Overhead Electrical Distribution System Manual within 3ft from the existing anchor. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the right-of-way.

e. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the following projects:

Feeder	Project Title
3406-01	727692 FAASt [Region 4 -Caguas Group A] High
3701-02	Density (Vegetation)
2701-02	727694 FAASt [Region 4 -Caguas Group C]
3602-03	(Vegetation)

f. All existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the scope of work. When poles, assemblies, and attached components are not being replaced per the scope of work, all assemblies and components will be re-installed to the pole, with the overhead conductor re-attached to complete the installation and reconstruction of the feeder.

g. All work for this program will be performed within the current electrical right-of- way.

2) Debris will be separated and taken to an authorized waste disposal facility.

3) The construction of **access roads** is not required for this scope of work. Poles are close to the roads and are site accessible.

4) **Staging area** requirements were considered for the new equipment to be installed and the equipment to be retired. All materials will be stored and dispatched from the assigned LUMA's Regional Warehouse. Refer to document Warehouse Locations. The warehouse assigned to this project is this projects are:

Warehouse	Address	Latitude	Longitu
Humacao District Warehouse	#3 Street 82.3KM Humacao, PR	[redacted]	[redacted]
Caguas Regional Warehouse	#1 Street, Jose Mercado Corner, Caguas, PR	[redacted]	[redacted]

5) Fill, gravel, and sand **materials** will be obtained from an approved supplier as referenced in the document *LUMA Vendor Directory List.*

6) The **equipment** to be used is *a Skid Steer, Excavator, Dump truck, Manlift, 120-ton*

Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, and Flatbed platform trailer.

7) Specific List of **Permits Required**:

a. Department of Transportation and Public Works - ("DTOP") Endorsements & Municipality Notifications
b. Excavation and Demolition Notification in t h e Department of Transportation and Public Works Agency - ("DTOP")

6.0 CODES AND STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

1. Consensus-based codes, per FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020).

2. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the

Public Assistance Program.

3. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

4. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

8.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information and is subject to being updated. LUMA has allocated 10% of the project cost to mitigate known risks. For more details refer to ***APPENDIX B - LUMA Project Cost Estimate.***

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$201,141.85**	**$-**	**$201,141.85**
MANAGEMENT	**$96,846.24**	**$-**	**$96,846.24**
LPCE Distribution Automation Group 37	**$1,972,208.53**	**$-**	**$1,972,208.53**
GENERAL CONDITIONS	**$97,654.60**	**$-**	**$97,654.60**
COST TOTALS	**$2,367,851.22**	**$-**	**$2,367,851.22**
DEDUCTIONS		**TOTAL INSURANCE PROCEEDS RECEIVED**	**$-**
		DE-OBLIGATION TO FAASt IF APPLICABLE	**$-**

FAASt ALLOCATIONS	FAAST PROJECT # 800361 - 428	**$1,596,192.73**
	FAAST PROJECT #800361 - 406 HM	**$-**
	FAAST PROJECT # 800361 TOTAL:	**$1,596,192.73**
	FAASt A&E # 335168 - 428	**$297,988.09**
	FAASt A&E # 335168 - 406 HM	**$-**
	FAASt A&E # 335168 TOTAL	**$297,988.09**
	FAASt E&M #673691 - 428	**$473,670.40**
	FAASt E&M #673691 - 406 HM	**$-**
	FAASt E&M #673691 TOTAL	**$473,670.40**

DI# 1490781 Work to be Completed (WTBC): **$2,367,851.22**

A&E Deduction (428- FAASt A&E Project # 335168): **-$297,988.09**

Equipment & Material Deduction (428- FAASt E&M Project # 673691): **-$473,670.40**

Project Total Cost: **$1,596,192.73**

Project Cost Estimate notes:

1. Refer to detailed SOW provided in document “For this section see file: " 800361-DR4339PR- DSOW Group 37-Rev. 1.pdf”
2. Refer to detailed cost estimate provided in document “800361-DR4339PR-Cost Estimate-Group 37- Rev. 1.xlsx”.
3. This project is part of a FAAST project, please reference project 136271.
4. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168 A&E, as shown in the table above. The A&E project was obligated to track and account for cost associated with individual FAASt projects.
5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project Group 37 Automation FAASt 800361.

9.0 ATTCHMENTS

800361-DR4339PR-APPENDIX A - Initial Scope of Work 800361-DR4339PR-APPENDIX B - LUMA Project Cost Estimate 800361-DR4339PR-APPENDIX C - Project Considerations 800361-DR4339PR-APPENDIX D - LUMA’s Active Project

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in Version 0. However, there may be mitigation opportunities that will apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,367,851.22	Uncompleted
3510	1	Lump Sum	($297,988.09)	Uncompleted
9001	1	Lump Sum	($473,670.40)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$1,596,192.73
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,596,192.73
Federal Share (90.00%)	$1,436,573.46
Non-Federal Share (10.00%)	$159,619.27

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

09/16/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Patricia A. Perez, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

5/12/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any

FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

- Executive Order 11988 - Floodplain Conditions for Feeders 2701-02, 3406-01 and 3701-02: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 2701-02: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120
- Endangered Species Act (ESA). The below conservation measures apply to the following species: Puerto Rican Parrot (Amazona vittata) for Feeder 2701-02; Puerto Rican Plain Pigeon (Patagioenas Inornata Wetmorei) for Feeders 3406-01 and 3602-03; Puerto Rican Broad-Winged Hawk (Buteo platypterus brunnescens) for Feeder 2701-02. 1. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside the breeding season no nest surveys are required, but if a nest is encountered, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: - Puerto Rican parrot: February-June. - Puerto Rican plain pigeon: April-September. - Puerto Rican broad-winged hawk: December-June. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. For questions, the Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Program Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: jose_cruz-burgos@fws.gov
- -The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. -The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. -Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant

items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.

- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (2701-02; 3406-01; 3602-03; and 3701-02). 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harms way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)**.

Final Reviews

Final Review

Reviewed By Diaz Rodriguez, Sheila M. **Reviewed On** 07/01/2025 1:17 PM PDT

Review Comments

This project has been reviewed, found eligible and cost reasonable, and it is ready to continue the award process.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/11/2025 2:18 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

General Info

Project #	800361 **P/W #** 108078	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1490781; FAASt [Automation Program Group 37] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 37
- **Facility Description:** Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 37: Caguas Region Feeder 2701-02 Caguas Region Feeder 3406-01 Caguas Region Feeder 3602-03 Caguas Region Feeder 3701-02
- **Approx. Year Built:** 1970
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1490781 **FAASt [Automation Program Group 37] (Distribution)**

********** **Version 1**********

Version 1 has been created to capture change in scope and cost as per Applicant provided documentation. LUMA requests the alignment of the scope and cost of Project 800361 with the mitigation proposal.

Version 0 costs will be fully de-obligated to avoid any duplication of costs. SOW from previous Versions has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and it may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project 800361 Automation Program Group 37 (Distribution) under DR-4339PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to “Subrecipient” herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

As part of the electrical grid rebuild, LUMA developed a Transmission & Distribution Automation Program (“Program”) through which it will install advanced technology equipment (i.e. , reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA’s transmission and distribution (“T&D”) system, the Program will be implemented through multiple projects across the island on both T&D systems. The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently.

Automation is necessary to add modern resiliency capabilities to the T&D system. The 3.2 million residents throughout Puerto Rico are dependent upon the successful completion of the Program and its ability to sustain the power grid in future disasters.

Project 800361 is one of the Program’s distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System (“EMS”) and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 2701-02, 3406-01, 3602-03, and 3701-02.

Key components of this project are: (1) pole replacement, (2) the three-phase reclosers and single-phase reclosers, and (3) the installation of cFCIs. Each of these components and their benefit to the grid are described further below:

(1) Pole Replacement to Accommodate the Installation of Reclosers

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e. , poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments.

In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

(2) Feeder Reclosers

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults—whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser’s wireless communication capability will provide connectivity to LUMA’s EMS so the system operator knows their status and can remotely control them. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing six (6) three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of fifteen single-phase reclosers.

(3) Communicating Fault Current Indicators

Install communicating fault current indicators ("cFCI") at strategic locations to improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. cFCI operate independently of the feeder reclosers. cFCIs help identify permanent and incipient faults in the distribution system and collect voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

Data sent to the EMS aids the grid operator in making decisions on operations, management and restoration. The cFCI can be programmed to send automatic notifications/alarms based on userset parameters. This allows for quick dispatch of field crews to specific sections of the feeders and reduces the total restoration time during an outage event. Installation of the three-phase reclosers and the communicating fault current indicators (communications ready) is critical for the EMS to efficiently mitigate the loss of service and potential damages in future disasters.

This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics, as these feeders are using cellular technology for communications with the operations center. LUMA has developed this scope for reclosers and their associated hardware only. The lack of fiber optics as a method of transmitting information in this scope of work does not prevent or limit the monitoring capabilities of the reclosers and cFCIs or the automation capabilities of the reclosers on these feeders, nor does it prohibit the incorporation of fiber optics at a later date.

7.0 FACILITIES

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

· None

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, the coordinates listed below are the beginning and end points.

A. Facilities for Automation Group 37 Feeder Lines

Name	Feeder Number	GPS Start	GPS End
Caguas	2701-02	[redacted]	
Caguas	3406-01		
Caguas	3602-03		
Caguas	3701-02		

Note: Please refer to APPENDIX B - Project Considerations for a list of all GPS locations that this project will impact.

B. Staging Area

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse that will be used for this project is the Caguas Regional Warehouse, whose address is #1 Street Jose Mercado's Corner, Caguas PR. The warehouse coordinates are [redacted]. The staging area will be located Caguas in the coordinates [redacted].

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

A map of the project area is not available at this time.

9.0 SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to

locally-adopted codes/standards and/or FEMA-approved industry standards.

In the obligated submission (Version 0), LUMA proposed:

· Removal and replacement of seventeen (17) damaged poles.

· Install four (4) new poles.

· Install six (6) Three-Phase Reclosers.

· Install fifteen (15) Single-Phase Reclosers, remove fuses and close jumpers.

· Install twenty-one (21) communicating Fault Indicators (cFCIs).

· Install seven (7) transformers.

LUMA requests the alignment the scope and cost of Project 800361 with the approved 406

mitigation proposal from Project 746309 FAASt [Automation Program Group 30], including

· Pole replacement to accommodate recloser installation: 406 Mitigation will fund the

additional cost for pole strengthening (i.e., 428: remove the existing pole and replace with a round galvanized, 406 install a 12-sided galvanized).

· Feeder reclosers: 406 Mitigation will fund 100% of the cost of three-phase reclosers on feeder backbone and the additional cost (delta) for the replacement of the fuse cutouts for single-phase reclosers on lateral circuit lines.

· Communicating Fault Current Indicators: 406 Mitigation will fund the additional cost for the replacement of Fault Current Indicators (FCIs) with communicating Fault Current Indicators (cFCIs).

· Distribution Transformers: 406 Mitigation will fund the installation of 1kVA stainless steel transformers to serve either the load or source side of the three-phase recloser. 406 Mitigation will fund the additional cost (delta) for the replacement of galvanized transformers with stainless steel transformers.

The obligated DSOW included new pole installations. The revised DSOW aligns the scope of these poles with a 406 Mitigation proposal approved by FEMA.

As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

· Air Break Bypass Switches

  o Air Break Bypass Switches are essential equipment of LUMA design standards for the Three-Phase Recloser. The cost of these switches was involuntarily omitted in the previous estimate. They are included in this proposed version. The purpose of this equipment is to isolate the recloser in case of failure or maintenance and keep the three-phase circuit energized while the situation is resolved.

For more information, refer to the amendment letter of this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

Below is a breakdown of the “Proposed 428 Public Assistance Scope of Work” proposed for feeders of this group.

Feeder 2701-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
5421009	[redacted]	(ASSY-1509)	(E-1-2-3) (F-1-3)	· Remove and dispose fuse cutout. · Install (3) Fuse cutout blades · switch. · Install Surge arresters. · Install Down guy
11039169	[redacted]	(45 FT C2 WOOD POLE) (CP-C6-XARM) (E- 1-2-3) (F-1-3)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	· Remove and dispose 45ft class 2 wood Pole. · Replace pole for a 50ft galvanized Round Tapered pole. · Install Three-Phase Horizontal Fuse Blade Switches. · Remove, dispose and Replace Crossarm and primary Framing. · Remove and dispose fuse Cutout. · Install Surge Arresters. · Remove and dispose anchor and downguy.

5420894	[redacted]	(45 FT C2 WOOD POLE) (CP-C12- XARM) (K-7) (STL-10)	(50ft GALVANIZED ROUND TAPEREDPOLE) (K-7) (STL-10) (ABS-3-XARM)	· Remove and dispose 45ft class 2 wood Pole. · Replace pole with for a 50ft Galvanized Round Tapered pole. · Remove, dispose and replace Primary framing. · Remove, dispose and replace Secondary Framings (k-7) · Remove, dispose and Replace Streetlight (LED Type) · Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
10517058	[redacted]	(ASSY-1509)	(ASSY-1509)	· Remove and dispose fuse cutout. · Install (3) Fuse cutout blades switch.
11039409	[redacted]	(35 FT C4 WOOD POLE) (CP-C1)	(50ft GALVANIZED ROUND TAPERED POLE) (ABS-3-XARM)	· Remove and dispose and 35ft Class 4 Wood Pole. Replace pole with a 50ft Galvanized Round Tapered pole. · Remove, dispose, and replace Primary framing. Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
10170621	[redacted]	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators

11039728	[redacted]	(35 FT C4 WOOD POLE) (CP-C1)	(50FT GALVANIZED ROUND TAPERED POLE) (ABS-3-XARM) (LABOR) (FCI(QTY=3)	· Remove and dispose 45ft class 2 wood Pole. Replace with a 50ft Galvanized Round Tapered Pole. · Remove, dispose, and replace primary framing. · Install Air Break Switch. · Install (3) Fault Current Indicators.

Feeder 3406-01

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50ft GALVANIZED ROUND TAPERED POLE) (E-1-2-3) (F-1-3) (ABS-3-XARM)	· Install a new 50ft round galvanized tapered pole. · Install spacer and primary framings. · Install AAAC spacer span. · Install (1) anchor and (1) downguy. · Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them
NEW POLE	[redacted]	NONE	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM)	· Install a new 50ft galvanized round Tapered pole. · Install primary and secondary framings.
1000746928	[redacted]	(SOLID BLADE QTY=3)	(REMOVE FUSES QTY =3)	· Remove, dispose and replace (3) Fuse Cutouts. · Install with (3) Fuse Cutout Solid blades.
1001368329	[redacted]	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators.

Feeder 3602-03

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
1001191193	[redacted]	(45ft-H4 CONCRETE POLE) (CP-C1) (E-1-2-3(QTY=2) (F-1-3 (QTY=2))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (ABS-3-XARM)	· Remove and dispose 45ft H4 Concrete pole. · Replace with 50ft galvanized round tapered pole. · Remove, dispose and Replace Primary framing. · Remove and dispose (2) Downguys and (2) anchors. · Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.
11004187	[redacted]	(45ft WOOD POLE) (CP-C3-VERT) (CPA5) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (K-7-4)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C3-VERT) (CP-A5) (STL-10) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=1)) (K-7-4)	· Remove and dispose 45ft wood pole. · Replace with a 50ft galvanized round tapered pole. · Remove, dispose and replace primary and secondary framing. · Remove, dispose and replace Streetlight (LED/ Type). · Remove, dispose (2) downguy. Replace only one. · Remove, dispose and replace (1) anchor.

10599697	[redacted]	(45FT S3 GALVANIZED STEEL POLE) (CP-A4) (E1-2-3 (QTY=2)) (F-1-3 (QTY=2))	(50FT GALVANIZED ROUND TAPERED POLE) (CP-A4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	· Remove and dispose 45ft S5 steel pole. · Replace 50ft galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove and dispose (2) anchors. Replace only (1) anchor. · Remove and dispose (2) downguys. Replace only (1) downhuy.
1001715052	[redacted]	(50ft-H4 CONCRETE POLE) (CP-C4) (CP-A5) (K-4) (E-1-2-3 (QTY=2)) (F-4-2 (QTY=2))	(50FT GALVANIZED ROUND TAPERED POLE) (CP-C4) (CP-A5) (K-4) (E-1-2-3 (QTY=4)) (F-4-2 (QTY=2))	· Remove and dispose 50ft H4 concrete pole. Replace pole with 50ft galvanized round tapered pole. · Install new addition (2) down guys · Remove, dispose, and replace primary and secondary Framing. · Remove, dispose and Replace (2) anchors. · Remove, dispose and replace (2) down Guys.
1001714773	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	· Remove, dispose and replace (1) fuse. · Labor to close Jumpers.
10599702	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	· Remove, dispose and replace (1) fuse cutout. · Labor to close Jumpers.

10593268	[redacted]	(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	· Remove, dispose and replace (1) fuse cutout. · Labor to close Jumpers.
10593257		(ASSY-1509 (QTY=1))	(LABOR TO CLOSE JUMPERS(QTY=1))	· Remove and dispose (1) fuse cutout. · Labor to close Jumpers.
Segment FID 14524508		N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators
Segment FID 1001714763		N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators

Feeder 3701-02

POLE FID	Coordinates Lat, Long	Existing (Remove)	428 Replacement	Scope of work
NEW POLE	[redacted]	NONE	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (ABS-3-XARM)	· Install new 50ft galvanized round pole steel pole in new location mid span. · Install primary Framing. · Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.

7514577	[redacted]	(CP-C1) (40-CLASS3-WOOD) (STL-10) (E-1-2-3(QTY:2)) (F1-3(QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (STL-10) (CP-C6-XARM) (E-1-2-(QTY=3)) (F1-3(QTY=1)) (F-4-2(QTY=1)) (ABS-3-ARM)	· Remove and dispose 40ft wood pole. · Replace with a 50ft galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose, and replace (2) anchors and down guys. · Remove, dispose, and replace streetlight (LED/ Type). · Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them
7514579	[redacted]	(40ft CLASS 3 WOOD POLE) (CP-C6-XARM) (T-1) (K-6) (K-5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (T-1) (K-6) (K-5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	· Remove and dispose 40ft Class wood pole. · Replace with 50ft galvanized round tapered pole. · Remove, dispose and replace primary framing. · Remove, dispose and replace secondary framings (K-5, K-6). · Remove, dispose and replace 50kva (4.80/8.32 kv - 120/240 v). · Remove, dispose and replace (2) anchor and (1) downguy.

7514588	[redacted]	(40ft CLASS 3 WOOD POLE) (CP-C6-XARM) (K-5) (K-6) (CP-A5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (K-5) (K-6) (CP-A5) (E-1-2-3(QTY=2)) (F-4-2(QTY=1))	· Remove and dispose 40ft Class wood pole. Replace with a 50ft galvanized round tapered pole. · Remove, dispose and replace primary and secondary framings. · Remove, dispose and replace (2) downguys and (1) anchor.
7515080		(ASSY1509) (QTY=3)	(LABOR & REPAIR)	· Remove and Dispose (3) Fuse Cutout. · Labor to close jumpers.
7514589		(ASSY1509)	(LABOR & REPAIR)	· Remove and dispose three (3) fuse cutouts. · Labor to close jumpers.
7517032		(ASSY1509)	(LABOR & REPAIR)	· Remove and dispose one (1) fuse cutouts. · Labor to close jumpers.
7514328		(ASSY1509)	(LABOR & REPAIR)	· Remove and dispose three (3) fuse cutouts. · Labor to close jumpers.
7514661		(ASSY1509)	(LABOR & REPAIR)	· Remove and dispose three (3) fuse cutouts. · Labor to close jumpers.

7518213	[redacted]	(35ft-C4 WOOD POLE) (CP-A6) (K-6) (K-5) (STL-10) (ASSY-1509 (QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-A6) (K-6) (K-5) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	· Remove and dispose 35ft C4 Wood pole. Replace pole with a 50ft galvanized round tapered pole. · Install (1) down guy. · Install (1) anchor. · Transfer primary and secondary framing. · Remove, dispose and replace (1) fuse cutout. · Remove, dispose, and Replace streetlight (LED Type)
7517312		(45ft -S3 STEEL POLE) (CP-A6) (K-7-A) (T-1)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-A6) (K-7-A)	· Remove and dispose 45ft steel pole. · Replace with a 50ft galvanized round tapered pole. · Remove, dispose and replace primary and secondary framing. · Labor to remove and dispose Transformer.
7515194		(50ft-C2 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM) (K-6) (E- 1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (ASSY-1509 (QTY=3))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C7) (K-6)	· Remove and dispose 50ft C2 wood pole. · Replace with 50ft galvanized round tapered pole. · Remove, dispose and replace (3) Fuse Cutouts. · Remove and dispose (1) downguy and (1) anchor.

7515195	[redacted]	(40ft-C3 WOOD POLE) (CP-C6-XARM) (K-7-B) (K-5) (STL-10) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1)) (E-2-1)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6-XARM) (K-7-B) (K-5) (STL-10) (T-1)	· Remove and dispose 40ft C3 Wood Pole. · Replace pole with a 50ft galvanized round tapered pole. · Remove, dispose, and replace primary and secondary framing. · Remove, dispose and replace streetlight (LED Type) · Remove and dispose stub pole. · Labor to transfer 37.5 KVA (4.80/8.32-120/240V) to new pole. · Remove and dispose (1) downguy and (1) Anchor.
7515189		(35ft- C4 WOOD POLE) (CP-C1)	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C1)	· Remove and dispose 35ft C4 wood pole. Replace pole with a 50ft galvanized round tapered pole. · Remove, dispose and replace framings.
3126238		(45ft-C3 WOOD POLE) (CP-A6) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	(50ft GALVANIZED ROUND TAPERED POLE) (CP-A6) (K-4) (E-1-2-3 (QTY=1)) (F-1-3 (QTY=1))	· Remove, dispose, and replace 45ft C3 wood pole. Replace pole with 50ft galvanized round tapered pole. · Remove, dispose and replace primary and secondary framing. · Remove, dispose and replace (1) anchor and (1) down guy. · Install (1) Fuse Cutout.
NEW POLE		NONE	(50ft GALVANIZED ROUND TAPERED POLE) (CP-C6 XARM) (K-1)	· Install new 50ft galvanized round tapered pole in new location mid span*. · Install primary and secondary framing.

10325939 [redacted]	ASSY-1509 (3)	CLOSE JUMPERS	· Remove, dispose and replace (3) Fuse Cutouts. · Close Jumpers.
7517419	ASSY-1509 (1)	CLOSE JUMPERS	· Remove, dispose and replace (1) Fuse Cutouts. · Close Jumpers.
SEGMENT FID 7512260	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators.
SEGMENT FID 8199518	N/A	(LABOR, FCI(QTY=3))	· Install (3) Fault Current Indicators.
7517049	ASSY-1509 (3)	SOLID BLADE CUTOUT (3)	· Remove and dispose (3) fuse cutouts. Replace with (3) Fuse Cutout Solid Blades.

Notes Regarding Proposed Work

1. Remove and replace poles, including hardware in the same location. If unable to install the replacement in the same location, the pole will be installed within the easement for overhead distribution lines. Easements are established with the purpose of providing LUMA reasonable access to its facilities, in order to maintain, repair, improve, operate, and expand facilities.

2. Existing wood poles are to be replaced by galvanized tapered poles, at the locations identified in the tables above. Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact) for the depths of the galvanized tapered poles.

3. New guy wires and anchors are to be installed within the easement for guys. The maximum distance an anchor will be installed for a 50ft pole is 25ft from the base of the pole, within the easement for guys.

4. Existing overhead conductors, poles, assemblies, and attached components will be disconnected, removed, and replaced as outlined in the Scope of Work column in the tables above. When existing overhead conductors, assemblies, and attached components are not replaced, they will be re-attached to the pole to complete the scope of work.

9.2 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

A. LUMA Overhead Electrical Distribution System Manual 4301.001 version 4, available in Grants Portal - Applicant Event Profiles.

B. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (February 2020).

C. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

D. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

E. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL (refer to document: 800361-DR4339PR-DSOW- Group 37- Rev 04- V1.pdf)

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

X Ground disturbance outside of existing footprint. If checked, provide a description of the

ground disturbing activities including the extent, location, and depth of the disturbance.

· Poles - Refer to APPENDIX B - Project Considerations, column C (soil area and depth impact), for the depths of the poles to be installed.

- Soil testing or boring to be performed as part of pre-construction activities. If checked,

provide a description, location, and dimensions of the testing/boring activities.

- Relocation of utilities. If checked, include a description of the relocation including the type of

utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X Vegetative Removal. If checked, describe the removal work to be performed, its location, and

its extent.

· Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The vegetation removal process will be managed in accordance with federal and state regulations. The costs related to vegetation clearance procedures are covered in the projects #727692 FAAST [Region 4 -Caguas Group A] High Density and #750066 [Region 4 -Caguas Group A] Low Density.

X Demolition. If checked, include a description of what will be removed and the extent and

depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

· Debris will be separated and taken to an authorized waste disposal facility. Information on location of temporary debris storage sites, final debris disposal location, and final debris disposal method is not yet available.

X Staging areas, landing areas for air transport, and access roads. If checked, provide GPS

location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

· Staging Area: All materials will be stored and dispatched from the existing LUMA

Regional Warehouses. The warehouse locations are described in Section 7.2 above.

LUMA has not yet identified any other additional staging areas that will require.

· Access Roads: New access roads are not needed for this project. All poles to be

installed, or removed and replaced, are adjacent to a road and work will be performed within the road easement.

X Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

· Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the following document: LUMA Vendor Directory List.

-Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

-Facility is over 45 years old. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

- Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

- Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to t Appendix A- LUMA Project Cost Estimate.

Cost Estimate			
Cost Element	428	406	**Project Total**
PLANNING	**$160,003.45**	**$62,564.80**	**$222,568.25**
MANAGEMENT	**$87,659.17**	**$35,534.48**	**$123,193.65**
LPCE Distribution Automation Group 24	**$1,532,462.95**	**$612,660.33**	**$2,145,123.28**
GENERAL CONDITIONS	**$73,453.48**	**$29.610.40**	**$103,063.88**
COST TOTALS	**$1,853,579.05**	**$740,370.01**	**$2,593,949.06**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAAST IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAASt Project #757689- 428		$1,514,451.93
	FAASt Project #757689 – 406 HM		$740,370.01
	FAASt Project # 800361 Total		**$2,254,821.94**
	FAASt A&E Project #335168 - 428		$174,540.79
	FAASt A&E Project #335168 - 406		$68,764.66
	FAASt A&E Project #335168 – Total		**$243,305.45**
	FAASt E&M Project #673691 – 428		$164,586.33
	FAASt E&M Project #673691 – 406 HM		$302,167.80
	FAASt E&M Project #673691 – Total		**$466,754.13**

Work to be Completed (WTBC): $1,853,579.05

A&E Deduction (Global A&E FAASt 335168): -$174,540.79 + $174,540.79 = $0.00 (See project note # 7)

E&M Deduction (Global E&M FAASt 673691): -$164,586.33 + $164,586.33 = $0.00 (See project note # 7)

Project Total: $1,853,579.05

Change requested (Version 1 – Version 0): $1,853,579.05 - $1,596,192.73 = $257,386.32

Summary key changes

Version 0: $1,596,192.73 (WTBC)

Version 1: $257,386.32 (WTBC)

Project Notes:

1. Refer to detailed SOW provided in document “800361-DR4339PR-DSOW- Group 37- Rev 04- V1.pdf”

2. Refer to detailed cost estimate provided in document “800361-DR4339PR-APPENDIX A- LUMA PROJECT COST ESTIMATE rev 04 - V1.xlsx”.

3. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.

4. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base costs of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

6. Since in previous version the A&E and E&M dollar amount was deducted, now in version 1 a positive value has been added with the same amount to zero out the cost.

7. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: ‘SP 800361 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.’”

8. For Attachments refer to:

   - 800361-DR4339PR-APPENDIX A- LUMA PROJECT COST ESTIMATE rev 04 - V1.xlsx
   - 800361-DR4339PR-APPENDIX B - Project Considerations.xlsx
   - 800361-DR4339PR-APPENDIX C- LUMA’s Active Projects.xlsx

406 HMP Scope

Project number: 800361; FAASt [Automation Program Group 37] (Distribution)

Damage #1490781; FAASt [Automation Program Group 37- (Distribution).

Subrecipient: PR Electric Power Authority (000-UA2QU-00)

Location: Caguas, Puerto Rico

GPS Latitude/Longitude: ([redacted]); ([redacted]).

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

As part of the electrical grid rebuild, the subrecipient developed a Transmission & Distribution Automation Program (“Program”) through which it will install advanced technology equipment (i.e., reclosers and communicating fault current indicators (cFCIs)) to reduce both physical damage and service interruptions to the electrical grid caused by disasters. Although the intent is to deploy automation equipment throughout PREPA’s Transmission and Distribution (“T&D”) system, the Program will be implemented through multiple projects across the island on both T&D systems.

The multiple projects within this Program are designed to fortify the electrical system's resilience, safeguard its infrastructure, and enhance service reliability during a disaster. The individual projects are interconnected and enhance each other, but each confers benefits independently.

Distribution Automation (DA) projects will be submitted regionally as components of the real time monitoring and automation network being installed on island. DA projects are physically incorporated into the distribution line network.

Project Overview:

DA Group 37 is one of the Program's distribution-level projects. It installs hardened poles and advanced technology equipment (specifically reclosers and cFCIs) to reduce physical damage and service interruptions to the distribution grid that could be caused by a disaster. Implementing reclosers, their communication kits, and cFCIs is critical for the Energy Management System ("EMS") and related components to function at their full capabilities and mitigate loss of service and physical damage in the event of future hurricanes. This project is necessary for the EMS to maintain the continuity of the distribution power grid on Feeders 2701-02, 3406-01, 3602-03 and 3701-02.

The purpose of this project is to install real time monitoring to mitigate cascading effects and physical damage to critical components, protects federal investments, and reduces outage times to facilities. Key components of this project are: (1) pole replacement, (2) three-phase and single-phase reclosers, and (3) the installation of cFCIs.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent and/or reduce future damages from similar events, the subrecipient proposed the following mitigation measures:

Mitigation Measures (Replacement)

Pole Replacement to Accommodate the Installation of Reclosers:

The addition of three-phase reclosers imposes additional load on poles due to the weight of the devices and their components. It also increases the area exposed to extreme weather conditions, such as hurricanes, thereby increasing the structural load requirements these poles must meet. Where an existing pole cannot accommodate a recloser, it will be substituted with a higher-class pole constructed from steel or concrete to ensure compatibility with the recloser and adherence to design criteria. This includes adjacent poles (i.e., poles that are on either side of the recloser pole supporting the overhead line conductors). Any new structure and foundation will be designed to LUMA design criteria and industry standards to support the pole, recloser, and its attachments. In addition, LUMA is using a per-location approach to pole replacement because of the intricate dynamics of deploying three-phase reclosers. Furthermore, the integration of more connections, switches, and related infrastructure often necessitates taller poles to meet phase spacing and circuit-to-circuit spacing requirements. The locations of three-phase reclosers are determined by an electrical analysis performed by the design engineers. In those instances where the recloser would be located on an existing wood pole, that pole will be replaced with a pole that meets the compounded structural demands presented by that recloser.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for **21ea** poles strengthening (pole class, concrete base, and additional guywire).

Pole Description:

a) 45ft S5.7 12-sided galvanized steel poles = 5ea

b) 50ft S8.5 12-sided galvanized steel poles = 16ea

Feeder Reclosers:

Reclosers are sophisticated devices that remotely detect faults within distribution lines, enable the isolation of circuit breakers linked to those faults —whether due to independent failures or breakdowns—and facilitate the swift restoration of power, often within milliseconds. This project will install three-phase and single-phase reclosers.

Three-Phase Recloser: A three-phase recloser is a protection device that is used on three-phase distribution feeders with high fault currents at the location. It is a single device with three switches that can open to interrupt fault currents and automatically reclose to restore power. Three-phase reclosers are communication-ready to enable remote control and visualization. The recloser's wireless communication capability will provide connectivity to LUMA's EMS so the system operator knows their status and can remotely control them.

The implementation of three-phase reclosers will preserve the continuity of electric services and avoid physical damage by pre-empting or minimizing disruptions. The three-phase reclosers can be triggered remotely and provide data back to the operations center, enabling LUMA to prioritize restoration activities, reduce customer outage time, and minimize the potential for cascading infrastructure damage. Installation of the three-phase reclosers and associated hardware is critical for the EMS and associated components to function with full capabilities, and to prevent loss of service and potential damage from future disasters. In this project we are installing three three-phase reclosers.

Single-Phase Reclosers: A single-phase recloser is a single protection device with one switch that can open to interrupt fault currents and automatically reclose to restore power. A single-phase recloser performs the same functions as a three-phase recloser, but it does not have the ability to communicate with the EMS. This project will install single-phase reclosers on single-phase or two-phase distribution feeder and distribution lines branching from the feeder. Single-phase reclosers will also be used on feeders with three phases if fault currents are low at the location. In this project we are installing a total of two single-phase reclosers.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 15ea fuse cutouts with **15ea** single-phase reclosers and the installation of **6ea** three-phase reclosers.

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Communicating Fault Current Indicators:

Installation of communicating fault current indicators ("cFCI") at strategic locations improves the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCIs operate independently of the feeder reclosers and help identify permanent and incipient faults in the distribution system, as well as collect voltage and current data, which can be used to detect system imbalance, prevent future issues due to harmonics and help in building a predictive failure model.

cFCIs help reduce physical damage on the system by providing real-time monitoring and early detection of abnormal conditions. Essentially, cFCIs act as the eyes and ears of the system, reducing wear and tear by allowing quick, intelligent responses instead of waiting for catastrophic failure.

Benefits of cFCIs include:

Early Fault Detection: cFCIs can detect issues like overcurrent, overvoltage, temperature rise, or partial discharge before they escalate into major faults. This allows for proactive repair or shutdowns, preventing physical damage to transformers, lines, and other components.

Fault Location: cFCIs help quickly locate faults on the line (like short circuits or open conductors). This minimizes the time the system operates under stress, reducing the risk of cascading failures and associated mechanical damage.

Load Monitoring: By constantly measuring the current and voltage, sensors help ensure that equipment is not overloaded. Overloads can cause overheating and physical wear on cables, breakers, and other components.

Lightning and Surge Detection: cFCIs detect transient surges caused by lightning or switching. By identifying these events, protective measures can be optimized to prevent insulation breakdown or physical burnout.

SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis. Integration helps in several ways:

Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.

Automated Alerts: If a cFCIs detects anomalies (e.g., a line sag or high current), SCADA immediately alerts operators for quick action—preventing physical stress or failure.

Remote Control: In response to cFCI data, SCADA can remotely open/close breakers or switches, isolating the problem before it spreads.

Predictive Maintenance: Historical data trends help predict insulation degradation, hotspot development, or corrosion—allowing scheduled repairs before damage occurs.

Protection systems (relays, breakers, reclosers, fuses) work closely with cFCIs to respond automatically to faults:

Fast Trip Commands: cFCIs detect faults faster and more precisely. They send data to protection relays, which then trip the appropriate breakers/reclosers.

Adaptive Protection: With real-time data from cFCIs, settings can be dynamically adjusted to match system conditions (e.g., load variations), preventing unnecessary trips or stress on components. Fault Location and Isolation: cFCIs help pinpoint the fault location, enabling automatic or operator-assisted sectionalizing—reducing the impact area and protecting healthy parts of the system.

Communication-Based Protection: In modern smart grids, cFCIs can communicate DNP3 protocols with reclosers, creating a fast, coordinated protection scheme.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 21ea fault current indicators (FCIs) by 21ea communicating fault current indicators (cFCIs).

Stainless Steel Transformer (50 kVA):

Galvanized steel transformers are being upgraded to high-strength stainless steel. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also prevents debris impact better than galvanized steel. Transformer failure poses harm to the equipment and the public due to resulting loss of power. Therefore, the subrecipient proposes replacing the galvanized transformers with stainless-steel transformers located more than one mile from the shoreline as the existing transformers across the island suffer from corrosion, not just the ones close to the seashore.

Stainless steel transformer tanks offer several advantages over galvanized steel and other materials, including durability, overall strength, and corrosion resistance, therefore mitigating against damage in future disasters. Stainless steel is a high- strength material that can withstand a variety of harsh conditions that transformers are subjected to before, during, and after a hurricane, such as high temperatures, extreme pressures, and physical impact. They are made of non-combustible materials, so they resist fire more effectively than other materials often used in transformer construction, such as painted steel. This reduces the likelihood of fires which place the system at risk of further damage and neighborhoods at risk of life and property damage after a storm.

By upgrading to this material, the subrecipient will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure.

As a mitigation strategy, 406 HM will fund the additional cost (delta) for the replacement of 1ea galvanized transformer by 1ea stainless steel transformer.

Mitigation Measures (Supplementary)

Stainless Steel Transformer (1kVA):

To enable the operation of three-phase reclosers, it is essential to connect a 120/240V AC voltage source. In areas where this voltage is accessible, the recloser will be linked to the existing secondary line, ensuring that these facilities possess the capability to handle the load produced by the recloser. In instances where the necessary infrastructure to supply voltage to the recloser is absent, 1 kVA distribution transformers will be installed. The 1kVA Stainless-Steel transformer supplies low-voltage power to operate the control system of the three-phase reclosers, which includes protection, automation, and communication functionalities. This ensures that the intelligent features of the recloser operate reliably, even in the event of a medium-voltage power interruption.

As a mitigation strategy, 406 HM will fund the installation of 6ea 1kVA stainless steel transformers.

Radio communication kit for three phase reclosers:

The recloser's wireless communication capability will provide connectivity to LUMA's EMS in order to the system operator knows their status and can remotely control the 3-phase reclosers. Deployment of the wireless communication devices includes configuration, testing, and commissioning of the wireless communication device, all networking devices, data acquisition, and control systems that form the connectivity path of the recloser to the EMS. Therefore, as part of the installation of the 6ea 3-phase reclosers it will be necessary to install communication radios and commissioning for the operation of the reclosers (wireless connection).

As a mitigation strategy, 406 HM will fund the installation of 6ea Radio communication kit.

(III) Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 575,808.82
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 64,561.19
Hazard Mitigation Total Cost =	$ 740,370.01

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 302,167.80
Architecture and Engineering (A&E) =	$ 68,764.66
Construction Cost =	$ 369,437.55
Hazard Mitigation Total Cost =	$740,370.01

(V) HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of $ 740, 370.01. In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is $4,986,820,319.62. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements. See the Mitigation Profile Documents Tab in Grants Manager for the complete supporting documentation, including the HMP cost estimate and supporting documents file.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,367,851.22	Uncompleted
3510	1	Lump Sum	($297,988.09)	Uncompleted
9001	1	Lump Sum	($473,670.40)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	($2,367,851.22)	Uncompleted
9001	1	Lump Sum	$473,670.40	Uncompleted
3510	1	Lump Sum	$297,988.09	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$1,853,579.05	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted

CRC Gross Cost	$1,853,579.05
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,853,579.05
Federal Share (90.00%)	$1,668,221.15
Non-Federal Share (10.00%)	$185,357.90

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

09/16/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Patricia A. Perez, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

5/12/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any

FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.

- Executive Order 11988 - Floodplain Conditions for Feeders 2701-02, 3406-01 and 3701-02: Applicant must obtain any required permits from the Puerto Rico Permits Management Office (OGPe) prior to initiating work and comply with any conditions of the permit established by the Planning Board (JP) for constructions in floodplains. All coordination (emails, letters, documented phone calls) pertaining to these activities and compliance must be provided and maintained in the Applicants permanent files.
- Executive Order 11990 - Wetlands Conditions for Feeder 2701-02: The Applicant shall ensure best management practices are implemented to prevent erosion and sedimentation to surrounding, nearby or adjacent wetlands. To ensure that wetlands are not adversely impacted, per the Clean Water Act and Executive Order 11990, equipment storage and staging of construction materials and machinery must be in a location that would prevent erosion and sedimentation.
- 5. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. Data will also include a photo of the animal (dead or alive), relocation site GPS coordinates, time and date of the relocation, and comments on how the animal was detected and its behavior. 6. If any PR or VI boa (dead or alive) is found within the Action Area and on harms way, the action will stop, and information will be recorded (see #5). All attempts will be made to immediately safely capture and relocate the animal within suitable habitat (forested) at least 1km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project starts and sites shared with the Service for revision and concurrence. Relocation of PR boas will be conducted by trained, designated personnel ensuring the animal is not harmed or injured during the capture and relocation process. 7. Measures will be taken to avoid and minimize PR boa and VI boa casualties by heavy machinery or motor vehicles being left in the Action Area. - Any heavy machinery left on site (staging areas) or near potential PR or VI boa habitat will be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the heavy machinery. If a PR boa or VI boa is found within vehicles or heavy machinery, boas will be safely captured accordingly. If not possible, the animal will be left alone until it leaves the vehicle or machine by itself. - The PR boa and VI boa may seek shelter within debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in new debris piles as a result of project activities. New debris piles should be placed in areas as far as possible from forested areas. Prior to moving, disposing, or shredding, debris piles should be carefully inspected for the presence of PR boas and VI boas. If debris piles will be left on site, we recommend they be placed in an undisturbed area. - In the event a PR boa and VI boa is found dead within the project area, the Federal Agency and the Recipient must contact the Service to appropriately dispose the animal. - If a PR boa or a VI boa is accidentally injured or killed during capture and relocation activities during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. - Should the forms of take reach the amount of exempted take during the Action, the Federal Agency and the Recipient shall terminate the authorized activities and contact the Service within 24 hours to reinitiate consultation. The Federal Agency will consult with the Service to determine whether authorized activities should continue as proposed and whether modifications are warranted. For questions and to submit reports, the Services Point of Contact (POC) is José Cruz-Burgos, Endangered Species Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120
- Endangered Species Act (ESA). The below conservation measures apply to the following species: Puerto Rican Parrot (Amazona vittata) for Feeder 2701-02; Puerto Rican Plain Pigeon (Patagioenas Inornata Wetmorei) for Feeders 3406-01 and 3602-03; Puerto Rican Broad-Winged Hawk (Buteo platypterus brunnescens) for Feeder 2701-02. 1. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973, as amended. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside the breeding season no nest surveys are required, but if a nest is encountered, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: - Puerto Rican parrot: February-June. - Puerto Rican plain pigeon: April-September. - Puerto Rican broad-winged hawk: December-June. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. For questions, the Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Program Coordinator, and can be contacted at: . Mobile: 305-304-1386 . Office phone: 786-244-0081 . Office Direct Line: 939-320-3120 . Email: jose_cruz-burgos@fws.gov
- -The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. -The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements. -Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant

items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds.

- Endangered Species Act (ESA) Conditions for the Puerto Rican Boa (Chilabothrus inornatus) for feeders (2701-02; 3406-01; 3602-03; and 3701-02). 1. Inform all project personnel about the potential presence of the Puerto Rican (PR) boa and Virgin Islands (VI) boa in areas where the proposed work will be conducted and provide training on PR and VI boa identification. A pre-construction meeting will be conducted to inform all project personnel about the need to avoid harming these species. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the Endangered Species Act of 1973. An educational poster or sign with photo or illustration of these species will be displayed at the project site. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area and any area to be excluded and protected will be clearly marked in the project plan and in the field to avoid further habitat degradation outside of the footprint of the project. 3. Once areas are clearly marked, and right before the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), biologist or designated project personnel with experience on these species will survey the areas to be cleared to verify the presence of any PR or VI boa within the Action Area. If a PR or VI boa is found during the search, it should be captured and managed as per #6 below. Once the removal of vegetation begins, the biologist or designated personnel must remain at the work site and be ready to capture any boa that might be in harms way as the result of the habitat disturbance (see #6). 4. For VI boas, once the Action Area has been searched, vegetation will be cut about one meter above ground prior to the use of heavy machinery for land clearing. Cutting vegetation by hand will allow VI boas present on site to move away on their own to adjacent available habitat. If there is no suitable habitat adjacent to the project site, any VI boa found will be relocated accordingly (see #6).
- ***Disregard previous conditions.***
- ***Disregard previous conditions.***
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- ***Disregard previous conditions***
- ***Disregard previous conditions***
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 37] (Distribution) (HM Cost Alignment)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/29/2026 9:08 PM PDT

Review Comments

Version 1 contemplates $1,668,221.15, (federal share) for the installation of intelligent reclosers, single phase reclosers and fault current indicators as part of the mitigation measures that will contribute to the stability of the system, its resilience and efficiency for all the 38kv lines and distribution feeders. The scope of the program consists in the installation of intelligent reclosers, single phase reclosers and fault current indicators as part of the mitigation measures that will contribute to the stability of the system, its resilience and efficiency. HM cost to be included in next version.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 10/01/2026 2:26 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Miller, Thomas **Reviewed On** 07/16/2026 3:19 PM PDT

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $1,853,579.05 for subaward number 108078 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	9/17/2025	$1,436,573.46	90%	Accepted	4339DRPRP01080781
1	10/8/2026	$231,647.69	90%	Accepted	4339DRPRP01080781

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	817956 **P/W #** 108119	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Feeder Rebuild # 1303-02] (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1414781; FAASt [Feeder Rebuild # 1303-02] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [Feeder Rebuild # 1303-02] (Distribution)
- **Facility Description:** Feeder 1303-02 supplies suburban and rural loads in the municipality of San Juan. Feeder 1303-02 is approximately 0.49 circuit miles long with a three-phase overhead distribution conductor. It starts at Villa Betina substation ([redacted]). For more details and a list of all GPS locations to be impacted by this project. LUMA will remove and replace 17 poles and install one (1) new pole along the feeder backbone. All new poles will be located within the easement.
- **Approx. Year Built:** 1967
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1414781 **FAASt [Feeder Rebuild # 1303-02] (Distribution)**

INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and may include § 406 hazard mitigation

proposals ("HMPs"). According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs,

including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or

delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients

must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part

C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project #817956 Distribution Feeder Rebuild #1303-02 under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document. LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

PROJECT DESCRIPTION

Feeder 1303-02 supplies suburban and rural loads in the municipality of San Juan. Feeder 1303-02 is approximately 0.49 circuit miles long with a three-phase overhead distribution conductor. It starts at Villa Betina substation [redacted]). For more details and a list of all GPS locations to be impacted by this project, please refer to Section 8.0 and Appendix A – Structural Pole Analysis.

LUMA will remove and replace 17 poles and install one (1) new pole along the feeder backbone. All new poles will be located within the easement. Refer to Appendix A – Structural Pole Analysis, which includes the pole FID, coordinates, type of pole to be installed, type of pole and hardware to be removed, and whether it has a concrete foundation. This scope of work also includes the installation of poles and guy wires within the existing easement. In some cases, guy wires and anchors will fall outside of the existing easement, as shown in Appendix D – Right of Way Plan. At this stage of the project, the easement for the proposed design has been identified and a certified surveying process will be executed later to confirm the easement limits.

FACILITIES

FACILITIES LIST

The electrical feeder 1303-02 serves 2,435 customers along a route to various locations.

Feeder Number	Feeder Name	Customers Counts	GPS Start	GPS End	Phase	Voltage Level (kV)	Construction Date
1303-02	Villa Betina 1303-02	2,435	[redacted]	[redacted]	3-Phase	13.2	More than 20 years

Appendix A – Structural Pole Analysis includes a list of all GPS locations for all poles impacted by this project.

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

Please see Project Area Map inside Detailed Scope of Work Rev. 1-pages-4 and 5.

Also refer to Appendix D – Right of Way Plan for aerial pictures also with identified poles and to

Appendix B – LUMA Drawings OH Design.

428 SCOPE OF WORK

The proposed type of work for this project:

[X] Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

[ ] Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

[ ] Subrecipient's request letter included, see Appendix ___.

[ ] Recipient's approval letter included, see Appendix ___.

[ ] Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

[ ] Subrecipient's request letter included, see Appendix ___.

[ ] Recipient's approval letter included, see Appendix ___.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

The tables below summarize the § 428 PA scope of work.

A. Poles

i. Remove and replace seventeen (17) poles to comply with structure loading cases along the feeder backbone. The pole types and quantities are described in the table below.

ii. Install one (1) additional pole to comply with structure loading cases along the feeder backbone. The pole type and quantity is described in the table below.

iii. Remove existing hardware and replace with new hardware.

iv. Depths of the poles to be replaced are provided in Appendix A – Structural Pole Analysis, column E. Pole depths are 7 feet and 7.70 feet. The maximum pole diameter is 23 inches.

v. Remove nine (9) halogen lighting on three (3)-phase primary poles and replace with a nine (9) new LED luminaire. Transfer existing LED lighting to new poles. See Appendix A – Structural Pole Analysis for information on pole FIDs, and coordinates of luminaire transfers.

vi. Remove and dispose of the 17 existing distribution line poles with their related components.

vii. The majority of work to be completed will be under the public domain (10 feet wide from the center line, as per the existing PREPA easement) of state highway PR-176. For work that is outside of the public domain (installation of certain guy wires and anchors, refer to Appendix D – Right of Way Plan) an easement will be obtained per the PREPA Easement Regulation No. 7282. Poles with new easements and encroachments are included as part of the engineering design.

Poles to Be Removed and Replaced

Poles to Be Removed	Poles to Replace the Removed Poles	Quantity (Ea.)
Pole to be removed, 45’ concrete H3	Electrical utility pole, steel galvanized, 12-sided, tapered shaft, 50' S-8.5	10 (refer line 46 of the LPCE)
Pole to be removed, 45’ concrete H3	Electrical utility pole, steel galvanized, 12-sided, tapered shaft, 50' S-10	4 (refer line 47 of the LPCE)
Pole to be removed, 45’ concrete H4	Electrical utility pole, steel galvanized, 12-sided, tapered shaft, 55' S-8.5	2 (refer line 48 of the LPCE)
Pole to be removed, 45’ concrete H3	Electrical utility pole, steel galvanized, 12-sided, tapered shaft, 55' S-8.5	1 (refer line 48 of the LPCE)
	Total	**17**

New Pole to Be Installed Description Quantity

Description	Quantity (Ea.)
Poles to be installed, steel galvanized, 12-sided, tapered shaft, 50' S-8.5	1 (refer line 46 of the LPCE)
Total	**1**

B. Concrete Bases

i. Install four (4) new concrete foundation bases at locations provided in **Appendix F – Project Considerations** (see columns D and L). The table below summarizes the types of bases installed, their quantity, the volume of concrete per type of base, and the total volume of concrete installed for all bases of a certain type. Refer to Section 11.0 (letter A) for information on ground disturbance of the concrete bases.

Concrete Base Description	Volume of Concrete per Base (CY)	Quantity (Ea.)	Total (CY)
Precast Concrete Base for 50- S8.5, 55-S8.5, 60-S8.5, and 65-S8.5	3.35	1	3.35 (refer to line 42 of the LPCE)
Concrete Bases for 60'-S10, 60'-S13	6.11	3	18.33 (refer to line 42 of the LPCE)
	Total	**4**	**21.68**

*Precast Concrete Base Volume Formula / 50' or 60'-S8.5 = {[(p*1.66^2*14.5) - (p*1.1^2 *9.8)] / 27} = 3.35CY

**Precast Concrete Base Volume Formula / 50'-S10 and 60'-S13 = {[(p*2^2*16) - (p*1.1^2 *9.8)] / 27} = 6.11CY

C. Steel Galvanized Transformers

Steel Galvanized Transformers	Interconnection Voltage	Quantity (Ea.)
50 kVA	13.2 kV	1 (refer to line 50 of the LPCE)
	Total	**1**

i. Remove one (1) 50 kVA transformer and replace with one (1) new 50 kVA stainless-steel unit in compliance with current codes and standards for replacement and design. Transformer quantities are described in the table below.

D. Guy Wires / Anchoring

i. Install twenty-one (21) new guy wires, twelve (12) expansion anchors, and one (1) screw type anchor in compliance with the LUMA Overhead Electrical Distribution System Manual, available in Grants Portal - Applicant Event Profiles.

Description	Quantity (Ea.)
Guy Wires 1/2”	21 (refer to line item 34 of LPCE)
Expansion Anchor	12 (refer to line item 35 of LPCE)
Screw Type Anchor	1 (refer to line item 36 of LPCE)

E. Conductors

i. Remove one hundred and four (104) hundred feet of existing conductors and replace with 103.62 C.L.F. of new 556 ACSR conductor per LUMA codes and standards. The conductor quantity is described in the table below.

Description	Quantity (C.L.F.)
556 ACSR Conductor	103.62 (refer to line item 49 of LPCE)

CODES & STANDARDS

Per FEMA’s SOP, the locally adopted codes/standards and/or FEMA-approved industry standards used for this project are provided below:

1. LUMA Overhead Electrical Distribution System Manual, version 4.0, available in Grants Portal - Applicant Event Profiles.

406 HAZARD MITIGATION PROPOSAL

FEMA PAPPG v.3.1 provides, "Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects." The subrecipient proposes to lessen or eliminate long-term risk to people and property from future natural hazards and their effects by performing the work described in this project to Subrecipient’s Distribution Design Criteria, which exceeds required codes and standards. Doing so will directly reduce the potential of future, similar negative consequences of damage to the T&D system, as occurred after Hurricane Maria by improving the system’s physical resilience, functional resiliency, or both.

406 HAZARD MITIGATION OPPORTUNITY

This version does not contain a hazard mitigation proposal.

406 SCOPE OF WORK

Not applicable.

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope, extent and location of the selected activity.

? **Ground disturbance outside of existing footprint.** If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

A. Poles and Concrete Bases

Location and depth of poles and concrete bases to be installed are provided in **APPENDIX A - STRUCTURAL POLE ANALYSIS** (refer to columns E, H, I and CM). Pole depths are 7 feet and 7.70 feet. Maximum pole diameter is 23 inches. For further details of the volume impact for the installation of concrete bases and poles, please refer to column D in **APPENDIX F - PROJECT CONSIDERATIONS.**

Concrete Base Description	Diameter (in.)	Depth (ft.)
Precast Concrete Bases for 50-S8.5 and 55-S8.5	40	14.5
Precast Concrete Bases for 50'-S10	48	16

[ ] **Soil testing or boring to be performed as part of pre-construction activities.** If checked, provide a description, location, and dimensions of the testing/boring activities.
[ ] **Relocation of utilities.** If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.
[X] **Vegetative Removal.** If checked, describe the removal work to be performed, its location, and its extent.

A. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project San Juan Group A FAASt 723883 Region 1 High Density (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

[X] **Demolition.** If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

A. Material Disposal:
i. Polychlorinated biphenyl ("PCB"), oil from the transformer and breakers, sealants, and chemical wastes will be disposed of by the contractor in authorized facilities.
ii. The type of debris generated in the process of removal are luminaires, pole arms, photocells, wiring, transformers, concrete, metal scrap, steel, wood, domestic and construction waste. The debris will be separated and taken to an authorized waste disposal facility.
iii. Photocells are considered universal waste and will be disposed of by the contractor in authorized facilities.

B. Transformer:
i. Transformers will be contained and returned to LUMA in compliance with applicable federal and state regulations. The removal of transformers will require testing the existing oil for PCB levels, draining of the oil, and delivery to the authorized waste disposal site.

[X] **Staging areas, landing area for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- Proposed **staging area** has been identified, area of 3,000m2 located at Bo Cupey Alto, Camino Don Diego Km 6.4, PR, 00926, San Juan, Refer to **Appendix C – Staging Area**, which includes several photographs. LUMA does not anticipate that ground disturbance or stabilization measures will be required. Normally growing vegetation on the property will be cleared to the minimum extent necessary to make the staging area workable.

[X] **Fill material**. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the LUMA Vendor Directory List included in the

[ ] **Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands**. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:
[ ] **Facility is over 45 years old**. If checked, provide a thorough description of materials to be used and method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

[ ] **Known renovations to the facility**. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.
[ ] Photos of all sides of the facility are provided.

PROJECT COST ESTIMATE (PCE)
The estimated costs (compliant with Class 1) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing detailed Architectural and Engineering ("A&E") design information. For a more detailed cost estimate refer to **Appendix G – LUMA LPCE.**

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	$1,262,779.80	$-	$1,262,779.80
(A&E) Permitting and Assessments	$ 17,018.96	$ -	$ 17,018.96
(A&E) Environmental Documentation & Management	$ 10,320.00	$ -	$ 10,320.00
(A&E) Engineering Services & Design	$ 1,035,440.84	$ -	$ 1,035,440.84
MANAGEMENT	**$ 113,742.46**	**$ -**	**$ 113,742.46**
(A&E) Project Management	$ 32,010.07	$ -	$ 32,010.07
(A&E) Construction Management	$ 42,680.10	$ -	$ 42,680.10
(A&E) Contracting, Procurement & Contract Administration	$ 17,712.24	$ -	$ 17,712.24
(A&E) Projects Controls (Scheduling, Estimating, Support, Cost Control, Risk, Document Control & Reporting)	$ 21,340.05	$ -	$ 21,340.05
San Juan Short Term Group 1,	**$ 2,089,682.39**	**$ -**	**$ 2,089,682.39**

San Juan Short Term Group 1, Feeder 1303-02, Project ID: 10013, FEMA Project Name: San Juan Short Term Group 1, Feeder 1303-02, FAAST#: 817956, material, labor and equipment.	$ 1,719,087.22	$ -	$ 1,719,087.22
Start Up/Commissioning	$ 25,786.30	$ -	$ 25,786.30
Construction Trespass	$ 8,595.43	$ -	$ 8,595.43
Transportation Expenses	$ 8,595.43	$ -	$ 8,595.43
Security (Field 24 hr)	$ 15,471.78	$ -	$ 15,471.78
Insurance	$ 34,725.56	$ -	$ 34,725.56
Construction Contingency	$ 13,400.52	$ -	$ 213,400.52
Escalation	$ 64,020.15	$ -	$ 64,020.15
GENERAL CONDITIONS	**$ 94,404.59**	**$ -**	**$ 94,404.59**
Sales Tax	$ 8,450.23	$ -	$ 8,450.23
Municipal Construction Tax	$ 85,954.36	$ -	$ 85,954.36
COST TOTALS	**$3,560,609.24**	**$-**	**$3,560,609.24**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$**
FAASt ALLOCATIONS	FAAST PROJECT # 167446 - 428		**$2,054,461.78**
	FAAST PROJECT # 167446 – 406 HM		$-
	FAAST PROJECT #167446 Total		**$2,054,461.78**
	FAASt A&E # 335168 - 428		**$1,376,522.26**
	FAASt A&E # 335168 – 406 HM		$-
	FAASt A&E # 335168 TOTAL		**$1,376,522.26**
	FAASt E&M # 673691- 428		**$129,625.20**
	FAASt E&M # 673691 – 406 HM		$-

	FAASt E&M # 673691 TOTAL	**$129,625.20**

Work To Be Completed (WTBC): $3,560,609.24
A&E Deduction (Global A&E FAASt 335168): - $1,376,522.26
E&M Deduction (Global E&M FAASt 673691): -$129,625.20
Project Total Cost: $2,054,461.78

Project Notes:

1. Refer to detailed SOW provided in document "817956- DR4339PR- DETAILED SCOPE OF WORK San Juan Short Term Group 1 FEEDER 1303-02 - signed.pdf"

2. Refer to detailed cost estimate provided in document "817956 - DR4339PR- Appendix G - LUMA LPCE.xlsx".

3. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project 136271.

4. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as show in the table above. The A&E project was obligated to track and account for cost associated with individual FAASt projects.

5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

6. For Attachments refer to:
   - Appendix A: Structural Pole Analysis
   - Appendix B: LUMA Drawings OH Design
   - Appendix C: Staging Area
   - Appendix D: Right of Way Plan
   - Appendix E: Proposed Design KMZ
   - Appendix F: Project Considerations
   - Appendix G: LUMA LPCE

406 HMP Scope

406 Hazard Mitigation measures were not requested by the sub-applicant for this project in this Version. However, there may be mitigation opportunities that might apply to Version 1 of the Permanent Work Project. The project is ready for Insurance completion.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$3,560,609.24	Uncompleted
3510	1	Lump Sum	($1,376,522.26)	Uncompleted
9001	1	Lump Sum	($129,625.20)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$2,054,461.78
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$2,054,461.78
Federal Share (90.00%)	$1,849,015.61
Non-Federal Share (10.00%)	$205,446.17

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing

administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo P.R.

6/27/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in

Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.

- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.
- &#65533; The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. &#65533; Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. &#65533; The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/12/2025 6:41 PM PDT

Review Comments

Reviewed, found eligible and reasonable - CLG 09.12

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/18/2025 5:12 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v1

General Info

Project #	817956 **P/W #** 108119	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Feeder Rebuild # 1303-02] (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1414781; FAASt [Feeder Rebuild # 1303-02] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [Feeder Rebuild # 1303-02] (Distribution)
- **Facility Description:** Feeder 1303-02 supplies suburban and rural loads in the municipality of San Juan. Feeder 1303-02 is approximately 0.49 circuit miles long with a three-phase overhead distribution conductor. It starts at Villa Betina substation ([redacted]). For more details and a list of all GPS locations to be impacted by this project. LUMA will remove and replace 17 poles and install one (1) new pole along the feeder backbone. All new poles will be located within the easement.
- **Approx. Year Built:** 1967
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1414781 **FAASt [Feeder Rebuild # 1303-02] (Distribution)**

********** Version 1 **********

Version 1 created to align the scope and cost in PA and HM. Since this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, we'll process first the positive funds and in a later version we'll de-obligate the negative portion.

SOW from previous Versions has been removed from current SOW. It can be found in the "Versioning and Amendments" tab in GM.

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for

Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project #817956 Distribution Feeder Rebuild #1303-02 under DR-4339-PR Public Assistance. The document provides a detailed description of the project, scope of PA construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

Feeder 1303-02 supplies suburban and rural loads in the municipalities of San Juan. Feeder 1303 02 is approximately 0.49 circuit miles long with a three-phase overhead distribution conductor. It starts at Villa Betina substation ([redacted]). For more details and a list of all GPS locations to be impacted by this project, please refer to Appendix A –Structural Pole Analysis.

LUMA will remove and replace 17 poles and install one (1) new pole along the feeder backbone. All new poles will be located within the easement. Refer to Appendix A – Structural Pole Analysis, which includes the pole FID, coordinates, type of pole to be installed, type of pole and hardware to be removed, and whether it has a concrete foundation. This scope of work also includes the installation of poles and guy wires within the existing easement. At this stage of the project, the easement for the proposed design has been identified, and a certified surveying process will be executed later to confirm the easement limits.

7.0 FACILITIES

7.1 FACILITIES LIST

The electrical feeder 1303-02 serves 2,435 customers along a route to various locations that supply suburban and rural loads in the municipality of San Juan.

Feeder Number	Feeder Name	Customers Counts	GPS Start	GPS End	Phase	Voltage Level (kV)	Construction Date
1303-02	Villa Betina 1303-02	2,435	[redacted]	[redacted]	3-Phase	13.2	1989

Appendix A – Structural Pole Analysis includes a list of all GPS locations for all poles impacted by this project. The table below lists poles that are along this feeder line that were installed on different programs. Therefore, they are not part of the scope of this project:

Pole FID	Installation Program	FAASt / Disaster Related	LATITUDE	LONGITUDE
10607087	D-Pole and Conductor Repair	673775	[redacted]	[redacted]

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

For Figure 1. Poles are marked in the picture above, refer to document: 817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1- RFI June 2026.pdf

For Figure 2. Poles are marked in the picture above, refer to document: 817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1- RFI June 2026.pdf

Also refer to Appendix D – Right of Way Plan for aerial pictures, also with identified poles, and to Appendix B – LUMA Drawings OH Design.

9.0 § 428 SCOPE OF WORK

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

In the obligated DSOW, LUMA proposed:

- Removal and replacement of seventeen (17) Poles, 50' S-8.5, 50' S-10, 55 S-8.5 galvanized steel round poles.
- Installation of one (1) additional Pole, 50' S-8.5 galvanized steel round poles
- Installation of twenty-one point sixty-two (21.62) cubic yards of concrete base
- Removal and installation of nine (9) existing street lighting. Removal and replacement of one (1) 50 kVA transformer.
- Removal and installation of one-hundred-and three-point sixty-two (103.62) C.L.F of ACSR Conductor.

The amendment reflects the incorporation of the new Detailed Scope of Work (DSOW Rev. 2, dated November 5, 2025) and the revised Line-Item Project Cost Estimate (LPCE) for Feeder 1303-02. The update reconciles design adjustments identified during the engineering and IFC development stage.

Key updates include:

- Removal and Replacement of seventeen (17) existing concrete poles with 50ft galvanized steel round poles, plus installation of one (1) new pole for improved geometry and load distribution.
- Remove one (1) 50 kVA transformer and replace it with one (1) new 50 kVA steel galvanized transformer unit in compliance with current codes and standards for replacement and design (406 hazard mitigation will cover the replacement of material from galvanized steel to stainless steel).
- Install fifteen (15) new guy wires, four (4) expansion anchors, and five (5) screw-type anchors in compliance with the LUMA Overhead Electrical Distribution System Manual.
- Remove one hundred and three point sixty-two (103.62) feet of existing conductors 556.5 ACSR and replace with one hundred and three point sixty-two (103.62) feet of new 556.5 ACSR conductor per LUMA codes and standards.

The amendment also adds the required labor adjustments for §406 Hazard Mitigation scope to account for the installation of heavier 12-sided poles. These changes result in an updated total project cost of $ 2,849,365.01 reflecting all §428 and §406 allocations across the related FAASt projects (#817956, #335168, and #673691).

For more information, refer to the amendment letter for this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

The tables below summarize the § 428 PA scope of work.

A. Poles

i. Remove and replace a total of seventeen (17) poles to comply with structure loading cases along the feeder backbone. The pole types and quantities are described in the table below.

ii. Install a total of one (1) additional pole to comply with structure loading cases along the feeder backbone. The pole type and quantity are described in the table below.

iii. Remove existing hardware and replace it with new hardware.

iv. Depths of the poles to be replaced are provided in Appendix A – Structural Pole Analysis, column D. Pole depths are 7 feet. The maximum pole diameter is 23 inches.

v. Remove nine (9) halogen lighting on three (3)-phase primary poles and replace with nine (9) new LED luminaire. Transfer existing LED lighting to new poles. See Appendix A – Structural Pole Analysis for information on pole FIDs and coordinates of luminaire transfers.

vi. Remove and dispose of the seventeen (17) existing distribution line poles with their related components.

vii. Work to be completed will be within the public domain (10 feet wide from the center line, as per the existing PREPA easement) of

state highway PR-176.

9.2 POLES TO BE REMOVED AND REPLACE

Poles to be Replace	Poles to Replace the Removed Poles	Quantity (Ea.)
Pole to be removed, 45ft. concrete H3	Electrical utility pole, 50ft round galvanized steel	14
Pole to be removed, 45ft. concrete H4	Electrical utility pole, 50ft round galvanized steel	3
	Total	17

Refer to columns C, H, and I of the tab named “IFC Feeder 1303-02” of Appendix A - Structural Pole Analysis_Rev 03-05-2026 for coordinates and pole FIDs

New Pole to Be Installed

Description	Quantity (Ea.)
Electrical utility pole, steel galvanized, round, tapered shaft, 50ft.	1
Total	1

B. Steel Galvanized Transformers

i. Remove a total of one (1) 50 kVA transformer and replace it with one (1) new 50 kVA steel galvanized transformer unit in compliance with current codes and standards for replacement and design. Transformer quantities are described in the table below. For references to LPCE line, refer to Section 10.2(B) below. Refer to column BQ of “IFC Feeder 1303-02” tab of Appendix A- Structural Pole Analysis_Rev 12012025 for coordinates of said transformer.

Steel Galvanized Transformers	Interconnection Voltage	Quantity (Ea.)
50 KVA	2.4 – 4.16 KV	1
Total		1

C. Guy Wires / Anchoring

i. Install fifteen (15) new guy wires, four (4) expansion anchors, and five (5) screw-type anchors in compliance with the LUMA Overhead Electrical Distribution System Manual, available in Grants Portal - Applicant Event Profiles.

Description	Quantity (Ea.)
Guy Wires 3/8”	15 (refer to line item 35 of LPCE)
Expanding Anchor	4 (refer to line item 36 of LPCE)
Screw Type Anchor	5 (refer to line item 37 of LPCE)

D. Conductor

i. Remove one hundred and three point sixty-two (103.62) feet of existing conductors 556.5 ACSR and replace with one hundred and three point two (103.62) feet of new 556 ACSR conductor per LUMA codes and standards. The conductor quantity is described in the table below.

Description	Quantity (Ea.)
556.5 ACSR Conductor	103.62(refer to line item 48 of LPCE)

CODES & STANDARDS

Per FEMA’s SOP, the locally adopted codes/standards and/or FEMA-approved industry standards used for this project are provided

below:

1. LUMA Overhead Electrical Distribution System Manual, version 5.0, available in Grants Portal - Applicant Event Profiles.

10.0 § 406 HAZARD MITIGATION PROPOSAL, refer to document: 817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1- RFI June 2026.pdf

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope, extent, and location of the selected activity.

X Ground disturbance outside of the existing footprint. If checked, provide a description of the ground disturbing activities, including the extent, location, and depth of the disturbance.

A. Poles and Guy Wires Location and depth of poles to be installed are provided in APPENDIX A - STRUCTURAL POLE ANALYSIS (refer to columns D, H, and I). Pole depths are 7 feet. The maximum pole diameter is 23 inches. For further details of the volume impact for the installation of poles, please refer to column D in APPENDIX F - PROJECT CONSIDERATIONS.

__ Soil testing or boring is to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

__ Relocation of utilities. If checked, include a description of the relocation, including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

A. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project San Juan Group A FAASt 723883 Region 1 High Density (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

X Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

A. Material Disposal:

i. Polychlorinated biphenyl (PCBs), oil from the transformer and breakers, sealants, and chemical waste will be disposed of by the contractor in authorized facilities.

ii. The types of debris generated in the process of removal are luminaires, pole arms, photocells, wiring, transformers, concrete, metal scrap, steel, wood, domestic and construction waste. The debris will be separated and taken to an authorized waste disposal facility.

iii. Photocells are considered universal waste and will be disposed of by the contractor in authorized facilities.

B. Transformer:

i. Transformers will be contained and returned to LUMA in compliance with applicable federal and state regulations. The removal of transformers will require testing of the existing oil for PCB levels, draining of the oil, and delivery to the authorized waste disposal site.

X Staging areas, landing area for air transport, and access roads. If checked, provide the GPS location of staging areas and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such

as gabion walls, retaining walls, paving, etc.).

• Originally, the staging area was identified as an area of 2,550.13m2 located at Bo. Cupey Bajo, Carr 844 Interior KM 2.3, San Juan, PR, 00926. Refer to Appendix C – Staging Area, which includes several photographs. A new staging area has been identified to support project activities. The proposed staging area comprises approximately 23,189.3 m², and is located at the Sabana Llana Regional Warehouse, at the intersection of Road Jose De Diego and Las Brisas street, San Juan, PR, 00924 (coordinates [redacted], [redacted]). Per FEMA environmental compliance requirements, this location has been previously reviewed. Refer to Appendix H for the Record of Environmental Consideration (REC) associated with FEMA's prior approval of this staging area under Projects 757700-FAASt Group 35 (1909-08 and 757698-FAASt Group 33 (1711-01).

LUMA does not anticipate that any ground disturbance or ground-stabilization measures will be required for the use of this staging area. Only normally growing vegetation on the property will be cleared to the minimum extent necessary to ensure safe and functional use of the area for staging purposes.

X Fill material. If the project includes the use of fill material, provide the source of the fill material, including the provider's name and address (if known).

• Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the LUMA Vendor Directory List included on the Applicant Event Profile in Grants Portal.

__ Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__ Facility is over 45 years old. If checked, provide a thorough description of materials to be used and the method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__ Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__ Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) for completing the project are summarized in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information. For a more detailed cost estimate, refer to Appendix G – LUMA LPCE.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$542,776.80**	**7,204.76**	**$549,981.56**
(A&E) Permitting and Assessments	$15,262.37	$202.59	$15,464.96
(A&E) Environmental Documentation & Management	$207,564.81	$2,755.19	$210,320.00

(A&E) Engineering Services & Design	$319,949.62	$4,246.98	$324,196.60
MANAGEMENT	**$309,113.31**	**$4,103.14**	**$313,216.45**
(A&E) Design Development Project Management A&E	$68,589.55	$910.45	$69,500.00
(A&E) Design Lodging & Per Diem A&E	$20,011.86	$265.64	$20,277.50
Project Management	$112,501.96	$1,493.34	$113,995.30
Construction Management	$38,636.73	$512.86	$39,149.59
Contracting, Procurement, & Contract Administration	$33,943.50	$450.56	$34,394.06
Project Controls (Scheduling, Estimating, Support, Cost Control, Risk, Document Control & Reporting)	$35,429.71	$470.29	$35,900.00
FEMA Project Name: San Juan Short Term Group 1	**$1,876,428.75**	**$24,828.43**	**$1,901,257.18**
FEMA Project Name: San Juan Short Term Group 1, Feeder 1303-02, FAAST#: 817956,	$1,541,630.03	$20,488.02	$1,562,118.05
Start Up/Commissioning	$23,124.81	$306.96	$23,431.77
Construction Trespass	$7,810.59	$-	$7,810.59
Transportation Expenses	$7,708.27	$102.32	$7,810.59
Security (Field 24 hr)	$13,874.89	$184.17	$14,059.06
Insurance	$31,141.41	$413.37	$31,554.78
Contingency	$193,183.66	$2,564.30	$195,747.96
Escalation	$57,955.09	$769.29	$58,724.38

GENERAL CONDITIONS	$83,797.50	$1,112.32	$84,909.82
Sales Tax	$6,714.79	$89.13	$6,803.92
Municipal Construction Tax	$77,082.71	$1,023.19	$78,105.90
COST TOTALS	**$2,812,116.36**	**$37,248.64**	**$2,849,365.01**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE		**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 817956 - 428		$2,101,302.65
	FAAST PROJECT # 817956 - 406HM		$37,248.64
	FAAST PROJECT # 817956 TOTAL:		**$2,138,551.29**
	FAASt A&E # 335168 - 428		$631,378.21
	FAASt A&E # 335168 - 406 HM		$8,380.84
	FAASt A&E # 335168 TOTAL		**$639,759.06**
	FAASt E&M #673691 - 428		$79,435.50
	FAASt E&M #673691 - 406 HM		$20,488.02
	FAASt E&M #673691 TOTAL		**$99,923.52**

Project Cost Summary, 428 Version 1:

Work to be Completed (WTBC): $2,812,116.36 - 2,812,116.36 = $0.00 (See project note 5)

A&E Deduction (Global A&E FAASt 335168): -$631,378.21+ $631,378.21= $0.00 (See project note 5)

E&M Deduction (Global E&M FAASt 673691): -$79,435.50 + $79,435.50 = $0.00 (See project note 5)

Project Total: $2,101,302.65 - $2,101,302.65 = $0.00 (See project note 5)

Version Summary of Key Changes

Version 0: $ 2,054,461.78 (WTBC)

Project Notes:

1. Refer to detailed SOW provided in document labeled: “817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1-Rev. 1- RFI June 2026.pdf”

2. Refer to detailed Cost Estimate provided in document labeled: “ 817956-DR4339PR-Feeders 1303-02-Appendix G - LPCE San Juan Short Term Group 1-FEMA RFI-April 2026.xlsx”

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: ‘SP 817956 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.’”

6. Attachments:

   A. Appendix A - Structural Pole Analysis

   B. Appendix B - LUMA Drawings OH Design

   C. Appendix C - Staging Area

   D. Appendix D - Right of Way Plan

   E. Appendix E - Proposed Design KMZ

   F. Appendix F - Project Considerations

   G. Appendix G - LUMA LPCE

   H. Appendix H - Proposed Staging Area Sabana Llana Technical Warehouse

   I. Appendix I - A&E Reasonable Cost Justification Narrative

406 HMP Scope

Project number:?817956; FAASt [Feeder Rebuild # 1303-02] (Distribution)] (Transmission) (Distribution)

Damage: 1414781; FAASt [Feeder Rebuild # 1303-02] (Distribution)

Applicant:?PR Electric Power Authority (000-UA2QU-00)

Location:??San Juan, Puerto Rico

GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants,

transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructure owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The Method of Repair (MOR) included the replacement of the damaged critical distribution poles, cross-arms, insulators, guy wires, transformers, conductors and all associated hardware needed for the new structure. Feeder 1303-02 is approximately 0.49 miles of three-phase overhead distribution conductor.

In order to minimize the damages in a future event, the Subrecipient proposes as a mitigation measure, increase the structural strength of the poles by replacing round galvanized steel poles with 12-sided galvanized steel poles, increasing the dimensions of the poles concrete foundations, and installing additional guy wires. Additionally, the Subrecipient requested the replacement of the galvanized steel transformers with stainless steel transformers. The implementation of these mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the Subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

To avoid damage in a future event, the Subrecipient is proposing as a mitigation measure, increase the strength of the poles by increasing the wind tolerance of all materials to 160mph. The above mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards. Refer to Appendix J: Section VI.D.1 of the PAPPG V3.1.

406 Mitigation Scope of Work:

A. Poles:

1. To avoid damage in a future event, the Subrecipient proposes as a mitigation measure, increase the strength of the poles by replacing it with a 12-sided, tapered shaft distribution pole to mitigate future damage to the structure due to high wind (160mph). The above mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.
2. Replace eighteen (18) 50ft round galvanized steel poles with eighteen (18) new 50ft 12-sided galvanized steel pole, tapered shaft distribution poles.

B. Stainless Steel Transformer (50kVA):

1. As a mitigation strategy, 406 HM will fund the additional cost (delta) for replacing transformer material from galvanized steel to high-strength stainless steel transformers. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also withstands the impact of debris better than galvanized steel. By upgrading to this material, the Subrecipient will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure.
2. One (1) 50kVA galvanized steel transformers by one (1) 50kVA stainless steel transformers.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 25,564.94
+ HM (Recipient A&E, Management & General Conditions) =	$ 11,683.70
Hazard Mitigation Total Cost =	**$ 37,248.64**

Hazard Mitigation Proposal (HMP) Cost Distribution

Equipment and Materials (E&M) =	$ 20,488.02
Architecture and Engineering (A&E) =	$ 8,380.84
Construction Cost =	$ 8,379.77
Hazard Mitigation Total Cost =	**$ 37,248.64**

HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$ 36,248.64** . The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective by FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

6/4/2026: Project came back to the mitigation queue as the Subrecipient made an amendment to the project to relocate the 428 PA and 406 HM scope of works, which requires a reconciliation of funds. Project was reviewed, and HM validated the subrecipient proposed HMP. The HMP with HM Cost Estimate and IWBCA HMP Package were uploaded in Grants Manager. Project is ready for Insurance completion. Note: BCA in Grants Manager calculates the BCR in a different way to the BCA Tool Program. Please refer to 406 Mitigation Profile for BCA detailed information.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$3,560,609.24	Uncompleted
3510	1	Lump Sum	($1,376,522.26)	Uncompleted
9001	1	Lump Sum	($129,625.20)	Uncompleted
9201	1	Lump Sum	$0.00	Completed

CRC Gross Cost	$2,054,461.78
Total 406 HMP Cost	$36,248.64
Total Insurance Reductions	$0.00
CRC Net Cost	$2,090,710.42
Federal Share (90.00%)	$1,881,639.38
Non-Federal Share (10.00%)	$209,071.04

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing

administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo P.R.

6/27/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in

Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.

- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g. a new pit, agricultural fields, road ROWs, etc.) in Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and execute orders prior to a subrecipient or their contractor commencing borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at closeout.
- &#65533; The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. &#65533; Unusable equipment, debris, white goods, scrap metal any other material shall be disposed in approved manner and location. In the event significant items are discovered during the implementation or development of the project the Applicant shall handle, manage, and dispose petroleum products, hazardous materials, and toxic waste in accordance with the requirements of the local and federal agencies. Noncompliance with these requirements may jeopardize receipt of federal funds. &#65533; The applicant is responsible to ensure damaged transformers are handled, managed, and disposed of in accordance with all federal and state laws and requirements. Downed electrical equipment may contain toxic and hazardous materials, such as polychlorinated biphenyls (PCBs), and may spill these materials if a rupture occurs. Applicant is responsible for screening transformers that do or may contain PCBs and the area where any related spill occurred. The applicant is then responsible to handle, manage, dispose of, or recycle damaged equipment and contaminated soil as appropriate. Where possible, temporary measures should be implemented to prevent, treat, or contain further releases or mitigate the migration of PCBs into the environment. If damaged equipment or material storage containers must be stored temporarily, containers should be placed on hardened surface areas, such as a concrete or an asphalt for no more than 90 days. Excavated contaminated material should be disposed of in accordance with federal and state laws and requirements.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/15/2026 12:31 PM PDT

Review Comments

FAASt [Feeder Rebuild # 1303-02] (Distribution) work to be performed includes but is not limited to; repair/replace poles/structures, damaged crossarms, broken and obsolete hardware, primary and secondary overhead and/or underground distribution lines, and porcelain insulation. Prioject has been reviewed, found eligible and reasonable. CLG 07.15.26

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/23/2026 9:16 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review. This project does not comply with the DOE executive order. This means that FEMA is the lead agency for environmental matters.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v2

General Info

Project #	817956 **P/W #** 108119	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Feeder Rebuild # 1303-02] (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1414781; FAASt [Feeder Rebuild # 1303-02] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [Feeder Rebuild # 1303-02] (Distribution)
- **Facility Description:** Feeder 1303-02 supplies suburban and rural loads in the municipality of San Juan. Feeder 1303-02 is approximately 0.49 circuit miles long with a three-phase overhead distribution conductor. It starts at Villa Betina substation ([redacted]). For more details and a list of all GPS locations to be impacted by this project. LUMA will remove and replace 17 poles and install one (1) new pole along the feeder backbone. All new poles will be located within the easement.
- **Approx. Year Built:** 1967
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1414781 **FAASt [Feeder Rebuild # 1303-02] (Distribution)**

********** Version 2 **********

Version 2 has been created as an administrative amendment due to limitations in IFMIS (The Finance system), which cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Refer to document: Sub-FAAST Transactions - allocation process.pdf

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW may include § 406 hazard mitigation proposals ("HMPs").

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the

submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project #817956 Distribution Feeder Rebuild #1303-02 under DR-4339-PR Public Assistance. The document provides a detailed description of the project, scope of PA construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

Feeder 1303-02 supplies suburban and rural loads in the municipalities of San Juan. Feeder 1303 02 is approximately 0.49 circuit miles long with a three-phase overhead distribution conductor. It starts at Villa Betina substation ([redacted]). For more details and a list of all GPS locations to be impacted by this project, please refer to Appendix A –Structural Pole Analysis.

LUMA will remove and replace 17 poles and install one (1) new pole along the feeder backbone. All new poles will be located within the easement. Refer to Appendix A – Structural Pole Analysis, which includes the pole FID, coordinates, type of pole to be installed, type of pole and hardware to be removed, and whether it has a concrete foundation. This scope of work also includes the installation of poles and guy wires within the existing easement. At this stage of the project, the easement for the proposed design has been identified, and a certified surveying process will be executed later to confirm the easement limits.

7.0 FACILITIES

7.1 FACILITIES LIST

The electrical feeder 1303-02 serves 2,435 customers along a route to various locations that supply suburban and rural loads in the municipality of San Juan.

Feeder Number	Feeder Name	Customers Counts	GPS Start	GPS End	Phase	Voltage Level (kV)	Construction Date
1303-02	Villa Betina 1303-02	2,435	[redacted]	[redacted]	3-Phase	13.2	1989

Appendix A – Structural Pole Analysis includes a list of all GPS locations for all poles impacted by this project. The table below lists poles that are along this feeder line that were installed on different programs. Therefore, they are not part of the scope of this project:

Pole FID	Installation Program	FAASt / Disaster Related	LATITUDE	LONGITUDE
10607087	D-Pole and Conductor Repair	673775	[redacted]	[redacted]

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

For Figure 1. Poles are marked in the picture above, refer to document: 817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1-RFI June 2026.pdf

For Figure 2. Poles are marked in the picture above, refer to document: 817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1-RFI June 2026.pdf

Also refer to Appendix D – Right of Way Plan for aerial pictures, also with identified poles, and to Appendix B – LUMA Drawings OH Design.

9.0 § 428 SCOPE OF WORK

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

In the obligated DSOW, LUMA proposed:

- Removal and replacement of seventeen (17) Poles, 50' S-8.5, 50' S-10, 55 S-8.5 galvanized steel round poles.
- Installation of one (1) additional Pole, 50' S-8.5 galvanized steel round poles
- Installation of twenty-one point sixty-two (21.62) cubic yards of concrete base
- Removal and installation of nine (9) existing street lighting. Removal and replacement of one (1) 50 kVA transformer.
- Removal and installation of one-hundred-and three-point sixty-two (103.62) C.L.F of ACSR Conductor.

The amendment reflects the incorporation of the new Detailed Scope of Work (DSOW Rev. 2, dated November 5, 2025) and the revised Line-Item Project Cost Estimate (LPCE) for Feeder 1303-02. The update reconciles design adjustments identified during the engineering and IFC development stage.

Key updates include:

- Removal and Replacement of seventeen (17) existing concrete poles with 50ft galvanized steel round poles, plus installation of one (1) new pole for improved geometry and load distribution.
- Remove one (1) 50 kVA transformer and replace it with one (1) new 50 kVA steel galvanized transformer unit in compliance with current codes and standards for replacement and design (406 hazard mitigation will cover the replacement of material from galvanized steel to stainless steel).
- Install fifteen (15) new guy wires, four (4) expansion anchors, and five (5) screw-type anchors in compliance with the LUMA Overhead Electrical Distribution System Manual.
- Remove one hundred and three point sixty-two (103.62) feet of existing conductors 556.5 ACSR and replace with one hundred and three point sixty-two (103.62) feet of new 556.5 ACSR conductor per LUMA codes and standards.

The amendment also adds the required labor adjustments for §406 Hazard Mitigation scope to account for the installation of heavier 12-sided poles. These changes result in an updated total project cost of $ 2,849,365.01 reflecting all §428 and §406 allocations across the related FAASt projects (#817956, #335168, and #673691).

For more information, refer to the amendment letter for this project.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

The tables below summarize the § 428 PA scope of work.

A. Poles

i. Remove and replace a total of seventeen (17) poles to comply with structure loading cases along the feeder backbone. The pole types and quantities are described in the table below.

ii. Install a total of one (1) additional pole to comply with structure loading cases along the feeder backbone. The pole type and quantity are described in the table below.

iii. Remove existing hardware and replace it with new hardware.

iv. Depths of the poles to be replaced are provided in Appendix A – Structural Pole Analysis, column D. Pole depths are 7 feet. The maximum pole diameter is 23 inches.

v. Remove nine (9) halogen lighting on three (3)-phase primary poles and replace with nine (9) new LED luminaire. Transfer existing LED lighting to new poles. See Appendix A – Structural Pole Analysis for information on pole FIDs and coordinates of luminaire transfers.

vi. Remove and dispose of the seventeen (17) existing distribution line poles with their related components.

vii. Work to be completed will be within the public domain (10 feet wide from the center line, as per the existing PREPA easement) of state highway PR-176.

9.2 POLES TO BE REMOVED AND REPLACE

Poles to be Replace	Poles to Replace the Removed Poles	Quantity (Ea.)
Pole to be removed, 45ft. concrete H3	Electrical utility pole, 50ft round galvanized steel	14
Pole to be removed, 45ft. concrete H4	Electrical utility pole, 50ft round galvanized steel	3
	Total	17

Refer to columns C, H, and I of the tab named “IFC Feeder 1303-02” of Appendix A - Structural Pole Analysis_Rev 03-05-2026 for coordinates and pole FIDs

New Pole to Be Installed

Description	Quantity (Ea.)
Electrical utility pole, steel galvanized, round, tapered shaft, 50ft.	1
Total	1

B. Steel Galvanized Transformers

i. Remove a total of one (1) 50 kVA transformer and replace it with one (1) new 50 kVA steel galvanized transformer unit in compliance with current codes and standards for replacement and design. Transformer quantities are described in the table below. For references to LPCE line, refer to Section 10.2(B) below. Refer to column BQ of “IFC Feeder 1303-02” tab of Appendix A- Structural Pole Analysis_Rev 12012025 for coordinates of said transformer.

Steel Galvanized Transformers	Interconnection Voltage	Quantity (Ea.)
50 KVA	2.4 – 4.16 KV	1
Total		1

C. Guy Wires / Anchoring

i. Install fifteen (15) new guy wires, four (4) expansion anchors, and five (5) screw-type anchors in compliance with the LUMA Overhead Electrical Distribution System Manual, available in Grants Portal - Applicant Event Profiles.

Description	Quantity (Ea.)
Guy Wires 3/8”	15 (refer to line item 35 of LPCE)
Expanding Anchor	4 (refer to line item 36 of LPCE)
Screw Type Anchor	5 (refer to line item 37 of LPCE)

D. Conductor

i. Remove one hundred and three point sixty-two (103.62) feet of existing conductors 556.5 ACSR and replace with one hundred and three point two (103.62) feet of new 556 ACSR conductor per LUMA codes and standards. The conductor quantity is described in the table below.

Description	Quantity (Ea.)
556.5 ACSR Conductor	103.62(refer to line item 48 of LPCE)

CODES & STANDARDS

Per FEMA’s SOP, the locally adopted codes/standards and/or FEMA-approved industry standards used for this project are provided below:

1. LUMA Overhead Electrical Distribution System Manual, version 5.0, available in Grants Portal - Applicant Event Profiles.

10.0 § 406 HAZARD MITIGATION PROPOSAL, refer to document: 817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1- RFI June 2026.pdf

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope, extent, and location of the selected activity.

X Ground disturbance outside of the existing footprint. If checked, provide a description of the ground disturbing activities, including the extent, location, and depth of the disturbance.

A. Poles and Guy Wires Location and depth of poles to be installed are provided in APPENDIX A - STRUCTURAL POLE ANALYSIS (refer to columns D, H, and I). Pole depths are 7 feet. The maximum pole diameter is 23 inches. For further details of the volume impact for the installation of poles, please refer to column D in APPENDIX F - PROJECT CONSIDERATIONS.

__ Soil testing or boring is to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

__ Relocation of utilities. If checked, include a description of the relocation, including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

A. Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project San Juan Group A FAASt 723883 Region 1 High Density (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

X Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

A. Material Disposal:

i. Polychlorinated biphenyl (PCBs), oil from the transformer and breakers, sealants, and chemical waste will be disposed of by the contractor in authorized facilities.

ii. The types of debris generated in the process of removal are luminaires, pole arms, photocells, wiring, transformers, concrete, metal scrap, steel, wood, domestic and construction waste. The debris will be separated and taken to an authorized waste disposal facility.

iii. Photocells are considered universal waste and will be disposed of by the contractor in authorized facilities.

B. Transformer:

i. Transformers will be contained and returned to LUMA in compliance with applicable federal and state regulations. The removal of transformers will require testing of the existing oil for PCB levels, draining of the oil, and delivery to the authorized waste disposal site.

X Staging areas, landing area for air transport, and access roads. If checked, provide the GPS location of staging areas and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

• Originally, the staging area was identified as an area of 2,550.13m2 located at Bo. Cupey Bajo, Carr 844 Interior KM 2.3, San Juan, PR, 00926. Refer to Appendix C – Staging Area, which includes several photographs. A new staging area has been identified to support project activities. The proposed staging area comprises approximately 23,189.3 m², and is located at the Sabana Llana Regional Warehouse, at the intersection of Road Jose De Diego and Las Brisas street, San Juan, PR, 00924 (coordinates [redacted]). Per FEMA environmental compliance requirements, this location has been previously reviewed. Refer to Appendix H for the Record of Environmental Consideration (REC) associated with FEMA's prior approval of this staging area under Projects 757700-FAASt Group 35 (1909-08 and 757698-FAASt Group 33 (1711-01).

LUMA does not anticipate that any ground disturbance or ground-stabilization measures will be required for the use of this staging area. Only normally growing vegetation on the property will be cleared to the minimum extent necessary to ensure safe and functional use of the area for staging purposes.

X Fill material. If the project includes the use of fill material, provide the source of the fill material, including the provider's name and address (if known).

• Fill, gravel, and sand materials will be obtained from an approved supplier as referenced in the LUMA Vendor Directory List included on the Applicant Event Profile in Grants Portal.

__ Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

The following items are generally intended for buildings:

__ Facility is over 45 years old. If checked, provide a thorough description of materials to be used and the method of repair, including cleaning methods. If substitute materials will be used in the restoration, specify whether they match the original color, texture, and design of the damaged facility.

__ Known renovations to the facility. If checked, provide dates of any previous major renovations to the interior or exterior of the facility.

__ Photos of all sides of the facility are provided.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) for completing the project are summarized in the table(s) below. The cost estimate was developed utilizing preliminary Architectural and Engineering design information. For a more detailed cost estimate, refer to Appendix G – LUMA LPCE.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$542,776.80**	**7,204.76**	**$549,981.56**
(A&E) Permitting and Assessments	$15,262.37	$202.59	$15,464.96
(A&E) Environmental Documentation & Management	$207,564.81	$2,755.19	$210,320.00
(A&E) Engineering Services & Design	$319,949.62	$4,246.98	$324,196.60
MANAGEMENT	**$309,113.31**	**$4,103.14**	**$313,216.45**
(A&E) Design Development Project Management A&E	$68,589.55	$910.45	$69,500.00
(A&E) Design Lodging & Per Diem A&E	$20,011.86	$265.64	$20,277.50

Project Management	$112,501.96	$1,493.34	$113,995.30
Construction Management	$38,636.73	$512.86	$39,149.59
Contracting, Procurement, & Contract Administration	$33,943.50	$450.56	$34,394.06
Project Controls (Scheduling, Estimating, Support, Cost Control, Risk, Document Control & Reporting)	$35,429.71	$470.29	$35,900.00
FEMA Project Name: San Juan Short Term Group 1	**$1,876,428.75**	**$24,828.43**	**$1,901,257.18**
FEMA Project Name: San Juan Short Term Group 1, Feeder 1303-02, FAAST#: 817956,	$1,541,630.03	$20,488.02	$1,562,118.05
Start Up/Commissioning	$23,124.81	$306.96	$23,431.77
Construction Trespass	$7,810.59	$-	$7,810.59
Transportation Expenses	$7,708.27	$102.32	$7,810.59
Security (Field 24 hr)	$13,874.89	$184.17	$14,059.06
Insurance	$31,141.41	$413.37	$31,554.78
Contingency	$193,183.66	$2,564.30	$195,747.96
Escalation	$57,955.09	$769.29	$58,724.38
GENERAL CONDITIONS	$83,797.50	$1,112.32	$84,909.82
Sales Tax	$6,714.79	$89.13	$6,803.92
Municipal Construction Tax	$77,082.71	$1,023.19	$78,105.90
COST TOTALS	**$2,812,116.36**	**$37,248.64**	**$2,849,365.01**

DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**	**$-**
	DE-OBLIGATION TO FAASt IF APPLICABLE	**$-**
FAASt ALLOCATIONS	FAAST PROJECT # 817956 - 428	$2,101,302.65
	FAAST PROJECT # 817956 - 406HM	$37,248.64
	FAAST PROJECT # 817956 TOTAL:	**$2,138,551.29**
	FAASt A&E # 335168 - 428	$631,378.21
	FAASt A&E # 335168 - 406 HM	$8,380.84
	FAASt A&E # 335168 TOTAL	**$639,759.06**
	FAASt E&M #673691 - 428	$79,435.50
	FAASt E&M #673691 - 406 HM	$20,488.02
	FAASt E&M #673691 TOTAL	**$99,923.52**

Project Cost Summary, 428 Version 1:

Work to be Completed (WTBC): $2,812,116.36

A&E Deduction (Global A&E FAASt 335168): -$631,378.21

E&M Deduction (Global E&M FAASt 673691): -$79,435.50

Project Total: $2,101,302.65

Change requested Version 2: $2,101,302.65 - $ 2,054,461.78 = $46,840.87

Version Summary of Key Changes

Version 0: $ 2,054,461.78 (WTBC)

Version 1: $0.00

Version 2: +$46,840.87 (WTBC)

Project Notes:

1. Refer to detailed SOW provided in document labeled: “817956-DR4339PR- Feeder 1303-02-Detailed Scope of Work-V. 1- Rev. 1-

RFI June 2026.pdf”

2. Refer to detailed Cost Estimate provided in document labeled: “
817956-DR4339PR-Feeders 1303-02-Appendix G - LPCE San Juan Short Term Group 1-FEMA RFI-April 2026.xlsx”

3. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. This version includes both 406 HMP and 428 PA costs, with one positive amount and the other negative. They cannot be processed in the same version, so two separate versions are required. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: ‘SP 817956 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf" and "Sub-FAAST Transactions - allocation process.pdf"

6. Attachments:

   A. Appendix A - Structural Pole Analysis

   B. Appendix B - LUMA Drawings OH Design

   C. Appendix C - Staging Area

   D. Appendix D - Right of Way Plan

   E. Appendix E - Proposed Design KMZ

   F. Appendix F - Project Considerations

   G. Appendix G - LUMA LPCE

   H. Appendix H - Proposed Staging Area Sabana Llana Technical Warehouse

   I. Appendix I - A&E Reasonable Cost Justification Narrative

406 HMP Scope

Project number:?817956; FAASt [Feeder Rebuild # 1303-02] (Distribution)] (Transmission) (Distribution)

Damage: 1414781; FAASt [Feeder Rebuild # 1303-02] (Distribution)

Applicant:?PR Electric Power Authority (000-UA2QU-00)

Location:??San Juan, Puerto Rico

GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructure owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The Method of Repair (MOR) included the replacement of the damaged critical distribution poles, cross-arms, insulators, guy wires, transformers, conductors and all associated hardware needed for the new structure. Feeder 1303-02 is approximately 0.49 miles of three-phase overhead distribution conductor.

In order to minimize the damages in a future event, the Subrecipient proposes as a mitigation measure, increase the structural strength of the poles by replacing round galvanized steel poles with 12-sided galvanized steel poles, increasing the dimensions of the poles concrete foundations, and

installing additional guy wires. Additionally, the Subrecipient requested the replacement of the galvanized steel transformers with stainless steel transformers. The implementation of these mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the Subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

To avoid damage in a future event, the Subrecipient is proposing as a mitigation measure, increase the strength of the poles by increasing the wind tolerance of all materials to 160mph. The above mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards. Refer to Appendix J: Section VI.D.1 of the PAPPG V3.1.

406 Mitigation Scope of Work:

A. Poles:

1. To avoid damage in a future event, the Subrecipient proposes as a mitigation measure, increase the strength of the poles by replacing it with a 12-sided, tapered shaft distribution pole to mitigate future damage to the structure due to high wind (160mph). The above mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.
2. Replace eighteen (18) 50ft round galvanized steel poles with eighteen (18) new 50ft 12-sided galvanized steel pole, tapered shaft distribution poles.

B. Stainless Steel Transformer (50kVA):

1. As a mitigation strategy, 406 HM will fund the additional cost (delta) for replacing transformer material from galvanized steel to high-strength stainless steel transformers. Stainless steel transformers protect life and property and prevent physical damage to PREPA's infrastructure from catastrophic failures caused when corroded transformers fail during a disaster. Stainless steel also withstands the impact of debris better than galvanized steel. By upgrading to this material, the Subrecipient will significantly reduce the chances of electrical malfunctions, insulation breakdowns, transformer failures during future hurricanes and the resulting risk to public and private property and life. This proactive mitigation measure not only ensures a more resilient power grid during and after the next hurricane but also decreases the need for frequent replacements and maintenance, which helps avoid future damage from similar storms and enhances the long-term reliability of Puerto Rico's electrical infrastructure.
2. One (1) 50kVA galvanized steel transformers by one (1) 50kVA stainless steel transformers.

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 25,564.94
+ HM (Recipient A&E, Management & General Conditions) =	$ 11,683.70
Hazard Mitigation Total Cost =	**$ 37,248.64**

Hazard Mitigation Proposal (HMP) Cost Distribution

Equipment and Materials (E&M) =	$ 20,488.02
Architecture and Engineering (A&E) =	$ 8,380.84
Construction Cost =	$ 8,379.77
Hazard Mitigation Total Cost =	**$ 37,248.64**

HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$ 36,248.64** . The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective by FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

6/4/2026: Project came back to the mitigation queue as the Subrecipient made an amendment to the project to relocate the 428 PA and 406 HM scope of works, which requires a reconciliation of funds. Project was reviewed, and HM validated the subrecipient proposed HMP. The HMP with HM Cost Estimate and IWBCA HMP Package were uploaded in Grants Manager. Project is ready for Insurance completion. Note: BCA in Grants Manager calculates the BCR in a different way to the BCA Tool Program. Please refer to 406 Mitigation Profile for BCA detailed information.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$3,560,609.24	Uncompleted
3510	1	Lump Sum	($1,376,522.26)	Uncompleted
9001	1	Lump Sum	($129,625.20)	Uncompleted
9201	1	Lump Sum	$0.00	Completed
9001	1	Lump Sum	$2,812,116.36	Uncompleted
9001	1	Lump Sum	($79,435.50)	Uncompleted
3510	1	Lump Sum	($631,378.21)	Uncompleted
3510	1	Lump Sum	$1,376,522.26	Uncompleted
9001	1	Lump Sum	$129,625.20	Uncompleted
9001	1	Lump Sum	($3,560,609.24)	Uncompleted

CRC Gross Cost	$2,101,302.65
Total 406 HMP Cost	$36,248.64
Total Insurance Reductions	$0.00
CRC Net Cost	$2,137,551.29
Federal Share (90.00%)	$1,923,796.17
Non-Federal Share (10.00%)	$213,755.12

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/14/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing

administrative function and forwarding project for completion.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo P.R.

6/27/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

406 Mitigation

There is no additional mitigation information on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Feeder Rebuild # 1303-02] (Distribution)** .

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/25/2026 6:57 PM PDT

Review Comments

Project reviewed, found eligible and reasonable. HM reconciliation to be completed in next version. CLG 09/25/26

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 10/01/2026 8:31 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Fixed Cost Offer

As a Public Assistance (PA) Subrecipient PR Electric Power Authority (000-UA2QU-00), in accordance with Section 428 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, the Applicant agrees to accept a permanent work subaward based on a Fixed Cost Offer in the amount of $2,137,551.29 for subaward number 108119 under Disaster # 4339. The Applicant accepts responsibility for all costs above the Fixed Cost Offer.

The Applicant understands that by participating in this pilot program they will be reimbursed for allowable costs in accordance with 2 CFR Part 200, and the reimbursement will not exceed the Fixed Cost Offer. The Applicant also understands that by agreeing to this Fixed Cost Offer, they will not receive additional funding related to the facilities or sites included in the subaward. The Applicant also acknowledges that failure to comply with the requirements of applicable laws and regulations governing assistance provided by FEMA and the PA Alternative Procedures Pilot Program Guidance (such as procurement and contracting; environmental and historic preservation compliance; and audit and financial accountability) may lead to loss of federal funding.

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	9/25/2025	$1,849,015.61	90%	Accepted	4339DRPRP01081191
1	8/3/2026	$32,623.77	90%	Accepted	4339DRPRP01081191
2	10/8/2026	$42,156.79	90%	Accepted	4339DRPRP01081191

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	956349 **P/W #** 108157	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Large	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1716303; San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission Line 36800 – Canovanas TC to Palmer TC
- **Facility Description:** Transmission line 36800 is a single circuit line with a total of 11.13 miles.
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1716303 **San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC**

INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOP states that the SOW may include § 406 hazard mitigation proposals ("HMPs"). This project version does not include 406 hazard mitigation proposals. The SOW defines the activities that will be performed using Public Assistance ("PA") funding.

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA project # 956349 under DR-4339-PR Public Assistance. The document provides a detailed description of the project, the scope of PA construction activities to be completed, common EHP review information and project cost estimates. The Subrecipient seeks approval from COR3 and FEMA for PA funding for the scope described herein.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the transmission and distribution ("T&D") system submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

PROJECT DESCRIPTION

Transmission Line 36800 Vegetation Clearance

This is a LUMA priority single transmission line vegetation clearing project for an entire rural segment of the 115kV Line 36800 in San Juan Region 1 that starts at Canovanas TC and ends at Palmer TC. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation along this segment of Line 36800, if left untended to, poses a threat to Puerto Rico's electric grid reliability.

In this DSOW for vegetation clearing of 3.828 miles along TL 36800 Canovanas TC to Palmer TC. FEMA has recognized that a one-time, island-wide vegetation clearance and removal operation may be considered an eligible § 406 HMP. As instructed by FEMA Public Assistance leadership, LUMA is submitting the full scope of vegetation clearance for Line 36800 Canovanas TC to Palmer TC as a § 428 cost in this DSOW. Following obligation, FEMA PA leadership agreed that LUMA will submit an amendment to move the costs related to LUMA's Vegetation Clearing Program.

FACILITIES

1.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

•N/A

1.2 FACILITIES LIST – OTHER FACILITIES

Transmission line segment of TL 36800 is a rural-single circuit line. Vegetation clearance will be performed in the identified segments of the following transmission line:

Table 1: Transmission Line and the segments in which vegetation clearing is to occur.

Line Segment	Line Number	GPS Start	GPSEnd	Total Mileage submitted	Total Mileage Validated by FEMA
Canovanas TC to Palmer TC	36800	[redacted]		11.13	3.828

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

1.0Please see Appendix D – TL36800 .kmz/Shapefile.

§ 428 SCOPE OF WORK

The type of project proposed:

?Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

?Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

?Subrecipient's request letter included, see Appendix ___.

?Recipient's approval letter included, see Appendix ___.

?Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

?Subrecipient's request letter included, see Appendix ___.

?Recipient's approval letter included, see Appendix ___.

1.3 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED Vegetation Clearing Methods Vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). These ANSI A300 Standard Practices are outlined in Appendix E ANSI A300 – Pruning Standards, which includes tree inspection, tools and equipment, pruning cuts, pruning objectives, pruning types, specialty pruning, palm pruning, and utility pruning standard practices. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant.

Vegetation With the Potential to Encroach Within 20 Feet of Conductor — Compatible or Incompatible

-

In all cases, LUMA's vegetation clearing contractors will perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), PREPA Technical Communication 12-02, and LUMA's VMP.

•Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below

•Tree removal: Qualified line clearance crews will work at ground level, climb trees from ground level, or use aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

•Severing of vines: Vines will be severed by qualified line clearance crews at the base within airgap created between the root system and the portion of the vine climbing on the structure. The upper portion of the vine remains attached and is not removed.

•Cutting: Cutting typically involves the removal of small diameter species by hand. Qualified line clearance crews will work at ground level, climb trees from ground level, or use aerial platforms to remove vegetation.

•Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

All Other Incompatible Species within the Recommended Easement Width

All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

In rare cases where LUMA encounters significant resistance from landowners or stakeholders to remediate vegetation, LUMA will work with landowners or stakeholders to determine if incompatible and compatible species can be pruned to mitigate the hazard to the lines instead of being completely removed.

Vegetation Originating Outside the Easement

Vegetation outside or along the boundary of the easement has the potential to interfere with the operation of power transmission lines will be managed to achieve appropriate clearance around the conductors and lines to protect from future damage. For Rural Single Phase 115kV transmission lines, this requires a clearance distance of 20 feet from all conductors per LUMA's VMP. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized where possible within the easement, in addition to:

•Tree pruning: Qualified line clearance crews from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.

•Mechanical Vegetation Control: mechanical vegetation control uses mechanical machinery to clear out dense weed infestations at facilities or to clear brush and vegetation. Mechanical vegetation control includes mowing and cutting. The following general guidelines apply to mechanical control methods:

- Targeted clearing will be completed – avoiding the removal of vegetation that is providing slope stability or erosion control unless necessary.
- Only trained operators will be permitted to use mechanical/heavy equipment (mowers, chainsaws, mulchers).

In cases where following ANSI A300 best practices for vegetation clearing and pruning required beyond 20 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal.

Disposal

Excess woody debris will be removed from the easement. See Vegetative Removal in section 11.0, below.

Scope of Work Limitations

The scope of Vegetation Clearance is limited in two ways. First, not all vegetation will be completely removed. PREPA's T&D easements are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them incompatible with safe and reliable energy delivery service. Recognizing the diversity of species in tropical ecosystems, the general strategy for Vegetation Clearing is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Please refer to Appendices A and B for lists of protected flora species and incompatible flora species expected to be encountered during project performance.

The following terms, when used in this document, shall have the meaning described below:

•Compatible Species – Compatible species are those that are congruent with the intended use of the site. They include small trees, shrubs, and herbaceous vegetation that are not expected to grow into conflict with overhead conductors.

•Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site. They include tall growing trees and other plant forms (e.g. Bamboo and palms) with the potential to conflict with overhead conductors.

The Regulation 7282 prohibits climbing plants, shrubs, creepers (vines), and bamboo within the easement. Trees or plants with roots that could damage buried installations are also prohibited. Any trees, shrubs, or plants planted in violation of Regulation Number 7282 may be uprooted, removed, or cut down. Vegetation within the easement cannot obstruct overhead lines. The branches of trees planted outside the easement must not obstruct free passage of the power lines.

Second, Vegetation Clearance of Compatible Species will be limited to work that is necessary to directly reduce the potential of future, similar damage to the T&D system that exceeds what is necessary to simply clear vegetation to access facilities and carry out repairs. This means that LUMA will clear only that vegetation with the potential to encroach on safety and access clearances established in LUMA's VMP, which may be less than the full width of the easement. PREPA Regulation 7282 permits compatible vegetation (but not trees) to be planted in easements, provided that the following vertical distances measured from the highest part of the vegetation within the easement to the lowest conductor of the power line be maintained.

The Regulation provides these clearances for conductor safety, but LUMA has determined they do not go far enough to allow full access to and maintenance of infrastructure in the easement. LUMA's VMP, discussed below, provides the clearances to be used for its Vegetation Clearance Program.

The following terms, when used in this document, shall have the meaning described below:

•Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. According to the National Electrical Safety Code ("NESC"), clearances are the minimum distances required between an energized conductor or appliance and a structure, building, or surface. Minimum separation distances are established by in the NESC and PREPA's rules and procedures (See Technical Communication 12-02, attached). This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be met both when PREPA builds its facilities, as well as when a third-party builds a structure. Clearances, in both cases, must be complied with by

regulation, regardless of whether an easement exists.

•Easement – An easement is the right to use property owned by another for a specific purpose. An easement for electrical power lines provides PREPA, and LUMA as its agent, various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, or operate. PREPA's Regulation 7282 (Feb. 24,2007) describes the minimum requirements that easements must meet for PREP infrastructure, and the rights afforded to PREPA by easement.

For overhead power lines, Regulation 7282 recommends the following minimum widths for easements:

Recommended Easement Width for Overhead Transmission & Sub-transmission Lines (feet)				
Construction Type	**Area**	**Voltage**		
		38	**115**	**230**
Single Circuit	Urban	25'	30'	40'
	Rural	50'	100'	100'
Double Circuit, Same Structure	Urban	25'	40'	60'
	Rural	50'	100'	100'
Double Circuit, Different Structures	Rural	50'	100'	100'

Regulation 7282 also includes requirements governing the type of vegetation that may be planted within these easements, and some of the activities and rights granted to PREPA related to vegetation management.

The actual easement width for a particular line may differ from the recommendations in Regulation 7282 and can be determined by consulting the certified easement as recorded in the Property Registry or filed with PREPA/LUMA Department of Lands and Permit.

•NESC Rule 218 provides that, "[v]vegetation that may damage un-grounded supply conductors should be pruned or removed. Vegetation Management should be performed as experience has shown necessary."

Based on all of the above, LUMA's VMP defines the Vegetation Clearing standards LUMA is implementing through its Vegetation Clearance program. All Incompatible Species will be cleared from the recommended easement width applicable to the type of line segment, as listed above. In addition, both Compatible and Incompatible Species (whether originating from inside or outside the easement) with the potential to encroach on the conductor will be cleared horizontally to the following distances measured from the outermost conductor's edge:

Voltage Class	Horizontal Clearance
230 kV	25' or edge of easement, whichever is less
115 kV	20' or edge of easement, whichever is less
38 kV	15' or edge of easement, whichever is less

This scope of work includes repair related vegetation removal included in the sub-FAASt recovery project below. No duplicate costs for repair-related vegetation clearance will be captured in the sub-FAASt recovery project.

Table 2: FAASt Recovery Projects on the Same Line Identified in this Sub-FAASt Project.

FAASt Recovery Project #	**Project Name**	**GPS Start**	**GPS End**	**Miles**
180326	Canovanas TC to Sabana Llana TC	[redacted]		8
180326	Canovanas TC to Palmer TC			23
180326	Palmer TC to Fajardo TC			

Total Mileage	31

1.4 CODES & STANDARDS

The following will be referenced when applying specific codes, specifications, and standards to the project design:

a. Consensus-based codes, per FEMA's Public Assistance Alternative Procedures (Section428) Guide for Permanent Work FEMA-4339-DR-PR (Feb. 2020).

b. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

c. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

d. Subrecipient's authorized representative 's latest Design Criteria Document (DCD) which aggregates the design considerations for most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version2.1 (Dec. 20, 2019).

All work will be conducted in compliance with applicable industry standards and best practices, including:

a. LUMA Vegetation Management Plan (2024) which incorporates the following:

i. Reglamento de Servidumbres para la Autoridad de Energía Eléctrica 7282 (2007) (Regulation 7282).

ii. NESC – National Electrical Safety Code, Rule 218 (2017), adopted by PREPAthrough Rule 7014.

iii. PREPA Technical Communication 12-2 (Technical Press Releases and Circulars2012).

iv. ANSI A300 Tree, Shrub, and other Woody Plant Management- Standard Practices:

1)Part 1 Pruning (2017).

2)Part 7 Integrated Vegetation Management (2018).

3)Part 9 Tree Risk Assessment (2017).

PROJECT COST ESTIMATE (PCE)

This project scope and cost details the proposal to clear 3.828 miles of vegetation on TL 36800 at an agreed to and validated cost of $367,454.17 per mile as detailed in the scope of work and represented in the cost estimate (does not include pre/post inspection costs). For more details on this cost estimate, refer to **Appendix C.1 – DR4339PR-FEMA Cost Estimate.**

	Line	Line length (Miles) 11.13	Vegetation Line length (Miles)	10%Adm. Buffer Acceptance (Miles)	% of Vegetation	FEMA Cost	FEMA Final Cost	3% Basic Construction Services (A&E)	Total Project Cost without A&E
	36800		3.48	3.828	34.39%	$367,454.17	$1,406,614.56	$42,198.44	$1,364,416.12

Work to be completed: $1,406,614.56

A&E Deduction (Global A&E FAASt 335168): - $42,198.44

Project Total Cost: $1,364,416.12

Project Notes:

1. Refer to detailed SOW provided in document labeled: " 956349-DR4339PR-Vegetation Clearance for FAASt 956349_ San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer

TC.FEMA.pdf”

2. Refer to detailed Cost Estimate provided in document labeled: “ LPCE - VEG - 115kv TLINE 36800 Canovanas TC to Palmer TC - 8.1.25.xlsx”

3. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

4. For clarification of cost estimate adjustment, please refer to email correspondence: “956353 - DR4339PR - PREPA FAASt projects (115kV) Email Correspondance”

5. A&E costs included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

6. Attachments:

   a. Appendices A and B - Lists of Protected Flora Species and Incompatible Flora Species

   b. Appendix C.1 - DR4339PR-FEMA Cost Estimate

   c. Appendix D - KMZ/Shapefile – Mapping

   d. Appendix E - ANSI A300

406 HMP Scope

It was agreed with subrecipient this project will be moved forward in Version 0, without hazard Mitigation funds. Is the responsibility from the sub-applicant complete the field assessments to establish the after and before report of clearance and the project office folder including all the expenses incurred on the project: (labor, material, workmanship, contractors and office expenses directly related to the project). The subrecipient must ensure that the work is executed with reasonable use of resources and costs, using the most cost-effective method. Once the sub-applicants complete the vegetation clearance activities, the information will be submitted to FEMA for the validation and future reimbursement of the PA 406 funds to the main FAASt.

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,406,614.56	Uncompleted
3510	1	Lump Sum	($42,198.44)	Uncompleted

CRC Gross Cost	$1,364,416.12
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,364,416.12
Federal Share (90.00%)	$1,227,974.51
Non-Federal Share (10.00%)	$136,441.61

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f) (1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/3/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

8/11/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

406 Mitigation

There is no additional mitigation information on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- Environmental Review Project Conditions: On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission facilities in the Territory as specified in the Order. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. Consequently, in consideration of Section 202(c)(3) of the FPA and aligned with the Order, FEMA has incorporated all available information and data for this project pertaining to applicable environmental laws and regulations into this REC for documentation purposes, but FEMA has neither reviewed, nor made a determination, regarding the project's compliance with any applicable environmental laws or regulations.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L.

Reviewed On 09/12/2025 2:39 PM PDT

Review Comments

Reviewed, found eligible and reasonable - CLG 09.12

Recipient Review

Reviewed By Mulero, Noel

Reviewed On 09/12/2025 7:01 PM PDT

Review Comments

Recipient review completed. It was agreed with subrecipient this project will be moved forward in Version 0, without hazard Mitigation funds. FEMA PA leadership agreed that Applicant will submit an amendment to move the costs PA 406 funds related to Vegetation Clearing Program project. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned

Reviewed On Unsigned

General Info

Project #	956349 **P/W #** 108157	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Large	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1716303; San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission Line 36800 – Canovanas TC to Palmer TC
- **Facility Description:** Transmission line 36800 is a single circuit line with a total of 11.13 miles.
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1716303 **San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC**

********** **Version 1** **********

Version 1 was created to capture additional miles identified needing vegetation clearing. LUMA is submitting those FEMA for approval and obligation. Also, Project Version 0 was submitted as 100% 428 cost, this Project Amendment is request to align the 406 and 428 cost based on the agreed cost split with LUMA and FEMA. Version 1 change in scope and cost as per Applicant provided documentation, Refer to documents labeled: “A - FEMA letter dated March 24 2023.pdf” and “956349 FAASt [San Juan Region 1 Line 36800 (115kV) –Canovanas TC to Palmer TC] (Vegetation) DSOW V1 Rev1.pdf”.

SOW from previous version has been removed from current SOW. It can be found in the “Versioning and Amendments” tab in GM.

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a ?xed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of: Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors. FEMA deferred the 406 Hazard Mitigation Proposal (HMP) ?xed cost offer in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clari?cation letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Stafford Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico’s electric T&D system. See FEMA’s letter to COR3, document Signed Vegetation Management March 24 2023.pdf.The Subrecipient’s actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico’s electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico’s electric T&D system, including areas without infrastructure repairs. The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide ?exibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work. This project captures a portion of the Island-wide actual recovery solution, speci?cally the one-time vegetation clearance and removal operation intended to mitigate the San Juan Region 1 Line 36800 115kV] (see project note #1 and #2).FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue a FCE offer for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation

HMPApproach:115kV/230kV.SeedocumentFAAStVegetationHMPApproach_115- 230kVTrans_20250 805.docx. The PA Scope of Work and Cost is limited to the incidental vegetationclearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $71,987.50 per mile. Therefore, the total cost (PA) for this project will be $470,034.60.

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1716303	$ 71,987.50	6.59	$474,397.63	$(4,363.03)	$470,034.60

Version 1 Work to be completed: $474,397.63- $474,397.63= $0.00 (See project note #8)

Version 1 A&E Deduction (Global A&E FAASt 335168): - $4,363.03+ $4,363.03= $0.00 (See project note #8)

Version 1 Project Total Cost: $0.00 (See project note #8)

Version History:

Version 0: $1,406,614.56 $-42,198.44= $1,364,416.12 (WTBC, A&E Deduction)

Version 1: PA No Cost change $0.00 (WTBC, A&E Deduction, Reconcile funding from De-obligation of V0)

Project Notes:

1. This is a 115kV Transmission-Vegetation clearance HMP Sub-FAASt project.

2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the different ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines have been, and will be, counted only once to avoid duplication within the vegetation clearance projects.

3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A - FEMA letter dated March 24 2023.pdf.

4. For details on the SOW, refer to filename: "956349 FAASt [San Juan Region 1 Line 36800 (115kV) –Canovanas TC to Palmer TC] (Vegetation) DSOW V1 Rev1.pdf"

5. Vegetation clearance funds will not be allocated to SubFAASt projects.

6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

8. This project version includes request for cost modification for both 406 HMP and 428 PA costs, one with positive amount and the other negative. The cost change cannot be pro-cessed in the same version due to system limitation. Thus, two separate versions are re-quired to capture cost change. The current version will obligate the positive funds (whether 406 HMP or 428), and the future version will capture the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: "SP 956349- DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf"

406 HMP Scope

Project number: FAASt [956349] FAASt [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation)

Damage #: 1716303

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: Start: [redacted], End: [redacted]

Change History:

HMP Change History	
Date	Change Description
2/19/2026	V1 to add additional miles and include HM for all the project. (original project w/o hazard mitigation) Cost per mile based on IEP, determination. S determination letter.

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

The Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage to that caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 - San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate to an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with an established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kVand below locations; the third DSOW is Group B locations at 38kVlevel; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be a 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region-specific).

San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC]

This is a Group project for 115kV transmission lines within Region 1 San Juan. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 115kV lines within San Juan (if left untended to), poses to Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully support the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.
Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a lien imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including: reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as: lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $71,987.50 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 115 kV line requiring repair was on average 22.79% related to the repair (428 PA) and 77.21% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $71,987.50 per 6.59 miles, with a total project cost of $474,397.63. For further details, refer to the document "*FAASt VegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf.*"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[956349] FAASt [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 1 San Juan TL of Puerto Rico.

The extent and execution of this scope include performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

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Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 defines the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Reccomended Easement width for overhead Transmission & Sub-Transmission Lines (feet)			
Construction type	Area	Voltage (Kv)	
		38	1
Single Circuit	Urban	25 ft	30
	Rural	50 ft	100
Double Circuit, Same Structure	Urban	25 ft	40
	Rural	50 ft	100
Double Circuit, Different Structures	Rural	50 ft	100

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistently with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 20 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 20 feet wide centered on the pole. Therefore, the 20-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will be used for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 20 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- Tree Removal: Removing above-ground portions of trees while leaving stumps in place.
- Severing of Vines: Cutting vines at the base to create an air gap between the root system and the structure.
- Cutting: Hand removal of small-diameter incompatible species.
- Vegetation Mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 20 feet from all conductors, with the maximum edge of the conductors to be 20 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 20-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 20 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment

B-*"FAAStVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 115k V Assessment & Methodology:
LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyzing the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasis, that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

Assessment Description	Miles
PN956349-36800 - Canovanas TC to Palmer TC - Original HM assessment:	
PN956349-36800- LUMA - Additional Miles after LUMA review.	
Final Circuit Miles to include in the Project	

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$300,8
Risk Factor approved by the DR4339-PR leadership (5%) =	$15,0
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$315,
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($71,9
Hazard Mitigation Total Cost per Mile =	**$243,8**
V0 - Project Total Miles with Vegetation:	
V0 - 10% Buffer (Validated on LUMA approach)	
V1 - Additional Miles (LUMA approach)	
Total Project Miles with Vegetation: **Hazard Mitigation Total Cost =**	**$**

Note: The $243,885.69 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$1

+ HM (Management & General Conditions Factors) =	
Hazard Mitigation Total Cost =	**$**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	
Remaining Vegetation Clearance Cost =	$
Hazard Mitigation Total Cost =	**$**

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The HM Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein corresponding to version 1 is $1,607,206.70 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file)*.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$300,831.61 / mile.** Additionally, the DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$315,873.19 / mile.** After deducting Public Assistance (PA) $71,987.50 amount (incidental work-refer to document FAAStVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf), the final total obligated amount through PA 406 is **$243,885.69 / mile.**

Note: These costs are aligned with the recommendation made by the Independent Expert Panel (IEP), which reviewed and validated the cost calculation methodology to ensure it reflects acceptable and reasonable practices for this type of mitigation activity.

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.
- A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).
- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

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COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:
Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will
undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:
Please refer the following documents.
1. *"Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"*
2. *"FAAStVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf"*
3. *"Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"*
4. *"IWBCA HMP Package.pdf"*
5. *"PN956349 FAASt San Juan Region 1 Line 36800 – Canovanas TC to Palmer TC.kmz"*
6. *"PN956349-DR4339PR-HMCE-20260213-JIIR.xlsx"*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,406,614.56	Uncompleted
3510	1	Lump Sum	($42,198.44)	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted

CRC Gross Cost	$1,364,416.12
Total 406 HMP Cost	$1,607,206.70
Total Insurance Reductions	$0.00
CRC Net Cost	$2,971,622.82
Federal Share (90.00%)	$2,674,460.54
Non-Federal Share (10.00%)	$297,162.28

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f) (1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/3/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

8/11/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

406 Mitigation

There is no additional mitigation information on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- Environmental Review Project Conditions: On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. On February 10, 2026, DOE reissue the order to direct PREPA to permit vegetation management at the Specified Transmission Facilities, as described in Order Nos. 202-25-2, 202-25-2A, and 202-25-2B, and asset management to ensure operational availability of the Specified Transmission Facilities. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE.
- ***Disregard previous conditions*** On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including

any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to reestablish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 07/15/2026 12:15 PM PDT

Review Comments

Version 1 has been created to capture the LUMA change in project cost, as an amendment at the request of Event Leadership (see INC2129477). This version may include both 406 HMP and 428 PA costs, with one as a positive amount and the other as a negative amount. These cannot be processed within the same version; therefore, two separate versions are required. This version will obligate the positive funds (whether 406 HMP or 428 PA), and a subsequent amendment will de-obligate the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. Project has been reviewed, found eligible and reasonable. Subrecipient and recipient are responsible for complying with all grants and subgrant conditions. CLG 07.15.26

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 07/29/2026 1:53 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

v2

General Info

Project #	956349 **P/W #** 108157	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Large	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1716303; San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Transmission Line 36800 – Canovanas TC to Palmer TC
- **Facility Description:** Transmission line 36800 is a single circuit line with a total of 11.13 miles.
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1716303 **San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC**

********** **Version 2** **********

Version 2 has been created as an administrative amendment due to limitations in IFMIS (The Finance system), which cannot currently accommodate two separate accounting streams within a single transaction. This administrative amendment includes the cost changes that were pending in the previous project version. Refer to document: Sub-FAAST Transactions - allocation process.pdf

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of: Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors. FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost offer in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Stafford Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf.The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs. The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work. This project captures a portion of the Island-wide actual recovery solution, specifically the one-time vegetation clearance and removal operation intended to mitigate the San Juan Region 1 Line 36800 115kV] (see project note #1 and #2).FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue a FCE offer for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation.

HMP Approach: 115kV/230kV.See document: FAAStVegetationHMPApproach_115- 230kVTrans_20250 805.docx. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope.

WTBC Cost (PA) = $71,987.50 per mile. Therefore, the total cost (PA) for this project will be $470,034.60.

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1716303	$ 71,987.50	6.59	$474,397.63	$(4,363.03)	$470,034.60

Version 2 Work to be completed: $474,397.63

Version 2 A&E Deduction (Global A&E FAASt 335168): - $4,363.03

Version 2 Project Total Cost: $470,034.60

Change requested (Version 2 – Version 1): $470,034.60 - $1,364,416.12 = -$894,381.52

Summary key changes

Version 0: $1,364,416.12

Version 1: PA No Cost change $0.00 (WTBC, A&E Deduction, Reconcile funding from De-obligation of V0)

Version 2: -$894,381.52

Project Notes:

1. This is a 115kV Transmission-Vegetation clearance HMP Sub-FAASt project.

2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the different ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.

3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A - FEMA letter dated March 24 2023.pdf.

4. For details on the SOW, refer to filename: "956349 FAASt [San Juan Region 1 Line 36800 (115kV) –Canovanas TC to Palmer TC] (Vegetation) DSOW V1 Rev1.pdf"

5. Vegetation clearance funds will not be allocated to SubFAASt projects.

6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

8. This project version includes request for cost modification for both 406 HMP and 428 PA costs, one with positive amount and the other negative. The cost change cannot be pro-cessed in the same version due to system limitation. Thus, two separate versions are re-quired to capture cost change. The current version will obligate the positive funds (whether 406 HMP or 428), and the future version will capture the negative portion. This guidance applies only to Sub-FAASt transactions; non-FAASt transactions remain unchanged. See document file: "SP 956349- DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf"

406 HMP Scope

Project number: FAASt [956349] FAASt [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation)

Damage #: 1716303

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: Start: [redacted], End: [redacted]

Change History:

HMP Change History	
Date	Change Description
2/19/2026	V1 to add additional miles and include HM for all the project. (original project w/o hazard mitigation) Cost per mile based on IEP, determination. S determination letter.

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

The Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage to that caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 - San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate to an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with an established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kVand below locations; the third DSOW is Group B locations at 38kVlevel; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be a 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region-specific).

San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC]

This is a Group project for 115kV transmission lines within Region 1 San Juan. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 115kV lines within San Juan (if left untended to), poses to Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully support the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.
Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a lien imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including: reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as: lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $71,987.50 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 115 kV line requiring repair was on average 22.79% related to the repair (428 PA) and 77.21% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $71,987.50 per 6.59 miles, with a total project cost of $474,397.63. For further details, refer to the document "*FAAStVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf.*"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[956349] FAASt [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 1 San Juan TL of Puerto Rico.

The extent and execution of this scope include performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation

crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 defines the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Reccomended Easement width for overhead Transmission & Sub-Transmission Lines (feet)			
Construction type	Area	Voltage (Kv)	
		38	1
Single Circuit	Urban	25 ft	30
	Rural	50 ft	100
Double Circuit, Same Structure	Urban	25 ft	40
	Rural	50 ft	100
Double Circuit, Different Structures	Rural	50 ft	100

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistently with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 20 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 20 feet wide centered on the pole. Therefore, the 20-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will be used for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 20 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- Tree Removal: Removing above-ground portions of trees while leaving stumps in place.
- Severing of Vines: Cutting vines at the base to create an air gap between the root system and the structure.
- Cutting: Hand removal of small-diameter incompatible species.
- Vegetation Mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 20 feet from all conductors, with the maximum edge of the conductors to be 20 feet wide

centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 20-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 20 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 115k V Assessment & Methodology:
LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyzing the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasis, that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

Assessment Description	Miles
PN956349-36800 - Canovanas TC to Palmer TC - Original HM assessment:	
PN956349-36800- LUMA - Additional Miles after LUMA review.	
Final Circuit Miles to include in the Project	

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$300,8
Risk Factor approved by the DR4339-PR leadership (5%) =	$15,0
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$315,
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($71,9
Hazard Mitigation Total Cost per Mile =	**$243,8**
V0 - Project Total Miles with Vegetation:	
V0 - 10% Buffer (Validated on LUMA approach)	
V1 - Additional Miles (LUMA approach)	
Total Project Miles with Vegetation: **Hazard Mitigation Total Cost =**	**$**

Note: The $243,885.69 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$1
+ HM (Management & General Conditions Factors) =	
Hazard Mitigation Total Cost =	**$**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	
Remaining Vegetation Clearance Cost =	$
Hazard Mitigation Total Cost =	**$**

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The HM Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein corresponding to version 1 is $1,607,206.70 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file)*.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$300,831.61 / mile.** Additionally, the DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$315,873.19 / mile.** After deducting Public Assistance (PA) $71,987.50 amount (incidental work-refer to document FAAStVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf), the final total obligated amount through PA 406 is **$243,885.69 / mile.**

Note: These costs are aligned with the recommendation made by the Independent Expert Panel (IEP), which reviewed and validated the cost calculation methodology to ensure it reflects acceptable and reasonable practices for this type of mitigation activity.

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.
- A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).
- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation.

FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:
Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will
undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:
Please refer the following documents.
1. *"Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"*
2. *"FAASfVegetationHMPApproach_115-230kV Transmission_08.05.2025.pdf"*
3. *"Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"*
4. *"IWBCA HMP Package.pdf"*
5. *"PN956349 FAASt San Juan Region 1 Line 36800 – Canovanas TC to Palmer TC.kmz"*
6. *"PN956349-DR4339PR-HMCE-20260213-JIIR.xlsx"*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$1,406,614.56	Uncompleted
3510	1	Lump Sum	($42,198.44)	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$0.00	Uncompleted
3510	1	Lump Sum	$0.00	Uncompleted
9001	1	Lump Sum	$42,198.44	Uncompleted
9001	1	Lump Sum	($1,406,614.56)	Uncompleted
9001	1	Lump Sum	$474,397.63	Uncompleted
3510	1	Lump Sum	($4,363.03)	Uncompleted

CRC Gross Cost	$470,034.60
Total 406 HMP Cost	$1,607,206.70
Total Insurance Reductions	$0.00
CRC Net Cost	$2,077,241.30
Federal Share (90.00%)	$1,869,517.17
Non-Federal Share (10.00%)	$207,724.13

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f) (1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/3/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

8/11/2025

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

406 Mitigation

There is no additional mitigation information on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- Environmental Review Project Conditions: On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. On February 10, 2026, DOE reissue the order to direct PREPA to permit vegetation management at the Specified Transmission Facilities, as described in Order Nos. 202-25-2, 202-25-2A, and 202-25-2B, and asset management to ensure operational availability of the Specified Transmission Facilities. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE.
- ***Disregard previous conditions*** On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including

any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to reestablish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) (Cost Only)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:02 PM PDT

Review Comments

PA/HM reconciliation completed.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 9:32 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
6/29/2026	4339DRPRP01081571	201741AC-06262026	6/25/2026	$944,885.61

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
1	8/27/2026	$1,446,486.03	90%	Accepted	4339DRPRP01081571
2	10/8/2026	($283,088.90)	90%	Accepted	4339DRPRP01081571
2	10/8/2026	($521,854.47)	90%	Accepted	4339DRPRP01081571
0	9/17/2025	$1,227,974.51	90%	Accepted	4339DRPRP01081571

Exhibit 2

(public version, confidential version to be filed under seal of confidentiality)

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	956335 **P/W #** 108148	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1716280; San Juan Region 1 - Feeder 2301-02

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Feeder 2301-02
- **Facility Description:** Single line distribution feeder project for line 2301-02 (4.80/8.32 kV) in San Juan Region 1. The total length 56.29 miles.
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1716280 **San Juan Region 1 - Feeder 2301-02**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost offer in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Stafford Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf.The Subrecipient's actual recovery solution seeks a one-time island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate the Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not

include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the one-time vegetation clearance and removal operation intended to mitigate the San Juan Region 1 Feeder 2301-02 (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue a FCE offer for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: Distribution. See document FAAStVegetationHMPApproach_Distribution_03.24.2025.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $34,908.51 per mile. Therefore, the total cost (PA) for this project will be $1,798,813.63.

D#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1716280	$ 34,908.51	55.81	$1,948,243.94	$149,430.31	$1,798,813.63

Work to be completed total: $1,948,243.94

A&E Deduction (Global A&E FAASt 335168): -$149,430.31

Project Total: $1,798,813.63

Project Notes:
1. This is a Distribution-Vegetation clearance HMP Sub-FAASt project.
2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the different ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). However, at times there is overlap between these lines (i.e., multiple distribution lines (13.2kV and down) coexist on the same pole infrastructure, transmission lines (38 KV and up) can be located above distribution lines within the same right of way, various lines may pass each other with overlapping right of ways, etc.). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.
3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A - FEMA letter dated March 24 2023.pdf.
4. For details on the SOW, refer to filename 956335 - FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation) DSOW
5. Vegetation clearance funds will not be allocated to SubFAASt projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Au-thority (PREPA) Island Wide FAASt Project.

406 HMP Scope

406 HMP Scope

Project number: [956335] FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation)

Damage number: 1716280

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Region 1 – San Juan, Puerto Rico

GPS Latitude/Longitude: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

The Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the *Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023* Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster-damaged facilities and must prevent future damage to that caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damages may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects The scope ofthe global 406 Hazard Mitigation (HM)projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 15 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems (refer to *"LUMA Vegetation Management 10ft and 12ft clearance diagram (1).pdf* in project documents). Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.

- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate to an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW'sdeveloped capturing planned actions within scopes of work formulated with an established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is GroupA - High Density areas with a low reflection of infrared light, which is associated with impervious locations within the Ponce Region where the majority of the distribution lines are located parallel or adjacent to maintained roads, along maintained land near residential and industrial areas; including disturbed forest fragments around power facilities and non- agricultural areas 13.2kV and below; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be a 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully support the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their supports or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or
surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a lien imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as: lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $34,908.51 per mile.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetatior HMP Approach: Distribution "FAAStVegetationHMPApproach_Distribution_03.24.2025.pdf".

Note: This unit cost specifically applies to the Distribution System projects. The Transmission System projects will require a separate evaluation to determine a unit cost according to the assets characteristics.

Hazard Mitigation Proposal (HMP) Scope of Work:

Damage #1716280; San Juan Region 1 - Feeder 2301-02

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 1 (San Juan) of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPApower Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA'sTechnical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 defines the vertical distance from vegetation as 12 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Vegetation Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Line Type	Voltage Class	Easement Width Edge to Edge Centerline)
Single Phase (1Ø)	7.6/13.2kV	10' (5')
Multi-phase (2-3Ø)	7.6/13.2kV	10' (5')
Double circuit 3Ø	7.6/13.2kV	10' (5')
Aerial Spacer Cable	7.6/13.2kV	10' (5')
Single Phase (1Ø)	=4.8/8.3kV	10' (5')
Multi-phase (2-3Ø)	=4.8/8.3kV	10' (5')

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 12 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed 15 feet. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_Distribution_03.24.2025.pdf".*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.

- Cutting: Cutting typically involves the removal of small diameter species by hand.

- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Power Distribution Primary Group A - Vegetation Clearing Work Locations, Cost, and Description

Distribution lines typically start at substations and branch out in multiple directions to serve end-use customers. The GPS coordinate points provided in "Appendix C", are for the PREPA substations where the Distribution lines start. GIS shapefiles, which show the locations of the lines and the end points, have been uploaded to Grants Portal.

Duplication Analysis

Every project is evaluated for convergence between Distribution and Transmission lines (Overlapped Distribution and Transmission Lines), which typically share poles among different voltages. In cases where overlapped T&D systems are allocated on the same pole, the highest voltage will determine the Vegetation Clearance requirements for that facility. A full review of this analysis will be included in the cost estimation of the project. For damage #1716280; San Juan Region 1 - Feeder 2301-02 the sub-grantee claimed a total length of 56.59 circuit miles (CM). After analysis, we identified duplication of 0.78 CM for 38KV, for duplicated distribution lines. The CM evaluated for vegetation clearance is 55.81 CM. Please refer to the table below for further details.

Duplicity Check					
Total Project Miles	**Duplicity With 38KV in Miles**	**Duplicity With 115KV in Miles**	**Duplicity With 230KV in Miles**	**Duplicity with distribution**	**Miles to Evaluate**
56.59	0.78	0.00	0.00	0.00	55.81

Hazard Mitigation Proposal (HM0.1P) Cost:

[1] HM Vegetation Clearance Cost per Mile (Base Cost) =	$108,102.81 /
Vegetation General Conditions per Mile (15% Soft Cost) =	$16,215.42 /
HM Vegetation Clearance Cost per Mile (w/Soft Cost) =	$124,318.23 /
*Risk Factor approved by the DR4339-PR leadership (5%) =	$130,534.15 /
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($34,908.51 /
Hazard Mitigation Total Cost per Mile =	**$95,625.64 /**
Project Total Miles (PN956335) =	55.81 r
Hazard Mitigation Total Cost per Mile =	$95,625.64 /
Hazard Mitigation Total Cost =	**$5,336,86**

Note: The $95,625.64 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$4,416,2
+ HM (Management & General Conditions Factors) =	$920,6
Hazard Mitigation Total Cost =	**$5,336,8**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$409,3
Remaining Vegetation Clearance Cost =	$4,927,5
Hazard Mitigation Total Cost =	**$5,336,8**

Cost Summary:

The Hazard Mitigation Proposal is divided in 1ea Sub-Project: D#1716280; San Juan Region 1 - Feeder 2301-02 Distribution] Low Density (Vegetation) The total HMP Cost is the HM Net Cost ($4,416,254.23) + Applicant A&E, Management & General Conditions $920,612.74 = $5,336,866.97.

(II) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII.C. defines cost effective mitigation as: The HM Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package.

The cost of the Hazard Mitigation Proposal (HMP) described herein is $5,336,866.97 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file)*.

[1] Validated by FEMA.

[2] FEMA cost analysis in *"FAAStVegetationHMPApproach_Distribution_03.24.2025.pdf"*.

[3] FEMA cost estimate *"PN956335-DR4339PR-HMCE-20250929-RFP.xlsx"*

(III) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$108,102.81 / mile**. An additional 15% amount was added to this base cost for General Conditions, resulting in a total cost of **$124,318.23/mile**. Additionally, the DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in**$130,534.15 / mile.** After deducting Public Assistance (PA) $34,908.51 amount (incidental work-refer to document *FAAStVegetationHMPApproach_Distribution_03.24.2025.pdf*), the final total is **$95,625.64 / mile**.

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.
- A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).
- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENTOF HAZARD MITIGATION: FEMAwill evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant m apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW

(HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION UNDERSTANDING STATEMENT: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION PERFORMANCE: The Applicant must provide & maintain competent & adequate project performance & supervisio during the execution phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & industry standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to th compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

HEAVY MACHINERY USED ON SITE*Tree uprooting and/or removal may be necessary to comply with Regulation 7282. However, uprooting will be minimized and will only be carried out when necessary to ensure the safety of people or protect the asset. There will not be any synthetic or biological chemicals utilized for tree stump removals, however, there may be heavy machinery used for uprooting trees, tree removal, and mulching includes specialized equipment designed for efficient and safe vegetation management.*

Belowis a description of commonly utilized heavy machinery:

I. *Tree Removal and Uprooting*

- *Excavators with Grapple Attachments: Equipped with powerful hydraulic grapples or thumbs to grab and uproot trees, these machines are ideal for handling large trees and stumps.*
- *Bulldozers: Used to push over trees and remove roots. Bulldozers with a ripper attachment can also break up soil and roots.*
- *Skid Steers with Tree Pullers: Compact and versatile, skid steers fitted with tree puller attachments can uproot smaller trees and shrubs effectively.*
- *Backhoes: Used for digging out tree stumps and roots, particularly in areas requiring precision.*
- *Stump Grinders: Specialized machines that grind tree stumps into mulch, leaving the area ready for replanting or other uses.*

II. *Mulching*

- *Forestry Mulchers: These machines are designed to shred trees, branches, and other vegetation into mulch directly on-site. They are typically mounted on excavators, skid steers, or tractors and are suitable for clearing large areas of vegetation.*

- *Chippers: Convert cut branches, tree limbs, and smaller logs into wood chips for disposal or reuse.*

III. *Additional Equipment*

- *Cranes: Used for safely removing large trees in sections, especially in urban or constrained environments.*
- *Tree Spades: Specialized for uprooting and transplanting trees while keeping the root system intact.*
- *Tracked Feller Bunchers: Machines that cut and gather trees in a single operation, useful for logging or large-scale clearing projects.*
- *Log Loaders: Used for handling and transporting felled trees and logs.*
- *Brush Cutters: Heavy-duty cutters designed to clear dense vegetation and small trees.*

Each piece of equipment is selected based on the size of the trees, site conditions, environmental considerations, and project goals.

ARBORICULTURE TECHNIQUES: The ANSI A300 standards for arboriculture establish industry best practices for tree care a maintenance. They provide guidelines for techniques such as pruning, planting, transplanting, soil management, support systems (cabling and bracing), lightning protection, and risk assessment. These standards aim to promote tree health, safety, and structural integrity while minimizing environmental impact. They serve as a resource for professionals, property owners, and organizations to develop effective tree care specifications and ensure consistent, high-quality practices.

ATTACHMENTS:

Please refer the following documents.

1. *"Island-Wide Vegetation Clearance - FEMA letter dated March 24 2023.pdf"*
2. *"LUMA Vegetation Management 10ft and 12ft clearance diagram (1).pdf"*
3. *"FAAStVegetationHMPApproach_Distribution_03.24.2025.pdf"*
4. *"Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"*
5. *"IWBCA HMP Package.pdf"*
6. *"PN956335-DR4339PR-HMCE-20250929-RFP.xlsx"*
7. *PN956335-Duplication.KMZ*

Cost

Code	Quantity	Unit	Total Cost	Section
3510	1	Lump Sum	($149,430.31)	Uncompleted
9001	1	Lump Sum	$1,948,243.94	Uncompleted

CRC Gross Cost	$1,798,813.63
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$1,798,813.63
Federal Share (90.00%)	$1,618,932.27
Non-Federal Share (10.00%)	$179,881.36

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

7/28/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries, and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- FEMA will require that an archaeologist, who meets the Secretary of the Interior (SOI) Qualification Standards (36 CFR Part 61) for archaeology, conduct a Level II Desktop Review and Background Research, as outlined in Stipulation II.D.3.b of the PSPA, for all projects that includes vegetation clearing activities not covered by Tier II Programmatic Allowances and require further Section 106 consultation, as described in the FEMA letter dated March 7, 2025. In this case, the areas of potential effects (APEs) that would be subject to this level of analysis are: ROW segments of unmaintained T&D lines in suburban and/or rural areas where work cannot be conducted from an existing shoulder and/or requires construction of new access roads through undisturbed land within or outside of existing ROWs. The Level II Desktop Review and Background Research results shall be documented in a Phase I Analysis Report, as described in Stipulation II.D.5 of the PSPA, to be submitted to FEMA for review prior to the initiation of any

work in the areas defined above.

- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased) or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning to borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven t been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- ----------Disregard NHPA Conditions----------
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to reestablish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- ***Previous comment applies*** On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [San Juan Region 1 - Feeder 2301-02] (Vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:25 PM PDT

Review Comments

The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. Therefore, the total cost (PA) for this project will be $1,798,813.63.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 8:54 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$1,618,932.27	90%	Accepted	4339DRPRP01081481

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1066730 **PW #** 108244	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] / Former project 811923 (Transmission) (HM Cost alignment version)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
		Incident Start Date	9/17/2017
Project Size	Large	**Incident End Date**	11/15/2017
Activity Completion Date	9/20/2027		
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

The facilities listed below are part of the 5.1 circuit miles of overhead transmission for 38kV Line 16500 from Fajardo TC – Dos Marinas segment. This line is a Near-Term rebuild priority identified by LUMA. However, these structures were identified as having System Remediation Plan (SRP) issues and were considered degraded during a High-Level Assessment (HLA). Due to the degraded condition of these structures, they will be replaced through the Transmission Priority Pole Replacement Program on an expedited basis.

Damage #1516533; FAASt [Transmission Priority Pole Replacement Program Line 16500 Fajardo TC-Dos Marinas]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Line 16500 -Fajardo TC – Dos Marinas
- **Facility Description:** The facilities listed below are part of the 5.1 circuit miles of overhead transmission for 38kV Line 16500 from Fajardo TC – Dos Marinas segment.
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1516533

FAASt [Transmission Priority Pole Replacement Program Line 16500 Fajardo TC-Dos Marinas]

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW may include § 406 hazard mitigation proposals ("HMPs"). The SOW defines the activities that will be performed using Public Assistance ("PA") funding.

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases,

subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to PartC - II. "Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA Project 1066730 – **Transmission Priority Pole Replacement Program Line 16500** under DR-4339-PR Public Assistance. The document provides a detailed description of the project, scope of Public Assistance "PA" construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for Public Assistance "PA" funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

LUMA determined that the two (2) pole structure replacements and eight (8) critical repairs identified in Section 7.0 of this DSOW were degraded during a high-level assessment. This two (2) pole and eight (8) critical repairs are part of the 5.1 circuit miles of overhead transmission for 38kV Line 16500. This project will replace the two (2) degraded pole through the Transmission Priority Pole Replacement Program on an expedited basis. As a hazard mitigation measure, LUMA proposes to install a 12-sided galvanized steel pole to withstand 160mph winds.

7.0 FACILITIES

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any line work, coordinates listed below are the beginning and end points.

See Appendix A for the coordinates of each structure included in this project.

Line Segment	Line Number	GPS Start	GPS End	Voltage (kV)
Fajardo TC – Dos Marinas	16500	[redacted]	[redacted]	38

The following table identifies the location of each critical repair in this project.

Critical Repairs:

Pole	FID	Lat	Long
1	12062516	[redacted]	[redacted]
2	30980257	[redacted]	[redacted]
3	12062527	[redacted]	[redacted]
4	12374182	[redacted]	[redacted]
5	12374186	[redacted]	[redacted]
6	12373431	[redacted]	[redacted]
7	12374309	[redacted]	[redacted]

8	12374093		[redacted]	[redacted]

Structure Replacement:

Pole	FID	Lat.	Long.
1	12373511	[redacted]	[redacted]
2	12373359	[redacted]	[redacted]

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

Please see the attached map on document named:1066730 (811923)-DR4339PR-Detailed SOW-T-Pole TL16500 Fajardo TC-Dos Marinas Rev 2 - signed.pdf

9.0 SECTION 428 SCOPE OF WORK

The proposed type of work for this project:

(X) Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and FEMA-approved industry standards.

__ Improved Project: Restores the pre-disaster function of the facilities and incorporates
__ Subrecipient's request letter included, see Appendix .
__ Recipient's approval letter included, see Appendix .

__ Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.
_ Subrecipient's request letter included, see **Appendix** _.
_ Recipient's approval letter included, see **Appendix** _.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

The Scope of Work entails the removal and replacement of infrastructure necessary to restore the facility in compliance with applicable codes and standards.

1. Poles and components will be replaced per the design methodology and Project Design Criteria.
2. Fajardo TC – Dos Marinas. Structures Scopes:
   - Remove one (1) 45ft wood pole and replace with one (1) 70ft galvanized steel (round) poles in the same location.
   - Remove one (1) 65ft wood pole and replace with one (1) 70ft galvanized steel (round) poles in the same location.
   - Remove and replace four (4) cross arms, twenty-four (24) 69kV disk insulators (primary circuit), twelve (12) 69kV disk insulators (underbuilt circuits), ten (10) 69kV polymer insulators, and all associated hardware.
   - Perform critical repairs for replacing three (3) guy wires and repairing switches and install grounding on five (5) structures, to address critical system repairs.

9.2 CODES & STANDARDS

Per FEMA's SOP, the locally adopted codes/standards and FEMA-approved industry standards used for this project are provided below:

1. Consensus-based codes, per FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020).

2. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.

3. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.

4. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations of most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019)

10.0 SECTION 406 HAZARD MITIGATION PROPOSAL

(Refer to document: 1066730 (811923)-DR4339PR-Detailed SOW-T-Pole TL16500 Fajardo TC-Dos Marinas Rev 2 - signed.pdf)

11.0 COMMON EHP INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope and location of the selected activity.

(X) **Ground disturbance inside of existing footprint.** If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

1. Installation of two (2) pole includes ground disturbance of 10' Depth x 5' Diameter.

2. **See: Appendix F Project Consideration for location.**

3. Skid steer, excavator, dump trucks, manlifts, 120-Ton motor crane, boom trucks 45-ton crane, zoom boom, air compressor, truck digger and flatbed platform.

4. All equipment used will comply with Tier 4 EPA Emission Standards, if available.

__ **Soil testing or boring to be performed as part of pre-construction activities.** If checked, provide a description, location, and dimensions of the testing/boring activities.

__ **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

(X) **Vegetative Removal.** If checked, describe the removal work to be performed, its location, and its extent.

Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the easement. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project **[Project 1066730] FAASt [Region San Juan] High Density (Vegetation)**. The vegetation removal process will be managed in accordance with federal and state regulations.

(X) **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

1. The types of debris to be removed during the demolition process include insulated and bare aluminum and copper cables, PVC conduits, concrete, metal scrap, construction waste, and wood. The debris will be separated and taken to an authorized waste disposal facility.

2. PCBs (Polychlorinated Biphenyls), oil from the transformers, breakers, sealants, and chemical waste will be handled and disposed of according to applicable state and federal regulations. LUMA will provide actual disposal locations and quantities.

Pole disposal will be performed per applicable regulations. Final debris disposal site location will be provided at closeout.

(X) Staging **areas, landing area for air transport, and access roads.** If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

1. The construction of **access roads** is not required for this scope of work. All work for this program will be performed within the current easement of the municipality(ies). Poles are near the roads and are site accessible without need for a new access road.

2. All materials will be stored and dispatched from LUMA's assigned Regional Warehouse. No additional or temporary staging areas are required to store or dispose of them. The existing Regional Warehouse to be utilized as a **staging area** for this project is the Fajardo Region Warehouse (A21), whose coordinates are [redacted]

(X) **Fill material.** If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

1. Fill, gravel, and sand materials will be obtained from a preferred vendor as referenced in the **Appendix A** – Approved Supplier List Directory PR.

___ **Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands.** If checked, provide a description of the activities to be performed in water or wetlands.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) for completing the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering design information. For a more detailed cost estimate refer to the referenced appendix/appendices.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$ 47,131.78**	**$ 1,457.68**	**$ 48,589.46**
MANAGEMENT	**$ 16,626.96**	**$ 514.21**	**$ 17,141.17**
Transmission Pole Replacement for 38 KV TL 16500 Fajardo TC to Dos Marinas, FAAST #: 1066730	**$ 248,300.25**	**$ 7,701.98**	**$ 256,002.23**
GENERAL CONDITIONS	**$ 12,345.77**	**$ 381.81**	**$ 12,727.58**
COST TOTALS	**$ 324,404.76**	**$ 10,055.68**	**$ 334,460.44**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$ -**
	DE-OBLIGATION TO FAASt IF APPLICABLE?		**$ -**
FAASt ALLOCATIONS	FAAST PROJECT #: 1066730 - 428		$ 256,605.84
	FAAST PROJECT #: 1066730 - 406 HM		$ 10,055.68
	FAAST PROJECT #: 1066730 TOTAL:		**$ 266,661.52**

	FAASt A&E # 335168 - 428	$ 51,601.44
	FAASt A&E # 335168 - 406 HM	$ 1,595.91
	FAASt A&E # 335168 TOTAL	**$ 53,197.35**
	FAASt E&M #673691 - 428	$ 16,197.48
	FAASt E&M #673691 - 406 HM	$ 2,440.52
	FAASt E&M #673691 TOTAL	**$ 18,638.00**

Project Cost Summary, 428 Version 0:

Work to be Completed (WTBC): $324,404.76

A&E Deduction (Global A&E FAASt 335168): -$51,601.44

E&M Deduction (Global E&M FAASt 673691): -$16,197.48

Project Total: $256,605.84

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document labeled: *"1066730 (811923)-DR4339PR-Detailed SOW-T-Pole TL16500 Fajardo TC-Dos Marinas Rev 2 - signed.pdf"*.

2. Refer to detailed Cost Estimate provided in document labeled: *"1066730-DR4339PR-Appendix E - Detailed Cost Estimate TL16500 Rev 8.xlsx"*.

3. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.697.

6. Attachments:

   A. 1066730-DR4339PR-Appendix A - Approved Supplier List.pdf

   B. 1066730-DR4339PR-Appendix B - General Arrangement1.pdf

   C. 1066730-DR4339PR-Appendix C - Engineering Plans1.pdf

   D. 1066730-DR4339PR-Appendix D - Consent to Federal Funding Letter - FEMA COR31.pdf

   E. 1066730-DR4339PR-Appendix E - Detailed Cost Estimate TL16500 Rev 8.xlsx

   F. 1066730-DR4339PR-Appendix F - Project Considerations TL165001.xlsx

   G. 1066730-DR4339PR-Appendix G - Cost Effective Hazard Mitigation Measures1.pdf

   H. 1066730-DR4339PR-Appendix H - HM Narative 16500_May.18.2026.pdf

   I. 1066730-DR4339PR-Appendix I Staging Area Plan 165001.pdf

406 HMP Scope

Project number: 1066730 FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] / Former project 811923 (Transmission)

Damage: 1516533; FAASt [Transmission Priority Pole Replacement Program Line 16500 Fajardo TC-Dos Marinas]

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico.

GPS Latitude/Longitude: Start: [redacted] End: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The Method of Repair (MOR) included the replacement of the damaged critical distribution pole (wood), cross-arms, insulators, guy wires, and all associated hardware needed for the new structure. The facilities listed below are part of the 5.1 circuit miles of 38kV Overhead Transmission Line 16500 from Fajardo TC to Dos Marinas segment. The Subrecipient determined that two (2) poles were degraded during a high-level assessment. Given that, this project will replace the two (2) degraded poles through the Transmission Priority Pole Replacement Program on an expedited basis.

In order to minimize the damages in a future event, the sub-recipient proposes as a mitigation measure to increase the strength of the poles by replacing it with a new steel galvanized, 12-sided, tapered shaft distribution pole to mitigate future damage to the structure due to high wind (160mph). Note: The FEMA Accelerated Award Strategy (FAASt) MOR included the PREPA distribution standards and specifications that were based on a 145mph sustained winds. However, the new 2021 PREPA Standard updates the design-criteria to a 160mph sustained winds resistant. The 160mph wind tolerance mitigation measure will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures (Supplementary): Foundations

To avoid damage during future events, the Subrecipient proposes as a mitigation measure, the construction of a concrete base foundation for the utility poles to increase the wind tolerance to 160mph and reduce soil instability. This measure improves the structures resilience against potential flooding and the associated hydrostatic and hydrodynamic forces. 406 HM will cover 100% of the strategy.

Mitigation Measures (Replacement): Poles

To avoid damage in a future event, the Subrecipient proposes as a mitigation measure to increase the strength of the poles by replacing it with a 12-sided, tapered shaft distribution pole to mitigate future damage to the structure due to high wind (160mph). The above mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards. Refer to Appendix J: Section VI.D.1 of the PAPPG V5.

➢ [Distribution Critical Poles Replacement] 406 Mitigation Scope of Work:

Fajardo TC – Dos Marinas.

1. Replace two (2) 70 ft round galvanized steel poles of 145mph windspeed resistance ASCE/SEI 48-19 with two (2) new 70ft 12-sided galvanized steel poles, tapered shaft distribution pole to increase the strength of the pole by increasing the wind tolerance by design to 160mph.

2. Install one (1ea) concrete foundation for one (1ea) 70ft 12-sided galvanized steel pole. {[(4'/2)^2x3.14x10'] - [(2'/2)^2x3.14x10']} / 27 = 3.49CY x 1ea = 3.49 CY

Hazard Mitigation Proposal (HMP) Cost:

Total Net Hazard Mitigation Cost (Base Cost) =	$ 7,387.22
+ HM (Recipient A&E, Management & General Conditions) =	$ 2,668.46
Hazard Mitigation Total Cost =	$ 10,055.68

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 2,440.52
Architecture and Engineering (A&E) =	$ 1,595.91
Construction Cost =	$ 6,019.25
Hazard Mitigation Total Cost =	$ 10,055.68

HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$10,055.68 (Hazard Mitigation Total Cost)**. The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

Cost

Code	Quantity	Unit	Total Cost	Section
3510	1	Lump Sum	($51,601.44)	Uncompleted
9001	1	Lump Sum	$324,404.76	Uncompleted
9001	1	Lump Sum	($16,197.48)	Uncompleted

CRC Gross Cost	$256,605.84
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$256,605.84
Federal Share (90.00%)	$230,945.26
Non-Federal Share (10.00%)	$25,660.58

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Applicant certifies that all work claimed was or will be delivered in an impartial manner without discrimination as required by Title VI of the Civil Rights Act, Section 308 of the Stafford Act, 42 U.S.C. § 5151, and applicable provisions of laws and authorities prohibiting discrimination.
- The Applicant certifies that all impacts/damage claimed was a direct result of the Presidential declaration, was not pre-exisiting damage, and did not result from a lack of maintenance.
- The applicant certifies that all work claimed was required as a direct result of the major disaster declaration, is located within the designated area, and is the Applicant's legal responsibility.
- The applicant certifies that all costs claimed are reasonable and of a type recognized as ordinary and necessary for the type of work as required by 44 C.F.R. § 206.228 and 2 C.F.R. § 200.404.
- The applicant certifies that no work or costs claimed are covered by another funding source. Pursuant to section 312 of the Stafford Act, 42 U.S.C. § 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The applicant acknowledges it is required to notify FEMA through the recipient if it receives assistance for the same work or costs from another Federal agency, insurance, or any other source and return any duplicated funds to FEMA.
- The applicant certifies that all facilities are being restored in accordance with all federal and SLTT code and standard requirements.
- The applicant acknowledges it must comply with EHP laws, regulations, and Executive Orders (EO), including but not limited to, the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and the National Historic Preservation Act (NHPA). The applicant must afford FEMA the opportunity to perform EHP reviews prior to starting any work that has potential to impact the environment or historic properties, including archaeological resources. If the applicant starts work prior to FEMA's completion of the

EHP review, it jeopardizes PA funding for the entire project.

- The applicant acknowledges that under 2 C.F.R. Part 200, it must follow their documented procurement procedures, provided they conform to federal procurement and contracting requirements. The applicant certifies that it is using the most restrictive of either its own documented policies and procedures for procurement or federal procurement and contracting laws in accordance with 2 C.F.R. §§ 200.317 - 200.327. The Applicant is following Environmental Protection Agency guidelines for procurement of recovered materials; and including all applicable required contract provisions.
- The applicant certifies that all information provided is true and correct. Upon submittal this project application becomes a legal document. The False Claims Act (31 U.S.C. §§ 3729-3733) prohibits the submission of false or fraudulent claims for payment to the federal government. It is a violation of federal law to intentionally make false statements or hide information when applying for Public Assistance. This can carry severe criminal and civil penalties including a fine of up to $250,000, imprisonment, or both (18 U.S.C. §§ 287, 1001, 1040, and 3571).
- The applicant acknowledges that it must obtain and maintain insurance coverage for all buildings, contents, equipment, and vehicles in an amount equal to or greater than the total cost, prior to any reductions as required by the Stafford Act § 311, 42 U.S.C. §5154, 44 C.F.R §§ 206.251 - 206.253, and in accordance with FEMA Policy 206-086-1 Public Assistance Policy on Insurance.

Insurance

Additional Information

8/14/2026

GENERAL INFORMATION

Event: 4339DR-PR

Project: SP-1066730

Category of Work: Cat F - Utilities

Applicant: PR Electric Power Authority

Event Type: Hurricane / Maria

Cause of Loss: Wind / Wind Driven Rain

Incident Period: 9/17/2017 to 11/15/2017

Total Public Assistance Amount: CRC Gross Cost $256,605.84

COMMERCIAL INSURANCE INFORMATION

Does the applicant have a Commercial Policy that extends coverage for this facility: Yes

Policyholder per Policy Documents: "*Puerto Rico Electric Power Authority*"

Policies Issued by: Multinational Insurance Company and Mapfre

Policy Numbers:

· Mapfre Praico Insurance Company (1398178000644)

· Multinational Insurance Company (88-CP-000307831-2, 88-CP-000318673-0, 88-CP000318674-0, 88-CP-000318675-0, 88-CP-000318676-0, 88-CP-000318677-0)

Policy Period: From: 5/15/2017 To: 5/15/2018

Policy Limits: $300,000,000.00

RCV or ACV: Replacement Cost Value

Deductible Amount $25,000,000.00 each and every occurrence property damage and 30 days each and every occurrence business interruption in respect of Named Windstorm.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: Yes

The amount of the deductible being funded in this project is $0.00.

The amount of the deductible previously funded in other projects is $0.00.

Final Insurance Settlement Status: Insurance proceeds for this project are anticipated

The amount of Anticipated Insurance Proceeds for Project: $0.00

The amount of Anticipated Insurance Reduction applied for Project: $0.00

***NUMBER* OF DAMAGED LOCATIONS INCLUDED IN THIS PROJECT:** (1)

Damaged Inventory (DI) #1516533:

FAASt [Transmission Priority Pole Replacement Program Line 16500 Fajardo TC-Dos Marinas]

Location Description: The facilities listed below are part of the 5.1 circuit miles of overhead transmission for 38kV Line 16500 from Fajardo TC – Dos Marinas segment.

GPS Coordinates: start: [redacted] end: [redacted]

Cause of Loss: Wind / Wind Driven Rain

Damage Inventory Amount: CRC Gross Cost $256,605.84

-

Prior Obtain and Maintain Requirement:

No prior insurance requirements were found for this facility

-

Reduction(s):

No Reduction is being made to this facility. An anticipated insurance reduction in the amount $275,000,000.00 was applied in FAAST project #136271.

Obtain and Maintain Requirement:

No Obtain & Maintain Requirement is being mandated for (Emergency Protective Measures (*FAASt [Transmission Priority Pole Replacement Program Line 16500 Fajardo TC-Dos Marinas*]) because facility does not meet the definition of building, equipment, contents, or vehicle.

Insurance Proceeds Statement:

FEMA's Recovery Policy FP 206-086-1, Public Assistance Policy on Insurance (June 29, 2015), requires applicants to take reasonable efforts to recover insurance proceeds that it is entitled to receive from its insurers. FEMA will consider final insurance settlements that may be less than the insurance policy limits when an applicant demonstrates that it has taken reasonable efforts to recover insurance proceeds that it is entitled on a case-by-case basis.

Standard Insurance Comments

FEMA Policy 206-086-1
PART 2: Other Insurance-Related Provisions. (Sections 312 and 406(d) of the Stafford Act)

A. Duplication of Benefits. FEMA cannot provide assistance for disaster-related losses that duplicate benefits available to an applicant from another source, including insurance.

1. Before FEMA approves assistance for a property, an applicant must provide FEMA with information about any actual or anticipated insurance settlement or recovery it is entitled to for that property.

2. FEMA will reduce assistance to an applicant by the amount of its actual or anticipated insurance proceeds.

3. Applicants must take reasonable efforts to recover insurance proceeds that they are entitled to receive from their insurer(s).

Charlotte De Jesus Negron, PA Insurance Specialist
CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] / Former project 811923 (Transmission) (HM Cost alignment version).**

406 Mitigation

There is no additional mitigation information on **FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] / Former project 811923 (Transmission) (HM Cost alignment version).**

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation

management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Priority Pole Replacement Program (Line 16500 Fajardo TC-Dos Marinas)] / Former project 811923 (Transmission) (HM Cost alignment version)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:28 PM PDT

Review Comments

Project 1066730 Proposed restoration includes two (2) pole structure replacements and eight (8) critical repairs identified in Section 7.0 of this DSOW were degraded during a high-level assessment. This two (2) pole and eight (8) critical repairs are part of the 5.1 circuit miles of overhead transmission for 38kV Line 16500. This project will replace the two (2) degraded pole through the Transmission Priority Pole Replacement Program on an expedited basis. As a hazard mitigation measure, LUMA proposes to install a 12-sided galvanized steel pole to withstand 160mph winds. This version 0 includes only PA 428 funds for a total of $230,945.26 federal share. Version 1 will include HM 406 funds.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 9:08 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$230,945.26	90%	Accepted	4339DRPRP01082441

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1066980 **P/W #** 108254	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] / Former project 753786 (Transmission) (HM Cost alignment version)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
		Incident Start Date	9/17/2017
Project Size	Large	**Incident End Date**	11/15/2017
Activity Completion Date	9/20/2027		
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

The proposed restoration includes repairs of eligible disaster damage up to required codes and standards and the upgrade of undamaged infrastructure to fully effectuate the restoration of disaster-damaged components and restore the system to an approved industry standard. The Detailed Scope of Work consists of the repair, removal and replacement of the following infrastructure: Line segment 5900 – San Juan SP – Crematorio TO (Remove 2 wood poles and replace with new round steel poles. Install 3 new round steel poles).

Damage #1387151; FAASt [5900 – San Juan SP – Crematorio TO]

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Line 5900 - San Juan SP - Crematorio TO
- **Facility Description:** The facilities listed below are part of the 2 circuit miles of overhead transmission for 38kV Line 5900 – San Juan SP – Crematorio TO segment.
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [redacted]
- **End GPS Latitude/Longitude:** [redacted]

Final Scope

1387151 **FAASt [5900 – San Juan SP – Crematorio TO]**

5.0 INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed.The SOW may include § 406 hazard mitigation proposals ("HMPs"). The SOW de?nes the activities that will be performed using Public Assistance ("PA") funding.

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs,including drawings and cost estimates. FEMA also recognizes that, generally, architects and engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews.Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. "Recipient/Subrecipient Checklist for Submissions as a guide to review completeness." SOP at 4.

This document contains the detailed SOW for FEMA PA Project 1066980– **Transmission Priority Pole Replacement Program Line 5900** under DR-4339-PR Public Assistance.The document provides a detailed description of the project, scope of Public Assistance "PA" construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost

estimates. LUMA is seeking approval from COR3 and FEMA for Public Assistance "PA" funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

6.0 PROJECT DESCRIPTION

LUMA determined during a high-level assessment that the two (2) poles identi?ed in Section 7 of this DSOW were degraded. These two poles are part of the 5.1 circuit miles of overhead transmission for 38kV Line 5900. This project will replace the two (2) degraded poles through the Transmission Priority Pole Replacement Program on an expedited basis. The project will also install three additional (3) new poles. As a hazard mitigation measure, LUMA proposes to install a 12-sided galvanized steel poles to withstand 160mph winds.

7.0 FACILITIES

7.1 FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

None.

7.2 FACILITIES LIST – OTHER FACILITIES

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, coordinates listed below are the beginning and end points.

Line Segment	Line Number	GPS Start	GPS End	Voltage (kV)
San Juan SP – Crematorio TO	5900	[redacted]	[redacted]	38

The following table identi?es the location of each pole to be replaced and installed in this project.

Pole	FID	Lat	Lo
1	14052208	[redacted]	[redacted]
2	New	[redacted]	[redacted]
3	New	[redacted]	[redacted]
4	14052190	[redacted]	[redacted]
5	New	[redacted]	[redacted]

8.0 PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

See the map of the T-Pole 5900, in document: "*1066980-DR4339PR Detailed SOW Rev 4 T Pole Line 5900 2026-06-15 09_21.pdf*".

The proposed type of work for this project:

X Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and FEMA-approved industry standards.

__ Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

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__ Subrecipient's request letter included, see **Appendix ___**.

__ Recipient's approval letter included, see **Appendix ___**.

__ Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

__ Subrecipient's request letter included, see **Appendix ___**.

__ Recipient's approval letter included, see **Appendix ___**.

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

1. Poles and components will be replaced per the design methodology and Project Design Criteria.

2. San Juan SP to Crematorio TO. Structures Scopes:

- Remove two (2) wood utility poles and cross arms and replace with new 70 ft steel galvanized round structures and hardware.
- Install three (3) new midspan 70 ft steel galvanized round structures and hardware.
    - Dig holes for 5 poles.
    - Excavate for all poles - 4' Diameter x 10' Length.
    - Erect steel plate poles.
- Remove ten (10) ceramic insulators and replace them with ten (10) polymer insulators.
- Install seventeen (17) new polymer insulators.
- Remove and replace the existing 50 kVA transformer located on structure FID: 14052190.

9.2 CODES & STANDARDS

Per FEMA's SOP, the locally adopted codes/standards and FEMA-approved industry standards used for this project are provided below:

1. Consensus-based codes, per FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020).
2. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
3. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
4. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations of most of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

10.0 § 406 HAZARD MITIGATION PROPOSAL

FEMA PAPPG v.3.1 provides, "Hazard mitigation is any sustained action taken to reduce or eliminate long-term risk to people and property from natural hazards and their effects." Subrecipient proposes to lessen or eliminate long-term risk to people and property from future natural hazards and their effects by performing the work described in this project to Subrecipient's Transmission Design Criteria, which exceeds required codes and standards. Doing so will directly reduce the potential of the future, similar negative consequences of damage to the T&D system as occurred after Hurricane Maria by improving the system's physical resilience, functional resiliency, and/ or both.

Below is a description of the proposed mitigation opportunity and the proposed scope of work.

10.1 § 406 HAZARD MITIGATION OPPORTUNITY

The transmission system's main objective is to provide ef?cient and reliable interconnection of generation sources with the load centers distributed throughout the island. LUMA's transmission grid connects power generation plants, transmission centers, sectionalizers, and distribution substations through a complex and extensive network of lines, all dependent on one another.

LUMA has included 406 Hazard Mitigation measures in its preliminary design that meet these new and higher standards described above. These standards increase the resiliency of transmission structures in higher-risk exposed areas and incorporate robust structures that can withstand higher wind speeds in vulnerable regions on the island.

10.2 § 406 SCOPE OF WORK

Poles

1. Replace ?ve (5) round steel galvanized poles of 145mph wind speed resistance ASCE/SEI 48-19 with new 70 ft steel galvanized, 12-sided, tapered shaft distribution poles to increase the strength of the pole by increasing the wind tolerance by design to 160mph.

11.0 COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope and location of the selected activity.

X **Ground disturbance inside of the existing footprint**. If checked, provide a description of the ground disturbing activities, including the extent, location, and depth of the disturbance.

1. Installation of all ?ve (5) poles includes ground disturbance with 10' Deep x 5' Diameter.

2. **See: Appendix F Project Consideration for locations.**

3. Skid steer, excavator, dump trucks, manlifts, 120-Ton motor crane, boom trucks 45-ton crane, zoom boom, air compressor, truck digger and flatbed platform.

4. All equipment used will comply with Tier 4 EPA Emission Standards, if available.

__ **Soil testing or boring to be performed as part of pre-construction activities**. If checked, provide a description, location, and dimensions of the testing/boring activities.

__ **Relocation of utilities**. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

X **Vegetative Removal**. If checked, describe the removal work to be performed, its location, and its extent.

Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in project **[Project 753786] FAAst [Region San Juan] High Density (Vegetation)** The vegetation removal process will be managed in accordance with federal and state regulations.

X **Demolition**. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) ?nal debris disposal location; and (4) ?nal debris disposal method.

1. The types of debris to be removed during the demolition process include insulated and bare aluminum and copper cables, PVC conduits, concrete, metal scrap, construction waste, and wood. The debris will be separated and taken to an authorized waste disposal facility.

2. PCBs (Polychlorinated Biphenyls), oil from the transformers, breakers, sealants, and chemical waste will be handled and disposed of according to applicable state and federal regulations. LUMA will provide actual disposal locations and quantities.

3. Pole disposal will be performed per applicable regulations.

X **Staging areas, landing areas for air transport, and access roads**. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

1. The construction of **access roads** is not required for this scope of work. All work for this program will be performed within the current easement of the municipality(ies). Poles are near the roads and are site accessible without need for a new access road.

2. All materials will be stored and dispatched from LUMA's assigned Regional Warehouse. No additional or temporary staging areas are required to store or dispose of them. The existing Regional Warehouse to be utilized as a **staging area** for this project is the Palo Seco General Depot – Distribution Center Warehouse (A11), whose coordinates are [redacted]

X **Fill material**. If the project includes the use of ?ll material, provide the source of the ?ll material including the provider's name and address (if known).

1. Fill, gravel, and sand materials will be obtained from a preferred vendor as referenced in the **Appendix A**-*Approved Supplier List Directory PR*.

__ **Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands**. If checked, provide a description of the activities to be performed in water or wetlands.

12.0 PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with **Class 3 Accuracy +/-30%**) for completing the project are summarized in the table(s) below. The cost estimate(s) were developed utilizing preliminary Architectural and Engineering design information. For a more detailed cost estimate, refer to the referenced appendix/appendices.

COST ESTIMATE			
Cost Element	**428**	**406**	**PROJECT TOTAL**
PLANNING	**$ 72,725.87**	**$ 1,302.91**	**$ 74,028.78**
(A&E) Permitting and Assessments	$ 3,356.68	$ 60.14	$ 3,416.82
(A&E) Environmental Documentation & Management	$ 9,550.41	$ 171.10	$ 9,721.51
(A&E) Engineering Services & Design	$ 59,818.78	$ 1,071.67	$ 60,890.45
MANAGEMENT	**$ 24,854.63**	**$ 445.28**	**$ 25,299.91**
(A&E) Design Development Project Management A&E	$ 881.02	$ 15.78	$ 896.80
(A&E) - Design Lodging & Per Diem A&E	$ 3,984.12	$ 71.38	$ 4,055.50
Project Management	$ 4,992.48	$ 89.44	$ 5,081.92
Construction Management	$ 7,831.34	$ 140.30	$ 7,971.64
Contracting, Procurement & Contract Administration	$ 3,250.01	$ 58.22	$ 3,308.23
Projects Controls (Scheduling, Estimating, Support, Cost Control, Risk, Document Control & Reporting)	$ 3,915.67	$ 70.15	$ 3,985.82
Transmission Pole Replacement and Critical Repairs 38 KV L 5900 San Juan SP to Crematorio TO, FAAST #: 1066980	**$ 407,388.10**	**$ 7,295.00**	**$ 414,683.10**

Transmission Pole Replacement and Critical Repairs 38 KV L 5900 San Juan SP to Crematorio TO, FAAST #: 1066980, material, labor and equipment.	$ 339,032.07	$ 6,101.30	$ 345,133.37
Start Up/Commissioning	$ 5,085.88	$ 91.12	$ 5,177.00
Construction Trespass	$ 1,725.66	$ -	$ 1,725.66
Transportation Expenses	$ 1,695.29	$ 30.37	$ 1,725.66
Security (Field 24 hr)	$ 3,051.53	$ 54.67	$ 3,106.20
Insurance	$ 6,848.99	$ 122.70	$ 6,971.69
Contingency	$ 38,201.67	$ 684.39	$ 38,886.06
Escalation	$ 11,747.01	$ 210.45	$ 11,957.46
GENERAL CONDITIONS	**$ 21,224.02**	**$ 380.23**	**$ 21,604.25**
Sales Tax	$ 4,271.07	$ 76.52	$ 4,347.59
Municipal Construction Tax	$ 16,952.94	$ 303.72	$ 17,256.66
COST TOTALS	**$ 526,192.62**	**$ 9,423.42**	**$ 535,616.04**
DEDUCTIONS	**TOTAL INSURANCE PROCEEDS RECEIVED**		**$ -**
	DE-OBLIGATION TO FAASt IF APPLICABLE?		**$ -**
FAASt ALLOCATIONS	FAAST PROJECT #: 1066980 - 428		$ 407,819.90
	FAAST PROJECT #: 1066980 - 406 HM		$ 9,423.42

FAAST PROJECT #: 1066980 TOTAL:	**$ 417,243.33**
FAASt A&E # 335168 - 428	$ 77,591.01
FAASt A&E # 335168 - 406 HM	$ 1,390.07
FAASt A&E # 335168 TOTAL	**$ 78,981.08**
FAASt E&M #673691 - 428	$ 40,781.70
FAASt E&M #673691 - 406 HM	$ 6,101.30
FAASt E&M #673691 TOTAL	**$ 46,883.00**

Refer to **Appendix E** - Detailed Cost Estimate.

428 Project Summary, Version 0:

Work to Be Completed (WTBC): $526,192.62

E&M Deduction (#673691) 428: -$40,781.70

A&E Deduction (Global A&E FAASt 335168): -$77,591.02 (used $0.02 to avoid rounding difference between Excel and GM total.)

Project Total Cost: $407,819.90

Project Cost Estimate Notes:

1. Refer to detailed SOW provided in document: "*1066980-DR4339PR Detailed SOW Rev 4 T Pole Line 5900 2026-06-15 09_21.pdf*".

2. Refer to detailed cost estimate in document: *"1066980-DR4339PR-Appendix E - Detailed Cost Estimate TL5900 Rev 8(1).xlsx*

3. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as show in in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

2. Equipment and material costs included in this project will be reduced from this project and obligated under FAASt Project #673691, Equipment and Materials, as shown in the table above. Only the base cost of equipment and/or material will be reduced from this project (not labor). All costs associated with Planning, Management, General Conditions, and Contingencies will remain in this project.

5. This project is part of 136271-MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

6. Since in previous version the A&E and E&M dollar amount was deducted, now in version 1 a positive value has been added with the same amount to zero out the cost.

7. In the A&E Deduction cost used $0.02 to avoid rounding difference between Excel and GM total.

13.0 ATTACHMENTS/APPENDICES

The following attachments and appendices are provided with this DSOW:

Item	Document Description or Filename

A	Approved Supplier List
B	General Arrangement
C	Engineering Plans
D	Consent to Federal Funding Letter – FEMA COR3
E	Detailed Cost Estimate TL 5900
F	Project Considerations
G	Cost Effective Hazard Mitigation Measures
H	HM Narrative TL5900
I	Staging Area Plan 5900

406 HMP Scope

Project number: [1066980] FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] / Former project 753786 (Transmission)

Damage: 1387151; FAASt [5900 – San Juan SP – Crematorio TO]

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico.

GPS Latitude/Longitude: Start: [redacted] End: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident caused damage to the electrical system, such as power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The Method of Repair (MOR) included the replacement of the damaged critical distribution pole (wood), cross-arms, insulators, guy wires, and all associated hardware needed for the new structure. The facilities listed below are part of the 2 circuit miles of 38kV Overhead Transmission Line 5900 from San Juan SP to Crematorio TO segment. The Subrecipient determined that two (2) poles were degraded during a high-level assessment. Given that, this project will replace the two (2) degraded poles through the Transmission Priority Pole Replacement Program on an expedited basis. The project will also install three additional (3) new poles. As a hazard mitigation measure, LUMA proposes to install 12-sided galvanized steel poles to withstand 160mph winds.

In order to minimize the damages in a future event, the sub-recipient proposes as a mitigation measure to increase the strength of the poles by replacing it with a with new steel galvanized, 12-sided, tapered shaft distribution pole to mitigate future damage to the structure due to high wind (160mph). Note: The FEMA Accelerated Award Strategy (FAASt) MOR included the PREPA distribution standards and specifications that were based on a 145mph sustained winds. However, the new 2021 PREPA Standard updates the design-criteria to a 160mph sustained winds resistant. The 160mph wind tolerance mitigation measure will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.

Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent, reduce and/or eliminate future natural disaster damage, the subrecipient proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

To avoid damage in a future event, the Subrecipient proposes as a mitigation measure to increase the strength of the poles by replacing it with a 12-sided, tapered shaft distribution pole to mitigate future damage to the structure due to high wind (160mph). The above mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards. Refer to Appendix J: Section VI.D.1 of the PAPPG V5.

➢ [Distribution Critical Poles Replacement] 406 Mitigation Scope of Work:

1. San Juan SP - Crematorio TO

Replace five (5) 70 ft round galvanized steel poles of 145mph windspeed resistance ASCE/SEI 48-19 with five (5) new 70ft 12-sided galvanized steel pole, tapered shaft distribution pole to increase the strength of the pole by increasing the wind tolerance by design to 160mph.

-

Hazard Mitigation Proposal (HMP) Cost:

Total Net Hazard Mitigation Cost (Base Cost) =	$ 7,011.63
+ HM (Subrecipient A&E, Management & General Conditions) =	$ 2,411.80
Hazard Mitigation Total Cost =	**$ 9,423.43**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equipment and Materials (E&M) =	$ 6,101.30
Architecture and Engineering (A&E) =	$ 1,390.07
Construction Cost =	$ 1,932.06
Hazard Mitigation Total Cost =	**$9,423.43**

HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **$9,423.43 (Hazard Mitigation Total Cost)**. The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

***See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents. (HMP, HMP cost estimate, Supporting documents file).*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$526,192.62	Uncompleted
9001	1	Lump Sum	($40,781.70)	Uncompleted
3510	1	Lump Sum	($77,591.02)	Uncompleted

CRC Gross Cost	$407,819.90
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$407,819.90
Federal Share (90.00%)	$367,037.91
Non-Federal Share (10.00%)	$40,781.99

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Applicant certifies that all work claimed was or will be delivered in an impartial manner without discrimination as required by Title VI of the Civil Rights Act, Section 308 of the Stafford Act, 42 U.S.C. § 5151, and applicable provisions of laws and authorities prohibiting discrimination.
- The Applicant certifies that all impacts/damage claimed was a direct result of the Presidential declaration, was not pre-exisiting damage, and did not result from a lack of maintenance.
- The applicant certifies that all work claimed was required as a direct result of the major disaster declaration, is located within the designated area, and is the Applicant's legal responsibility.
- The applicant certifies that all costs claimed are reasonable and of a type recognized as ordinary and necessary for the type of work as required by 44 C.F.R. § 206.228 and 2 C.F.R. § 200.404.
- The applicant certifies that no work or costs claimed are covered by another funding source. Pursuant to section 312 of the Stafford Act, 42 U.S.C. § 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The applicant acknowledges it is required to notify FEMA through the recipient if it receives assistance for the same work or costs from another Federal agency, insurance, or any other source and return any duplicated funds to FEMA.
- The applicant certifies that all facilities are being restored in accordance with all federal and SLTT code and standard requirements.
- The applicant acknowledges it must comply with EHP laws, regulations, and Executive Orders (EO), including but not limited to, the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and the National Historic Preservation Act (NHPA). The applicant must afford FEMA the opportunity to perform EHP reviews prior to starting any work that has potential to impact the environment or historic properties, including archaeological resources. If the applicant starts work prior to FEMA's completion of the EHP review, it jeopardizes PA funding for the entire project.
- The applicant acknowledges that under 2 C.F.R. Part 200, it must follow their documented procurement procedures, provided they conform to federal procurement and contracting requirements. The applicant certifies that it is using the most restrictive of either its own documented policies and procedures for procurement or federal procurement and contracting laws in accordance with 2 C.F.R. §§ 200.317 - 200.327. The Applicant is following Environmental Protection Agency guidelines for procurement of recovered materials; and including all applicable required contract provisions.
- The applicant certifies that all information provided is true and correct. Upon submittal this project application becomes a legal document. The False Claims Act (31 U.S.C. §§ 3729-3733) prohibits the submission of false or fraudulent claims for payment to the federal government. It is a

violation of federal law to intentionally make false statements or hide information when applying for Public Assistance. This can carry severe criminal and civil penalties including a fine of up to $250,000, imprisonment, or both (18 U.S.C. §§ 287, 1001, 1040, and 3571).

- The applicant acknowledges that it must obtain and maintain insurance coverage for all buildings, contents, equipment, and vehicles in an amount equal to or greater than the total cost, prior to any reductions as required by the Stafford Act § 311, 42 U.S.C. §5154, 44 C.F.R §§ 206.251 - 206.253, and in accordance with FEMA Policy 206-086-1 Public Assistance Policy on Insurance.

Insurance

Additional Information

7/22/2026

No adjustments to be made to the previous insurance coverage determination, no revisions to narrative needed, updated applicant tracker if needed, providing administrative function and forwarding project for completion.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo P.R.

6/24/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] / Former project 753786 (Transmission) (HM Cost alignment version).**

406 Mitigation

There is no additional mitigation information on **FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] / Former project 753786 (Transmission) (HM Cost alignment version).**

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to re-establish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to reestablish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- ***Previous comment applies*** On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.
- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Priority Pole Replacement Program (Line 5900 San Juan SP to Crematorio TO)] / Former project 753786 (Transmission) (HM Cost alignment version).**

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:31 PM PDT

Review Comments

Project 1066738 proposed restoration includes: poles and structures (including their foundations), framing and insulators, load break switches (manual and automated), capacitor banks, voltage regulators, transformers (including lightning arresters and fuse cut-outs), conductors, guy wires, anchoring, grounding assemblies, underground cable, underground cable systems, fault interrupting equipment (fuses, reclosers, and sectionalizes), and any other associated components. V0 includes PA 428 funds only for a total of $6,785,158.23 federal share. V1 will include HM 406 funds.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/24/2026 6:09 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$367,037.91	90%	Accepted	4339DRPRP01082541

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1068640 **P/W #** 108268	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Small	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1366672; FAASt [Region 1-San Juan Group B] High Density (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Region 1-San Juan Group B High Density (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead 38kV transmission lines. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1366672 FAASt [Region 1-San Juan Group B] High Density (Vegetation)

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost offer in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Stafford Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the one-time vegetation clearance and removal operation intended to mitigate the Region 1 San Juan (38kV) – non-sensitive (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE offer for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $45,304.20.

D#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total -
1366672	$15,433.57	2.96	$45,683.37	$(379.17)	$45,304.

Work to be completed total: $45,683.37

A&E Deduction (Global A&E FAASt 335168): $(379.17)

Project Total: $45,304.20

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.

2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the different ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines have been, and will be, counted only once to avoid duplication within the vegetation clearance projects.

3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A - FEMA letter dated March 24 2023.pdf.

4. For details on the SOW, refer to filename 1068640 - FAASt [Region 1 San Juan 38Kv – Non-Sensitive] Former project 740406 (vegetation) DSOW Rev1.pdf

5. Vegetation clearance funds will not be allocated to SubFAASt projects.

6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number: [1068640] FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)

Damage #: 1068640

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane Maria, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Island wide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 kV Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the

428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region-specific).

FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)

This is a project for 38kV transmission lines in Region 1 San Juan. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within San Juan (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was

on average 8.34% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per 2.96 mile, with a total project cost of $45,683.37-For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf".

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1068640] FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 1 San Juan TL of Puerto Rico.

The extent and execution of this scope include performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft

Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will be used for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.
- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.
- **Cutting**: Hand removal of small-diameter incompatible species.
- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.
- **All Other Incompatible Species within the Recommended Easement Width:**
- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of

clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyzing the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

		HMP	Cost Estimate
Total Project Miles:		15.68	15.68
Vegetation Miles at 100% of Work		1.27	1.27
Vegetation Miles at 50% of Work		2.83	1.42
Total Miles to Clean		4.11	2.69
Buffer Acceptance:		10%	10%
Vegetation Miles at 100% + Buffer		1.40	1.40
Vegetation Miles at 50% + Buffer		3.12	1.56
Total Miles to Clean with Buffer		4.52	2.96

% of Miles to Clean with Buffer	29%	19%

The total length to be cleared, according to the Hazard Mitigation Proposal (HMP) is 4.52 miles, which includes a 10% buffer due the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is 2.96 miles, which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

(III) Hazard Mitigation Proposal (HMP) Cost:

Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 /
Risk Factor approved by DR4339-PR leadership (5%) =	$8,808.67 /
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14
PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57 /
Hazard Mitigation Total Cost per Mile =	**$169,548.57 /**
Project Total Miles with Vegetation: Buffer Acceptance:	2.69-
Project Total Miles with Vegetation:	2.96
Hazard Mitigation Total Cost =	**$501,8**

Note: The 169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.

Total Net Hazard Mitigation Cost (Base Cost) =	$477,9
+ HM (Management & General Conditions Factors) =	$23,
Hazard Mitigation Total Cost =	**$501,**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$4,'
Remaining Vegetation Clearance Cost =	$497,(
Hazard Mitigation Total Cost =	**$501,**

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The HM Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein corresponding to version 0 is **$501,863.77** (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file)*.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.
- A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).
- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. *"Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"*
2. *"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*
3. *"Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"*
4. *"IWBCA HMP Package.pdf"*
5. *"PN1068640-DR4339PR-HMP-20260729-RFP Rev2.pdf"*
6. *"PN1068640-SanJuan_B_38KV_No20SLP_.kmz"*
7.
8. *"PN1068640-DR4339PR-HMCE-IEP-20260729-RFP R3.xlsx"*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$45,683.37	Uncompleted
3510	1	Lump Sum	($379.17)	Uncompleted

CRC Gross Cost	$45,304.20
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$45,304.20
Federal Share (90.00%)	$40,773.78
Non-Federal Share (10.00%)	$4,530.42

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Applicant/Subrecipient was informed of the PA Alternative Procedures (Pilot Program). The Subrecipient has elected FEMA's standard procedures for this project.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Charlotte De Jesus Negron, PA Insurance Specialist
CRC Atlantic, Guaynabo, PR

O&M Requirements

> There are no Obtain and Maintain Requirements on **FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)**.

406 Mitigation

> There is no additional mitigation information on **FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of

Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to reestablish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Region 1 San Juan 38Kv – Non-Sensitive]/ Former project 740406 (vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:10 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 2.96 miles of 38kV transmission lines in Region 1–San Juan; no permanent infrastructure repairs are included. The WTBC cost is $45,683.37, based on $15,433.57 per mile. The final PA project cost is $45,304.20.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 9:39 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$40,773.78	90%	Accepted	4339DRPRP01082681

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1068642 **P/W #** 108269	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Large	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1366673; FAASt [Region 3-Bayamon Group B] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Region 3-Bayamon Group B (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1366673 **FAASt [Region 3-Bayamon Group B] (Vegetation)**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost offer in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Staford Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation
Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide

vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the onetime vegetation clearance and removal operation intended to mitigate the Region 3 Bayamon (38kV) – non-sensitive (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE offer for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $191,471.45

DSOW: [1068642] FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408

(vegetation)

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1366673	$15,433.57	12.51	$193,073.96	$(1,602.51)	$191,471.45

Work to be completed total: $193,073.96

A&E Deduction (Global A&E FAASt 335168): -$(1,602.51)

Project Total: $191,471.45

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.

2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution:13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the different ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines have been, and will be, counted only once to avoid duplication within the vegetation clearance projects.

3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A - FEMA letter dated March 24 2023.pdf.

4. For details on the SOW, refer to filename 1068642 FAASt [Region 3 Bayamon 38Kv – Non-Sensitive] Former project 740408 (vegetation) DSOW Rev1.pdf

5. Vegetation clearance funds will not be allocated to SubFAASt projects.

6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number: FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)

(vegetation)

Damage #: 1366673

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Bayamon , Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón

- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)

This is a project for 38kV transmission lines in region 3 Bayamojn. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within Bayamon (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing

trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34%% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **12.51 miles,** with a total project cost of **$193,073.96.** For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1068642] FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 3 Bayamon TL of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power

distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

· Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

· Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.

· Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.

· Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

· **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.

· **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.

· **Cutting**: Hand removal of small-diameter incompatible species.

· **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

· All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

· Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.

· Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is

above ground, leaving the stump in place.

· Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.

· Cutting: Cutting typically involves the removal of small diameter species by hand.

· Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyze the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

The total miles to be addressed in the Hazard Mitigation Proposal (HMP) is **13.31 miles**, which includes a 10% buffer due the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **12.51 miles,** which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

		HP
Total Project Miles:	34.71	34.71
Vegetation Miles at 100% of Work	10.66	10.66
Vegetation Miles at 50% of Work	1.44	0.72
Total Miles to Clean	12.10	11.38
Buffer Acceptance:	0.10	10%
Vegetation Miles at 100% + Buffer	11.72	11.72
Vegetation Miles at 50% + Buffer	1.44	.79
Total Miles to Clean with Buffer	13.16	12.51

% of Miles to Clean with Buffer	38%	36%

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by the DR4339-PR leadership (5%) =	$8,808.67 / mile
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57/ mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**
Project Total Miles with Vegetation: Buffer Acceptance:	11.38-miles 10%
Project Total Miles with Vegetation:	12.51 miles
Hazard Mitigation Total Cost =	**$2,121,052.61**

Note: The $169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$2,020,050.12
+ HM (Management & General Conditions Factors) =	$101,002.49
Hazard Mitigation Total Cost =	**$2,121,052.61**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$17,604.74	
Remaining Vegetation Clearance Cost =	$2,103,447.87	
Hazard Mitigation Total Cost =	**$2,121,052.61**	

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The HM Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein corresponding to version 0 is **$2,121,052.61 (Hazard Mitigation Total Cost).** The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file).*

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

· Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.

· A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).

· Work orders must account for the entire feeder length distance and include a description of the sections both with and without

vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. "Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"
2. "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"
3. "Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"

4. "IWBCA HMP Package.pdf"
5. PN1068642-DR4339PR-HMP-WJP-20260728.pdf"
6. "1068642-FAASt [Region 3 Bayamon 38Kv .kmz"
7. "PN1068642-DR4339PR-HMCE-WJP-20260728.xlsx"

Date Downloaded: 10/9/26 8:27am PDT

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$193,073.96	Uncompleted
3510	1	Lump Sum	($1,602.51)	Uncompleted

CRC Gross Cost	$191,471.45
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$191,471.45
Federal Share (90.00%)	$172,324.31
Non-Federal Share (10.00%)	$19,147.14

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- Subrecipient agrees to fund any cost overrun associated with completion of the approved Scope of Work.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

7/31/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Olga Renta, PA Insurance Specialist
CRC Atlantic, Guaynabo, PR

O&M Requirements

> There are no Obtain and Maintain Requirements on **FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)**.

406 Mitigation

> There is no additional mitigation information on **FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.

There is no additional environmental historical preservation on **FAASt [Region 3 Bayamon 38Kv – Non-Sensitive]/ Former project 740408 (vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:21 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 12.51 miles of 38kV transmission lines in Region 3–Bayamón; no permanent infrastructure repairs are included. The WTBC cost is $193,073.96, based on $15,433.57 per mile. The final PA project cost is $191,471.45.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 9:31 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$172,324.31	90%	Accepted	4339DRPRP01082691

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1068647 **PW #** 108271	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Region 2 Arecibo 38Kv – Non-Sensitive]/ Former project 740410 (vegetation)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Small	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1366676; FAASt [Region 2-Arecibo Group B] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Region 2-Arecibo Group B (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1366676 **FAASt [Region 2-Arecibo Group B] (Vegetation)**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost offer in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Stafford Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the

existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the one-time vegetation clearance and removal operation intended to mitigate the Region 2 Arecibo (38kV) – non-sensitive (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE offer for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $2,601.93.

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1366676	$15,433.57	0.17	$2,623.71	$(21.78)	$2,601.93

Work to be completed total: $2,623.71

A&E Deduction (Global A&E FAASt 335168): -$(21.78)

Project Total: $2,601.93

Project Notes:

1. This is a 38kV Transmission-Vegetation clearance HMP Sub-FAASt project.

2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the different ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines have been, and will be, counted only once to avoid duplication within the vegetation clearance projects.

3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A - FEMA letter dated March 24 2023.pdf.

4. For details on the SOW, refer to filename: 1068647- FAASt [Region 2 Arecibo 38Kv – Non-Sensitive] Former project 740410 (vegetation)DSOW Rev1.pdf

5. Vegetation clearance funds will not be allocated to SubFAASt projects.

6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.

7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number: FAASt [1068647] FAASt [Region 2 Arecibo 38Kv – Non Sensitive]/ Former project 740410

(vegetation)

Damage #: 1366676

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Arecibo, Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

FAASt [Region 2 Arecibo 38Kv – Non-Sensitive]/ Former project 740410 (vegetation)

This is a project for 38kV transmission lines in region 2 Arecibo. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within Arecibo (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.

- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34%% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **0.17 miles,** with a total project cost of **$2,623.71.** For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1068647] FAASt [Region 2 Arecibo 38Kv – Non Sensitive]/ Former project 740410

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 2 Arecibo TL of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.

- Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.

- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.

- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.

- **Cutting**: Hand removal of small-diameter incompatible species.

- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.

- Cutting: Cutting typically involves the removal of small diameter species by hand.

- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyze the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

	HMP	Cost Estimate
Total Project Miles:	1.19	1.19
Vegetation Miles at 100% of Work	0.00	0.00
Vegetation Miles at 50% of Work	0.30	0.15
Total Miles to Clean	0.30	0.15
Buffer Acceptance:	10%	10%
Vegetation Miles at 100% + Buffer	**0.00**	**0.00**

Vegetation Miles at 50% + Buffer	**0.33**	**0.17**
Total Miles to Clean with Buffer	**0.33**	**0.17**
% of Miles to Clean with Buffer	28%	14%

The total length to be cleared, according to the Hazard Mitigation Proposal (HMP)is **0.33 miles**, which includes a 10% buffer due the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **.17 miles**, which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by the DR4339-PR leadership (5%) =	$8,808.67 / mile
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57/ mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**
Project Total Miles with Vegetation: Buffer Acceptance:	0.15-miles 10%
Project Total Miles with Vegetation:	0.17 miles
Hazard Mitigation Total Cost =	**$28,823.26**

Note: The $169,548.57/mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$27,450.72
+ HM (Management & General Conditions Factors) =	$1,372.54
Hazard Mitigation Total Cost =	**$28,823.26**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$ 239.23	
Remaining Vegetation Clearance Cost =	$28,584.03	
Hazard Mitigation Total Cost =	**$28,823.26**	

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The HM Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the Subrecipient responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects. Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein corresponding to version 0 is **$28,823.26 (Hazard Mitigation Total Cost).** The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

**See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file)*.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.

A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).

- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. "Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"
2. "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"
3. "Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"
4. "IWBCA HMP Package.pdf"
5. "PN1068647-DR4339PR-HMP-20260728-REG.pdf"
6. "PN1068647-Arecibo 38KV.kmz"
7. "PN1068647-DR4339PR-HMCE-IEP-20260728-REG"

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$2,623.71	Uncompleted
3510	1	Lump Sum	($21.78)	Uncompleted

CRC Gross Cost	$2,601.93
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$2,601.93
Federal Share (90.00%)	$2,341.74
Non-Federal Share (10.00%)	$260.19

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of all of its small projects and compliance with all environmental and historic preservation requirements within 180 days of the applicant's completion of its last small project, or the latest approved deadline, whichever is sooner.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

7/31/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the Emergency Protective Measures represented on this project are typically not insured or insurable. No insurance relief is anticipated.

FEMA requires the applicant to make reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. The applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jesus M. Vela Ayala, PA Senior Insurance Specialist - CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Region 2 Arecibo 38Kv – Non-Sensitive]/ Former project 740410 (vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Region 2 Arecibo 38Kv – Non-Sensitive]/ Former project 740410 (vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in

the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Region 2 Arecibo 38Kv – Non-Sensitive]/ Former project 740410 (vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:09 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 0.17 miles of 38kV transmission lines in Region 2–Arecibo; no permanent infrastructure repairs are included. The WTBC cost is $2,623.71, based on $15,433.57 per mile. The final PA project cost is $2,601.93. Due to limitation of transactions, HM funding will be processed in a separate version.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 9:49 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$2,341.74	90%	Accepted	4339DRPRP01082711

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1068665 **P/W #** 108276	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Guayanilla Streetlighting] / Former project 724605 (Distribution) (HM Cost alignment version)	**Event**	4339DR-PR (4339DR)
		Declaration Date	9/20/2017
Project Size	Large	**Incident Start Date**	9/17/2017
Activity Completion Date	9/20/2027	**Incident End Date**	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1335512; FAASt [Distribution Streetlighting - Guayanilla] (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Distribution Streetlighting - Guayanilla
- **Facility Description:** There are an estimated 500,000 streetlights in Puerto Rico that are owned by Puerto Rico Electric Power Authority "PREPA" and serviced by LUMA. While assessing the distribution streetlighting system, it is anticipated that numerous damaged streetlights will be identified that require immediate repair to avoid safety hazards, violations of federal or local ordinance, and imminent equipment failures. Pole – This can be either a standalone structure intended to house a streetlight, or a utility pole shared with other overhead utilities • Arm – A piece of hardware affixed to a pole to which a luminaire is mounted. The arm serves to position the streetlight over the street for optimal lighting • Luminaire/Light Bulb – The light emitting part of a streetlight • Light controller (e.g., photocell) – A hardware device affixed to the luminaire which controls the operating mode • Communication network – A wired or wireless system that allows the smart streetlight to communicate with other devices and the control system • Technology control system – A software platform that allows a remote operator to set the operating parameters for the smart streetlight or manually override the parameter if needed
- **Approx. Year Built:** 1970
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1335512 FAASt [Distribution Streetlighting - Guayanilla] (Distribution)

INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and may include § 406 hazard mitigation proposals ("HMPs"). The SOW defines the activities that will be performed using Public Assistance ("PA") funding.

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to

enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness."

This document contains the detailed SOW for FEMA PA Project 1068665 FAASt [Guayanilla Streetlighting] / Former project 724605 (Distribution), under DR-4339-PR Public Assistance. The document provides a detailed description of the project, scope of PA construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

PROJECT DESCRIPTION

The proposed scope of work addresses the impacts on the streetlight facilities caused by Hurricane María. The project's objectives are to repair, replace, and upgrade the existing streetlight components to consensus-based codes and/or standards and mitigate future similar damage.

The project's final deliverables will include fully functional and upgraded streetlight facilities. These deliverables include replacing existing lighting components, poles, and disposal of hazardous materials. The proposed § 406 Hazard Mitigation Scope of Work (Section 10.2 below) will also increase the strength of the poles by increasing the wind tolerance of all materials to 160 mph. The completion of the project will ensure improved lighting infrastructure, enhanced safety measures, and increased resilience to future challenges.

FACILITIES

FACILITIES LIST – BUILDINGS AND SUBSTATIONS
The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:
None

FACILITIES LIST
The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, coordinates listed below are the beginning and end points.

Name	Damage Number	GPS Location
Guayanilla Municipality	1335512	Please refer to Appendix B for a list of all GPS locations to be impacted by this project.

Existing Lighting Components:
The existing lighting components include photo controls, luminaires, arms, and associated hardware. These components are installed on various poles throughout the municipality.

Existing Streetlight Poles:
The streetlight poles are made of aluminum, wood, steel, or concrete. Concrete poles are octagonal, varying in height from 33ft to 35ft, and installed to a depth of 5ft to 6ft. Aluminum poles are typically 30ft high, with increased strength versions reaching 40ft in height. Secondary wood poles and 35ft steel poles are also present, designed to withstand specific wind forces.

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

Please see the attached map identified as Work Zone Map at Appendix A.

§ 428 SCOPE OF WORK

The proposed type of work for this project:
[X] Standard Project: Restores the facility/facilities to pre-disaster design and function to locally-adopted codes/standards and/or FEMA-approved industry standards.

[ ] Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.
[ ] Subrecipient's request letter included, see Appendix .
[ ] Recipient's approval letter included, see Appendix .

[ ] Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.
[ ] Subrecipient's request letter included, see Appendix .
[ ] Recipient's approval letter included, see Appendix .

9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED
The proposed restoration includes the repair of eligible disaster damage up to required codes and standards and the request to upgrade undamaged infrastructure that must be addressed to fully effectuate the restoration of disaster-damaged components to restore the system's function to an approved industry standard. The Detailed Scope of Work consists of the repair, removal, replacement, and addition of the following infrastructure to restore this facility to codes and standards. Refer to Appendix D – Project Considerations Guayanilla Municipality.

Work Description	**Number of Points**
Components only, does not require pole replacement, installation, removal	
Components only, does not require pole replacement, installation, removal. Luminaire Location Change (LLC)	
Secondary pole removal only, with third party attachments. Luminaire Location Change (LLC)	
Secondary pole replacement, installation, removal, with third party attachments	
Secondary pole replacement, installation, removal, without third party attachments	
Streetlight pole replacement, installation, removal without underground repair	
Grand Total	

9.1.1. Lighting Components Replaced
• Remove existing lighting components, including photo controls, luminaires, arms, and associated hardware, and replace them with new lighting components. Quantities for these replacements are provided in the table above.
• Brush vegetation, as identified, to gain access to the pole and conduct repairs.
• Perform site evaluation and dispose of universal bulbs and photocells in an authorized facility.

9.1.2. Pole Replacement
• Remove and replace existing streetlight poles, including lighting components. Quantities for these replacements are provided in the table above. The locations of the poles and description of work on each pole are described in Appendix D – Project Considerations Guayanilla Municipality.
• Brush vegetation, as identified, to gain access to the pole and conduct repairs.
• All work for this program will be performed within the municipality's existing electrical easement.

9.2 CODES & STANDARDS

Per FEMA's SOP, the locally adopted codes/standards and/or FEMA-approved industry standards used for this project are provided below:
• LUMA Distribution Design Manual (See Applicant Profile)
• LUMA Streetlighting Construction Standards (See Applicant Profile)

For § 406 HAZARD MITIGATION PROPOSAL see document labeled: 1068665-DR4339PR-Guayanilla Streetlight-Detailed Scope of Work- Rev. 5

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

[X] Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.
• All work for this program will be performed within the existing electrical easement of the municipality. Poles are near the roads and are site accessible.
• Streetlights Poles: Appendix C and Appendix D contain coordinates for streetlight poles where ground disturbance is required. The replacement of poles has a standard diameter for ground disturbance of 18 inches. The depth of the poles to be installed is stated in Appendix D (see "Soil area and depth impact" column).
• Equipment to be used includes Skid Steer, Excavator, Dump trucks, Man lifts, 120-ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Filtering Machine, and Flatbed platform.

[ ] Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

[ ] Relocation of utilities. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

[X] Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.
• Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in 727530- FAASt [Region 6 -Ponce Group C] (Vegetation), 727531- FAASt [Region 6 -Ponce Group A] High Density (Vegetation), and 750063- FAASt [Region 6 -Ponce Group A] Low Density (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

[X] Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.
• Construction Debris: The debris that will be produced during removal is luminaires, polearms, photocells, metal scrap, wiring, concrete, steel, and wood poles. The debris will be separated and taken to an authorized waste disposal facility.
• Luminaires are considered universal waste and will be disposed of by the contractor in authorized facilities.
• The Project does not include removal and/or disposal of transformers because they are secondary voltage facilities, and transformer removal pertains to primary voltage facilities.
• GPS location of temporary debris storage sites, final debris disposal location, and final debris disposal method have not been identified yet.

[X] Staging areas, landing area for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).
• Staging Areas: Staging areas within the work site have not been identified at this moment. The contractor must provide the information on the staging areas as soon as available. Staging areas are confined to previously disturbed or hardened surfaces.
o All materials are stored and dispatched from the assigned LUMA Regional Warehouse. The location assigned for this project is the Ponce Warehouse, [redacted]
• Access Roads: The construction of access roads is not required for this scope of work. (Refer to Appendix D in the "Site Accessible" column.).

[X] Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).
• Fill, gravel, and sand materials will be obtained from a preferred vendor as referenced in the Approved Supplier List Directory PR (see Applicant Profile).

[ ] Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering design information. For a more detailed cost estimate refer to Appendix C – Cost Estimate.

Distribution Streetlights Estimate Summary - Guayanilla					
Cost Element	**Total Cost Estimate**	**Cost Factor**	**FAASt Project 1068665 (428 Cost Estimate)**	**FAASt Project 1068665 (406 Cost Estimate)**	**A&E FAASt Project 335168 (428)**
Planning, Permits and Applications (A&E)	$70,056.30	1.00%	$ 0.00	$3,465.01	$66,591.29
Environmental Management (A&E)	$210,168.89	3.00%	$ 0.00	$10,395.03	$199,773.86
Project Management (A&E)	$70,056.30	1.00%	$ 0.00	$3,465.01	$66,591.29
Engineering - A&E Estimate	$463,369.50	6.61%	$ 0.00	$22,918.42	$440,451.08
Engineering - Owners Engineering (A&E)	$350,281.48	5.00%	$ 0.00	$17,325.04	$332,956.44
Construction - Labour & Materials	$7,005,629.50	100.00%	$6,659,128.63	$346,500.87	$ 0.00
Construction – Project Management	$280,225.18	4.00%	$266,365.15	$13,860.03	$ 0.00
Construction - Site Management	$350,281.48	5.00%	$332,956.44	$17,325.04	$ 0.00
Construction - Quality Inspections	$210,168.89	3.00%	$199,773.86	$10,395.03	$ 0.00
Construction - Contingency	$490,394.07	7.00%	$466,139.01	$24,255.06	$ 0.00
TOTAL PROJECT COST ESTIMATE	**$9,500,631.59**		**$7,924,363.09**	**$469,904.54**	**$1,106,363.96**

Refer to Appendix C – Cost Estimate.

Work to be Completed (WTBC): $7,924,363.09

A&E Deduction (Global A&E FAASt 335168): -$0.00 (See project note 3)

E&M Deduction (Global E&M FAASt 673691): -$0.00 (See project note 3)

Project Total: $7,924,363.09

Project Notes:

1. Refer to detailed SOW provided in document labeled: "1068665-DR4339PR-Guayanilla Streetlight-Detailed Scope of Work-Rev. 5"

2. Refer to detailed Cost Estimate provided in document labeled: "1068665-DR4339PR-Guayanilla Streetlight-Appendix C - Cost Estimate Guayanilla Municipality Rev. 2"

3. Regarding the Equipment and Materials(E&M) and A&E cost in this project see the PDMG clarification in the document labeled: "1068665-DR4339PR-Clarification.pdf"

4. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project

5. Attachments
   a. Appendix A - Guayanilla Work Zones Map
   b. Appendix B – M Municipality Work Zones FIDs SIDs and Coordinates
   c. Appendix C – Cost Estimate Guayanilla Municipality
   d. Appendix D – Project Considerations Guayanilla Municipality
   e. Appendix E - FEMA 406 Justification: Streetlight Program

406 HMP Scope

406 HMP Scope

Project number: FAASt [Guayanilla Streetlighting] / Former project 724605 (Distribution)

Damage #1335512; FAASt [Distribution Streetlighting - Guayanilla] (Distribution).

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Guayanilla, Puerto Rico

GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident causeddamage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

In the Guayanilla Municipality, PREPA has a total of 2,453 streetlights luminaries. The Method of Repair (MOR) includes the replacement of the damage lighting components including photocells, luminaires, arms, and associated hardware. Also include the replacement of the damage distribution and streetlight poles (wood, concrete, galvanized & aluminum), the replacement of the aerial secondary wiring connections, and the construction of new concrete base for the aluminum streetlight poles. According to the information provided by the Applicant, due to the high velocity hurricane winds, wind-blown debris, and prolonged heavy rain, were the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the Applicant is proposing as a mitigation measure, increase the strength of the poles, aluminum poles breakaway bases, and foundations (concrete bases) by increasing the wind tolerance of all materials to 160mph. **Note:** The FEMA Accelerated Award Strategy (FAASt) MOR included the PREPA distribution standards and specifications that were based on a 90mph sustained winds for all materials. Although in PREPA Technical Communication #13-02 (August 22, 2013) a design-criteria of 145mph winds were published, the specifications for streetlighting material were never revised, and in the specification documents, the 90mph winds stayed as the requirement for procurement purposes of all streetlighting materials. The 160mph wind tolerance mitigation measure will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent or reduce future damages from similar events, the applicant proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. To avoid damage in a future event, the Applicant is proposing as a mitigation measure, increase the strength of aluminum and concrete poles, breakaway bases, and foundations (concrete bases) by increasing the wind tolerance of all materials to 160mph. The FAASt MOR used PREPA distribution standards and specifications that were based on a 90mph sustained winds for all materials. Although in PREPA Technical Communication #13-02 (August 22, 2013) a design-criteria of 145mph winds were published, the specifications for streetlighting material were never revised, and in the specification documents, the 90mph winds stayed as the requirement for procurement purposes of all streetlighting materials. These mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards. Refer to Appendix J: Section VI.D.1 of the PAPPG V3.1.

406 Mitigation Scope of Work:

- Replace (91ea) 33ft octagonal concrete poles by (91ea) 35ft octagonal concrete poles.
- Replace (634ea) 35ft galvanized poles by (634ea) 35ft S3.5 galvanized poles.

(III) Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 346,500.87
+ HM (Applicant A&E, Management & General Conditions) =	$ 123,403.67
Hazard Mitigation Total Cost =	**$ 469,904.54**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Equ1pment and Materials (E&M) =	$ 0.00
Architecture and Engineering (A&E) =	$ 57,568.51
Construction Cost=	$ 412,336.03
Hazard Mitigation Total Cost =	**$ 469,904.54**

(V) HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects.". Please see attached IWBCA Package.

The cost of the Hazard Mitigation Proposal (HMP) described herein is $469,904.54 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP cost estimate, Supporting documents file).***

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$7,924,363.09	Uncompleted

CRC Gross Cost	$7,924,363.09
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$7,924,363.09
Federal Share (90.00%)	$7,131,926.79
Non-Federal Share (10.00%)	$792,436.30

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.

- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.

- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.

- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.

- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.

- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.

- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.

- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

- The Applicant certifies that all work claimed was or will be delivered in an impartial manner without discrimination as required by Title VI of the Civil Rights Act, Section 308 of the Stafford Act, 42 U.S.C. § 5151, and applicable provisions of laws and authorities prohibiting discrimination.

- The Applicant certifies that all impacts/damage claimed was a direct result of the Presidential declaration, was not pre-exisiting damage, and did not result from a lack of maintenance.

- The applicant certifies that all work claimed was required as a direct result of the major disaster declaration, is located within the designated area, and is the Applicant's legal responsibility.

- The applicant certifies that all costs claimed are reasonable and of a type recognized as ordinary and necessary for the type of work as required by 44 C.F.R. § 206.228 and 2 C.F.R. § 200.404.

- The applicant certifies that no work or costs claimed are covered by another funding source. Pursuant to section 312 of the Stafford Act, 42 U.S.C. § 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The applicant acknowledges it is required to notify FEMA through the recipient if it receives assistance for the same work or costs from another Federal agency, insurance, or any other source and return any duplicated funds to FEMA.

- The applicant certifies that all facilities are being restored in accordance with all federal and SLTT code and standard

requirements.

- The applicant acknowledges it must comply with EHP laws, regulations, and Executive Orders (EO), including but not limited to, the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and the National Historic Preservation Act (NHPA). The applicant must afford FEMA the opportunity to perform EHP reviews prior to starting any work that has potential to impact the environment or historic properties, including archaeological resources. If the applicant starts work prior to FEMA's completion of the EHP review, it jeopardizes PA funding for the entire project.
- The applicant acknowledges that under 2 C.F.R. Part 200, it must follow their documented procurement procedures, provided they conform to federal procurement and contracting requirements. The applicant certifies that it is using the most restrictive of either its own documented policies and procedures for procurement or federal procurement and contracting laws in accordance with 2 C.F.R. §§ 200.317 - 200.327. The Applicant is following Environmental Protection Agency guidelines for procurement of recovered materials; and including all applicable required contract provisions.
- The applicant certifies that all information provided is true and correct. Upon submittal this project application becomes a legal document. The False Claims Act (31 U.S.C. §§ 3729-3733) prohibits the submission of false or fraudulent claims for payment to the federal government. It is a violation of federal law to intentionally make false statements or hide information when applying for Public Assistance. This can carry severe criminal and civil penalties including a fine of up to $250,000, imprisonment, or both (18 U.S.C. §§ 287, 1001, 1040, and 3571).
- The applicant acknowledges that it must obtain and maintain insurance coverage for all buildings, contents, equipment, and vehicles in an amount equal to or greater than the total cost, prior to any reductions as required by the Stafford Act § 311, 42 U.S.C. §5154, 44 C.F.R §§ 206.251 - 206.253, and in accordance with FEMA Policy 206-086-1 Public Assistance Policy on Insurance.

Insurance

Additional Information

7/22/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Guayanilla Streetlighting] / Former project 724605 (Distribution) (HM Cost alignment version)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Guayanilla Streetlighting] / Former project 724605 (Distribution) (HM Cost alignment version)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available, especially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- Conditions for Puerto Rican boa (Chilabothrus inornatus) for Streetlights: Part 1 a. Inform all project personnel about the potential presence of the PR boa in areas where the proposed work will be conducted. A pre-construction meeting should be conducted to inform all project personnel about the need to avoid harming the species as well as penalties for harassing or harming PR boas. An educational poster or sign with photo or illustration of the species should be displayed at the project site. b. Prior to any construction activity, including removal of vegetation and earth movements, the boundaries of the project and areas to be excluded and protected should be clearly marked in the project plan and in the field in order to avoid further habitat degradation into forested and conservation areas. c. Once areas are clearly marked, and prior to the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), a biologist or project personnel with experience on this species should survey the areas to be cleared to verify the presence of any PR boa within the work area. d. If a PR boa is found within any of the working or construction areas, activities should stop at that area and information recorded (see #e). Do not capture the boa. If boas need to be moved out of harm's way, designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for safe capture and relocation of the animal: (787) 999-2200 ext. 2911. If immediate relocation is not an option, project-related activities at that area must stop until the boa moves out of harm's way on its own. Activities at other work sites, where no boas have been found after surveying the area, may continue.
- Conditions for Puerto Rican boa (Chilabothrus inornatus) for Streetlights: Part 2 e. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. PR boa data should also include a photo of the animal

(dead or alive), site GPS coordinates, the time and date, and comments on how the animal was detected and its behavior. f. If a PR boa is captured by PRDNER personnel, record the name of that person and information on where the PR boa will be taken. This information should be reported to the Service. g. Measures should be taken to avoid and minimize PR boa casualties by heavy machinery or motor vehicles being used on site. Any heavy machinery left on site (staging) or near potential PR boa habitat (within 50 meters of potential boa habitat), needs to be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the equipment. If PR boas are found within vehicles or equipment, do not capture the animal, and let it move on its own or call PRDNER Rangers for safe capture and relocation of the animal (see #d). If not possible, the animal should be left alone until it leaves the vehicle on its own. h. PR boas may seek shelter in debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in debris piles as a result of project activities. Debris piles should be placed far away from forested areas. Prior to moving, disposing or shredding, debris piles should be carefully inspected for the presence of boas. If debris piles will be left on site, we recommend they be placed in areas that will not be disturbed in the future. i. If a dead PR boa is found, immediately cease all work in that area and record the information accordingly (see #e). If the PR boa was accidentally killed as part of the project actions, please include information on what conservation measures had been implemented and what actions will be taken to avoid further killings. A dead boa report should be sent by email to the Service at Caribbean_es@fws.gov, within 48 hours of the event. j. Projects must comply with all state laws and regulations. Please contact the PRDNER for further guidance.

- The below conservation measures apply to the following species: Puerto Rican parrot (Amazona vittata) Puerto Rican broad-winged hawk (Buteo platypterus brunnescens), Puerto Rican sharp-shinned hawk (Accipiter striatus venator), and Puerto Rican nightjar (Antrostomus noctitherus). a. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside breeding season no nest surveys are required. However, some bird species may nest year-round, therefore, if a nest is encountered while the project is being conducted, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: *. Puerto Rican parrot: February-June. *. Puerto Rican broad-winged hawk: December-June. *. Puerto Rican sharp-shinned hawk: December-June. *. Puerto Rican nightjar: February-August. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. Office phone: 786-244-0081.
- Conditions for Chelonia mydas (Green Sea Turtle), Eretmochelys imbricata (Hawksbill Sea Turtle), Dermochelys coriacea (Leatherback Sea Turtle), Caretta caretta (Loggerhead Sea Turtle): Part 1 There is potential for sea turtle nesting activity on all ocean-facing sand beaches in Puerto Rico and the U.S. Virgin Islands, including mixed sand and gravel (shell, coral rubble) beaches. The following measures are applicable to green, loggerhead, leatherback, and hawksbill sea turtles. a. During sea turtle nesting season (March 1 to November 30), a qualified sea turtle monitor must survey beach work areas each morning for possible nests. Nests found in the area should be marked or flagged in place. Outside of nesting season, these areas should be surveyed at least twice a week. Debris removal or construction on beaches may only begin after morning surveys are completed by the sea turtle monitor, and nests are clearly marked. -All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. -Surveys shall be conducted by sea turtle permit holders or trained personnel following PRDNER/DPNR-DFW protocols. (See image and list of contacts below.) -Nests located adjacent to the work area should be marked with flagging, creating a 10-foot square roped-off buffer with an unobstructed path leading from the nest to the water. -Nest surveys must be conducted in the mornings, immediately before any construction activity commences. -Sea turtle monitoring groups should possess site-specific information for nests in their designated areas and should communicate these details to work crews to ensure avoidance. Puerto Rico Sea turtle groups: -Aguada, Aguadilla, Añasco, Cabo Rojo, Isabela, Lajas, Mayagüez, Quebradillas, and Rincón- Vida Marina - 787-380-5254, 787-206-6800 -Arecibo, Barceloneta, Camuy, Hatillo, Manatí, Vega Alta, and Vega Baja - Yo Amo el Tinglar - 939-276-9901 -Dorado and Toa Baja - Chelonia - 787-306-0916 -San Juan Area - 7 Quillas - 787-688-6763 -San Juan Area - Tortugueros De Isla Verde - 787-604-4959 -Loíza - DNER - 787-453-6484 - Rio Grande - DNER - 787-646-9689 -Ceiba, Fajardo, and Luquillo - Tortugueros del CEN (Corredor Ecológico del Noreste) - 787-635-4493 -Humacao and Naguabo - DNER de Humacao - 787-594-6568 -Arroyo, Humacao, Maunabo, Patillas, and Yabucoa - ATMAR - 787-448-8627 -Vieques - TICATOVE - 787-438-4493 -Culebra - Tortugueros de Culebra - 787-685-7820 -Guánica, Guayama, Guayanilla, Juana Díaz, Peñuelas, Ponce, Salinas, Santa Isabel, and Yauco - Tortugueros del Sur - 787-341-8888
- Conditions for Chelonia mydas (Green Sea Turtle), Eretmochelys imbricata (Hawksbill Sea Turtle), Dermochelys coriacea (Leatherback Sea Turtle), Caretta caretta (Loggerhead Sea Turtle): Part 2 b. During the sea turtle nesting season, repair or replacement of structures shall occur in the same location or footprint of the previously permitted structure. If the current project's footprint does not stay within previously permitted structure's footprint, then the Service must be consulted. c. Relocation of sea turtle nests to accommodate construction is not authorized. d. All project activity shall be confined to daylight hours following the completion of all necessary marine turtle surveys and conservation activities. The sea turtle monitor shall be available via telephone after the initial inspection throughout the workday. e. If planting will occur, only native plant species are authorized to be

planted. Existing native dune vegetation shall be disturbed to the minimum extent necessary. Removal of standing and live coastal vegetation (e.g., sea grapes, mangroves) that are not a hazard is unauthorized. No sea grass, sea weeds, algae nor beach sand shall be removed during beach debris removal efforts. Any vegetation planting shall be installed by hand labor and tools. Irrigation systems shall not be installed within nesting habitat. Prior to any planting, the Applicant will submit a vegetation plan to the Service at: caribbean_es@fws.gov. If a sea turtle nest is disturbed or uncovered during vegetation planting activity or project excavation, all work shall cease, and the sea turtle monitor shall be immediately contacted to assess the situation and provide guidance on the appropriate steps to safeguard the nest. If a nest(s) cannot be safely avoided during construction, all activity within the affected project area shall be delayed until complete hatching and emergence of the nest. f. Placement of fill shall not occur within 10 feet of or in any area seaward of a marked sea turtle nest. Nests shall be marked in place with a roped off 10-foot buffer. Dependent upon the fill volume and slope, distance offset from marked turtle nests may be required to be larger to avoid indirect impacts (e.g., fill slumping) to the nest. If the turtle nest cannot be avoided by this distance due to the scope of the project, all work near the nest must be postponed until nestlings emerge from the nest and make their way safely to the sea. If a sea turtle nest is found after November, work should be postponed until the nestlings have safely hatched and made their way to the sea.

- Conditions for Chelonia mydas (Green Sea Turtle), Eretmochelys imbricata (Hawksbill Sea Turtle), Dermochelys coriacea (Leatherback Sea Turtle), Caretta caretta (Loggerhead Sea Turtle): Part 3 g. All excavations and temporary alteration of beach topography shall be contoured or leveled to the natural beach profile prior to dusk each day. This includes raking of tire ruts, filling pits or holes where debris was removed, etc. Any potential obstructions such as debris piles, equipment, etc. shall also be removed from the beach by the end of each workday. Fill must be placed as landward as practicable to establish or repair dune features. The existing or pre-disaster beach and dune profile must be considered when determining the appropriate siting of fill to provide reasonable longevity of the project. h. No vehicles, equipment, staging or debris should be used, parked, or stored landward of the primary dune or in vegetated areas. Staging/parking/storage areas shall be located on paved surfaces as much as possible and outside of vegetated areas. Lightweight, all-terrain style vehicles, with tire pressures of 10 psi or less can operate on the beach and are the preferred transportation method. However, use of heavy equipment on the beach can be allowed provided it is taken off the beach by 1600 AST local time every night using an approved and designated beach access. All driving on the beach shall be between the high-water mark and the water's edge. i. Avoid the removal of vegetation, fence installation, construction activities, and light installation within 50 meters inland from the high tide. Designate a buffer zone of additional 20 meters, for a total of 70 meters setback and buffer, to minimize indirect impacts from the project and plant salt tolerant native shrubs or trees within this zone (see #e). The setback recommendations do not apply if an existing road is located between the beach and project site. In that case, the road serves as the boundary of the beach. j. In Puerto Rico and the U.S. Virgin Islands, projects shall have a lighting plan that incorporates sea turtle-friendly lights for coastal areas whenever lights are being repaired or newly installed. In Puerto Rico, projects must comply with Puerto Rico Law No. 218 of 2008, which addresses the Control and Prevention of Lighting Pollution in Puerto Rico, and the PR EQB 2016 Regulation to Control and Prevent Light Contamination. These lighting plans should be submitted to the Service at caribbean_es@fws.gov for review prior to its implementation. When submitting the lighting plan, please include: *. The name and location of the project. *. A brief description of the project. *. An associated tracking number (if available). *. A Point of Contact. After the plan has been fully implemented, the Applicant is responsible for conducting a lighting inspection to identify and correct any remaining problematic lights. k. If an unmarked sea turtle crawl is encountered during or prior to project activity, the work crew shall not disturb the integrity of the crawl. Project personnel shall follow the crawl up the beach or into the dune and contact the qualified sea turtle monitor to inform of the location of the crawl. Care shall be taken to avoid walking or driving equipment over or near a crawl so that a potential nest is not damaged. l. Any collision(s) with and/or injury to any sea turtle in water, occurring during the construction of a project, shall be reported immediately to PRDNER/DPNR-DFW and the National Marine Fisheries Service's (NMFS) Protected Resources Division (PRD) at (1-727-824-5312) or by email to takereport.nmfsser@noaa.gov and SAJ-RD- Enforcement@usace.army.mil. All sea turtle sightings and incidents involving nesting sea turtles or hatchlings shall be reported to PRDNER/DPNR-DFW and the Service. The Service's point of contact is: Office phone: 786-244-0081 and Email: caribbean_es@fws.gov
- Conditions for Puerto Rican harlequin butterfly (Atlantea tulita): Part 1 The Puerto Rican harlequin butterfly (Atlantea tulita) is endemic to Puerto Rico, occurring in the western portion of the island, in the northern karst region, and in the west-central volcanic-serpentine region. The following measures apply to the Puerto Rican harlequin butterfly through its current range: a. The contractor must inform all personnel about the potential presence of the Puerto Rican harlequin butterfly and its host plant, prickly bush (Oplonia spinosa), in the project areas. A pre-work meeting should inform all project personnel about the need to avoid harming this butterfly and its occupied host plant. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. Educational material (e.g., posters, flyers, or signs with photos or illustrations of all the life stages of the Puerto Rican harlequin butterfly (i.e., eggs, caterpillar, chrysalids, and adult, and its host plant) should be prepared and available to all personnel for reference. b. Before starting any project activity, including removal of vegetation and earth movement, the contractor must clearly delineate the boundaries of the working area in the field to avoid unnecessary habitat impacts. Once the project areas are clearly marked, and before any work activity, including site preparation, personnel with knowledge and ability to identify the Puerto Rican harlequin butterfly (all life stages) and the prickly bush must survey the areas where the work will be performed for the presence of the species and its host plant. It is important to note that the Puerto Rican harlequin butterfly can be observed year-round in all life stages; thus, oviposition (egg-laying) may occur at any time during the year. c. If the prickly bush is present on the project site, try to avoid cutting the plant, even if no eggs, caterpillars, or chrysalids are present. d. If there is no prickly bush within the project area, but the butterfly is observed flying within the project area, do not harass, harm, pursue, wound, kill, trap, capture, collect, or attempt to engage in any such conduct, the species.
- Conditions for Puerto Rican harlequin butterfly (Atlantea tulita): Part 2 e. Adult butterflies are often observed flying near the host plant as part of their mating behavior and for laying eggs. Project-related activities must stop if the prickle bush is found in the

project area and the Puerto Rican harlequin butterfly is observed flying in that same area. A temporary 5-meter (16 feet) buffer zone of no activity or human disturbance should be established and clearly marked around that prickly bush until the butterfly moves out on its own. f. Once the Puerto Rican harlequin butterfly has moved away, within a period of 24 to 36 hours, a search of the prickly bush that has been buffered should be conducted to determine the presence of any eggs, caterpillars, or chrysalids of the butterfly on the plant. The contractor or the Applicant should send a report of the observation and its findings to caribbean_es@fws.gov after the 36-hour search is concluded. g. If, after the initial search or after the 24 to 36-hour search, any life stage of the Puerto Rican harlequin butterfly is found in the prickly bush, take the following actions: *. Clearly mark the host plant with flagging tape. *. Establish a 5-meter (16-foot) buffer zone around the bush for its protection. *. Eggs are typically found on the prickly bush's newly grown, tender branches. Once the egg hatch, the caterpillar moves and feeds throughout the bush. Therefore, avoid cutting off the prickly bush within the project site even if no eggs, caterpillars, or chrysalids are present. *. Work within the 10-meter buffered area may resume when no signs of any live life stage of the butterfly are detected, which usually takes approximately 60 to 120 days. h. For all Puerto Rican harlequin butterfly sightings (all life stages), the time and date of the sighting and the specific location where the butterfly was found must be recorded. Data should also include a photo of the butterfly (if possible) and the habitat where it was observed, site GPS coordinates, and comments on how the butterfly was detected and its behavior. All Puerto Rican harlequin butterfly sighting reports should be sent to the Service's Caribbean Ecological Service Field Office at caribbean_es@fws.gov.

- Conditions for endangered and threatened plants Auerodendron pauciflorum, Trichilia triacantha (Baricao), Eugenia woodburyana, Ottoschulzia rhodoxylon (Palo de Rosa), Varronia rupicola, Juglans jamaicensis (West Indian Walnut): Before initiating any work within the range of listed plant species and in areas with suitable habitat, applicants must conduct plant surveys. In the event that listed species are discovered at the project site, the Service must be notified through the Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov When listed species are discovered at the project site, the conservation measures below apply to each species. a. Where threatened and endangered plants are identified, flag individuals and avoid to the extent feasible. If the plants cannot be avoided, they should be salvaged and replanted as close to the impact area as possible. b. If space allows, leave a 5-foot buffer around individuals and/or clusters c. For trees and palm trees, if space allows, leave a 15-foot buffer around the tree d. When pruning, prune dead branches. If pruning live branches do not prune more than 10%. Please contact the USFWS Field Office if additional pruning is necessary for a listed plant species: Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov
- The Sub-recipient must provide documentation at close-out that proves completion of required Conservation Measures.
- The contractor/sub-recipient will be responsible for the proper disposition of construction debris, unusable equipment, white goods, scrap metal, bituminous, non-recyclable material and damaged transformers in authorized landfills providing FEMA the name, location, coordinates and permits of the facility to FEMA by closeout. All coordination pertaining to final disposal activities should be documented and forwarded to FEMA by closeout as part of the permanent project file.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Guayanilla Streetlighting] / Former project 724605 (Distribution) (HM Cost alignment version)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/25/2026 6:58 PM PDT

Review Comments

Version 0 contemplates $7,131,926.79, (federal share) for restoration of Guayanilla Streetlighting. Reviewed, found eligible and reasonable. CLG 09/25/2026

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 10/01/2026 7:56 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$7,131,926.79	90%	Accepted	4339DRPRP01082761

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1068669 **P/W #** 108279	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [Patillas Streetlighting] / Former project 724670 (Distribution)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1335653; FAASt Patillas Streetlight (Distribution)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Patillas Streetlight
- **Facility Description:** There are an estimated 500,000 streetlights in Puerto Rico that are owned by Puerto Rico Electric Power Authority "PREPA" and serviced by LUMA. While assessing the distribution streetlighting system, it is anticipated that numerous damaged streetlights will be identified that require immediate repair to avoid safety hazards, violations of federal or local ordinance, and imminent equipment failures. Pole – This can be either a standalone structure intended to house a streetlight, or a utility pole shared with other overhead utilities • Arm – A piece of hardware affixed to a pole to which a luminaire is mounted. The arm serves to position the streetlight over the street for optimal lighting • Luminaire/Light Bulb – The light emitting part of a streetlight • Light controller (e.g., photocell) – A hardware device affixed to the luminaire which controls the operating mode • Communication network – A wired or wireless system that allows the smart streetlight to communicate with other devices and the control system • Technology control system – A software platform that allows a remote operator to set the operating parameters for the smart streetlight or manually override the parameter if needed
- **Approx. Year Built:** 1970
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1335653 **FAASt Patillas Streetlight (Distribution)**

INTRODUCTION

Pursuant to FEMA's Post-Fixed Cost Estimate Obligation SOP (the "SOP") for FAASt projects, FAASt subrecipients must provide to FEMA recovery project scopes of work ("SOW") for the proposed construction work to be performed. The SOW defines the activities that will be performed using Public Assistance ("PA") funding and may include § 406 hazard mitigation proposals ("HMPs"). The SOW defines the activities that will be performed using Public Assistance ("PA") funding.

According to the SOP, FEMA "anticipates that [SOW] submissions might include preliminary designs, including drawings and cost estimates. FEMA also recognizes that, generally, architects and/or engineers do not include or delineate the information needed to enable FEMA to complete programmatic reviews. Therefore, in those cases, subrecipients must ensure to submit all the information described [in the SOP] and not limit the submission to a drawing set. Refer to Part C - II. Recipient/Subrecipient Checklist for Submissions as a guide to review completeness."

This document contains the detailed SOW for FEMA PA Project 1068669 FAASt [Patillas Streetlighting] / Former project 724670 (Distribution) under DR-4339-PR Public Assistance. The document provides a detailed description of the project, scope of PA construction activities to be completed, common EHP review information, proposed hazard mitigation measures, and project cost estimates. LUMA is seeking approval from COR3 and FEMA for PA funding for the scope described in this document.

LUMA submits this Detailed SOW pursuant to the Transmission and Distribution Operations and Maintenance Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A, which collectively provides the necessary consent for LUMA, as agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA. References to "Subrecipient" herein refer to PREPA pursuant to this agreement and consent for LUMA to act as its agent with respect to federal funds.

PROJECT DESCRIPTION

The proposed scope of work addresses the impacts on the streetlight facilities caused by Hurricane María. The project's objectives are to repair, replace, and upgrade the existing streetlight components to consensus-based codes and/or standards and mitigate future similar damage.

The project's final deliverables will include fully functional and upgraded streetlight facilities. These deliverables include replacing existing lighting components, poles, foundations, and disposal of hazardous materials. The proposed § 406 Hazard

Mitigation Scope of Work (Section 10.2 below) will also increase the strength of the poles, aluminum poles, breakaway bases, and foundations (concrete bases) by increasing the wind tolerance of all materials to 160 mph . The completion of the project will ensure improved lighting infrastructure, enhanced safety measures, and increased resilience to future challenges.

FACILITIES

FACILITIES LIST – BUILDINGS AND SUBSTATIONS

The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project: None

FACILITIES LIST

The following list includes the name and GPS coordinates identifying the areas of work for other types of facilities. For any access roads or other line work, coordinates listed below are the beginning and end points.

Name	Damage Number	GPS location
Patillas Municipality	1335653	Please refer to Appendix B for a list of all GPS locations to be impacted by this project.

Existing Lighting Components:

The existing lighting components include photo controls, luminaires, arms, and associated hardware. These components are installed on various poles throughout the municipality.

Existing Streetlight Poles:

The streetlight poles are made of aluminum, wood, steel, or concrete. Concrete poles are octagonal, varying in height from 33ft to 35ft, and installed to a depth of 5ft to 6ft. Aluminum poles are typically 30ft high, with increased strength versions reaching 40ft in height. Secondary wood poles and 35ft steel poles are also present, designed to withstand specific wind forces.

PROJECT AREA MAP WITH BOUNDARIES OF CONSTRUCTION

Please see the attached map identified as Work Zone Map at Appendix A.

The proposed type of work for this project:

[X] Standard Project: Restores the facility/facilities to pre-disaster design and function to locally adopted codes/standards and/or FEMA-approved industry standards.

[ ] Improved Project: Restores the pre-disaster function of the facilities and incorporates improvements or changes to its pre-disaster design not required by codes or standards.

[ ] Subrecipient's request letter included, see Appendix ___.

[ ] Recipient's approval letter included, see Appendix ___.

[ ] Alternate Project: Does not restore the pre-disaster function of the damage facility. The Subrecipient, through the Recipients, must obtain approval from FEMA.

[ ] Subrecipient's request letter included, see Appendix ___.

[ ] Recipient's approval letter included, see Appendix ___.

DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

The proposed restoration includes the repair of eligible disaster damage up to required codes and standards and the request to upgrade undamaged infrastructure that must be addressed to fully effectuate the restoration of disaster-damaged components to restore the system's function to an approved industry standard. The Detailed Scope of Work consists of the

repair, removal, replacement, and addition of the following infrastructure to restore this facility to codes and standards. Refer to Appendix D – Project Considerations Patillas Municipality.

Work Description	Number of Points
Components only, does not require pole replacement, installation, removal	1784
Secondary pole removal only, Luminaire Location Change (LLC)	7
Secondary pole replacement, installation, removal, with third party attachments	392
Secondary pole replacement, installation, removal, without third party attachments	244
Streetlight pole removal only, Luminaire Location Change (LLC)	1
Streetlight pole replacement, installation, removal	18
Grand Total	2446

Lighting Components Replaced

- **Remove existing lighting components, including photo controls, luminaires, arms, and associated hardware, and replace them with new lighting components. Quantities for these replacements are provided in the table above.**

· Brush vegetation, as identified, to gain access to the pole and conduct repairs.

· Perform site evaluation and dispose of universal bulbs and photocells in an authorized facility.

Pole Replacement

· Remove and replace existing streetlight poles, including lighting components. Quantities for these replacements are provided in the table above. The locations of the poles and description of work on each pole are described in Appendix D – Project Considerations Patillas Municipality.

· Brush vegetation, as identified, to gain access to the pole and conduct repairs.

· Remove existing foundations in identified points and replace them with concrete foundations, following design criteria.

· All work for this program will be performed within the municipality's existing electrical easement.

CODES & STANDARDS

Per FEMA's SOP, the locally adopted codes/standards and/or FEMA-approved industry standards used for this project are provided below:

- LUMA Distribution Design Manual (See Applicant Profile)
- LUMA Streetlighting Construction Standards (See Applicant Profile)

406 HAZARD MITIGATION PROPOSAL, see document 1068669-DR4339PR-Patillas Streetlight- Detailed Scope of Work- Rev.6.pdf

COMMON EHP REVIEW INFORMATION

Please check any items applicable to the proposed scope of work in this Project. If an item is checked, provide a description of the scope extent and location of the selected activity.

[X] Ground disturbance outside of existing footprint. If checked, provide a description of the ground disturbing activities including the extent, location, and depth of the disturbance.

- **All work for this program will be performed within the existing electrical easement of the municipality. Poles are near the roads and are site accessible.**
- **Streetlights Poles: Appendix C and Appendix D contain coordinates for streetlight poles where ground disturbance is required. The replacement of poles has a standard diameter for ground disturbance of 18 inches. The depth of the poles to be installed is stated in Appendix D (see "Soil area and depth impact" column).**
- **Concrete Pole Base: The poles that will require replacement of the existing foundations can be found in Appendix C of the "Labor & Materials" tab, column named "Concrete Pole Base (40 feet)," filter by values equal to 1. This represents the same information as Appendix D, column N ("Concrete Foundation"), filtered by values equal to YES. Furthermore, the dimensions for the foundations are 10 feet deep by 3 feet in diameter. The depth of the foundation can be found in Appendix D, column D ("Soil area and depth impact").**
- **Equipment to be used includes Skid Steer, Excavator, Dump trucks, Man lifts, 120-ton Motor Crane, Boom Trucks, 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Filtering Machine, and Flatbed platform.**

[] Soil testing or boring to be performed as part of pre-construction activities. If checked, provide a description, location, and dimensions of the testing/boring activities.

[] Relocation of utilities. If checked, include a description of the relocation including the type of utility, relocation coordinates, and the extent and depth of associated ground disturbance.

[X] Vegetative Removal. If checked, describe the removal work to be performed, its location, and its extent.

- **Vegetation clearance will be performed solely to the extent that it allows crews to conduct work and will be limited to a 10 ft radius surrounding the surface of the pole, but not to exceed the width of the right-of-way. This is for the exclusive purpose of gaining access to the pole to conduct repairs. The costs related to vegetation clearance procedures are covered in 727530 FAASt [Region 6 -Ponce Group C] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.**

[X] Demolition. If checked, include a description of what will be removed and the extent and depth of any ground disturbing

activities. Additionally, include a description of (1) demolition debris type (construction debris, white goods, hazardous materials, etc.); (2) GPS location of temporary debris storage sites; (3) final debris disposal location; and (4) final debris disposal method.

- **Construction Debris: The debris that will be produced during removal is luminaires, polearms, photocells, metal scrap, wiring, concrete, steel, and wood poles. The debris will be separated and taken to an authorized waste disposal facility.**
- **Luminaires are considered universal waste and will be disposed of by the contractor in authorized facilities.**
- **The Project does not include removal and/or disposal of transformers because they are secondary voltage facilities, and transformer removal pertains to primary voltage facilities.**
- **GPS location of temporary debris storage sites, final debris disposal location, and final debris disposal method have not been identified yet.**

[X] Staging areas, landing area for air transport, and access roads. If checked, provide GPS location of staging areas, and access roads. Include a description of the extent of any related vegetative removal, ground disturbance, or stabilization measures required (such as gabion walls, retaining walls, paving, etc.).

- **Staging Areas: Staging areas within the work site have not been identified at this moment. The contractor must provide the information on the staging areas as soon as available. Staging areas are confined to previously disturbed or hardened surfaces.**
    - **All materials are stored and dispatched from the assigned LUMA Regional Warehouse. The location assigned for this project is the Ponce Warehouse, [redacted]**
- **Access Roads: The construction of access roads is not required for this scope of work. (Refer to Appendix D in the "Site Accessible" column.).**

[X] Fill material. If the project includes the use of fill material, provide the source of the fill material including the provider's name and address (if known).

- **Fill, gravel, and sand materials will be obtained from a preferred vendor as referenced in the Approved Supplier List Directory PR (see Applicant Profile).**

[] Work in water including coffer dams, dredging, placement of equipment in water, or other work in wetlands. If checked, provide a description of the activities to be performed in water or wetlands.

PROJECT COST ESTIMATE (PCE)

The estimated costs (compliant with Class 3 Accuracy +/-30%) to complete the project are summarized in the table(s) below. The cost estimate(s) was developed utilizing preliminary Architectural and Engineering design information. For a more detailed cost estimate refer to Appendix C – Cost Estimate.

Distribution Streetlights Estimate Summary - Patillas					
Cost Element	Total Cost Estimate	Cost Factor	FAASt Project 1068669 (428 Cost Estimate)	FAASt Project 1068669 (406 Cost Estimate)	A&E FAASt Project 335168 (428)
Planning, Permits and Applications (A&E)	$75,344.62	1.00%	$ 0.00	$3,008.62	$72,336.00
Environmental Management (A&E)	$226,033.86	3.00%	$ 0.00	$9,025.86	$217,008.00
Project Management (A&E)	$75,344.62	1.00%	$ 0.00	$3,008.62	$72,336.00
Engineering - A&E Estimate	$462,654.00	6.14%	$ 0.00	$18,474.45	$444,179.55
Engineering - Owners Engineering (A&E)	$376,723.10	5.00%	$ 0.00	$15,043.11	$361,679.99
Construction - Labor & Materials	$7,534,461.95	100.00%	$7,233,599.84	$300,862.12	$ 0.00

Construction – Project Management	$301,378.48	4.00%	$289,344.00	$12,034.48	$ 0.00
Construction - Site Management	$376,723.10	5.00%	$361,679.99	$15,043.11	$ 0.00
Construction - Quality Inspections	$226,033.86	3.00%	$217,008.00	$9,025.86	$ 0.00
Construction - Contingency	$527,412.34	7.00%	$506,351.99	$21,060.35	$ 0.00
TOTAL PROJECT COST ESTIMATE	$10,182,109.94		$8,607,983.82	$406,586.58	$1,167,539.54

Work to be Completed (WTBC): $8,607,983.82

A&E Deduction (Global A&E FAASt 335168): -$0.00 (See project note 3)

E&M Deduction (Global E&M FAASt 673691): -$0.00 (See project note 3)

Project Total: $8,607,983.82

Project Notes:

1. **Refer to detailed SOW provided in document labeled: "1068669-DR4339PR-Patillas Streetlight- Detailed Scope of Work- Rev.6.pdf"**

2. **Refer to detailed Cost Estimate provided in document labeled: "1068669-DR4339PR-Patillas Streetlight-Appendix C - Cost Estimate Patillas Municipality Rev2.xlsx"**

3. **Regarding the Equipment and Materials(E&M) and A&E cost in this project see the PDMG clarification in the document labeled: "1068669-DR4339PR-Clarification.pdf"**

4. **This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project**

5. **Attachments**

   a. **Appendix A - Patillas Work Zones Map**

   b. **Appendix B – Patillas Municipality Work Zones FIDs SIDs and Coordinates**

   c. **Appendix C – Cost Estimate Patillas Municipality**

   d. **Appendix D – Project Considerations Patillas Municipality**

   e. **Appendix E - FEMA 406 Justification: Streetlight Program**

406 HMP Scope

406 HMP Scope

Project number: [724670] FAASt [Distribution Streetlighting – Patillas] (Distribution)

Damage #1335653; FAASt [Patillas Streetlighting] / Former project 724670 (Distribution)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Patillas, Puerto Rico

GPS Latitude/Longitude: [redacted]

Hazard Mitigation Narrative

Hazard Mitigation Narrative

During the incident period from September 17, 2017, to November 15, 2017, the Commonwealth of Puerto Rico experienced hurricane-force winds, heavy rain, flooding, and power outage from Hurricane Maria. The incident causeddamage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings,

among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

In the Patillas Municipality, PREPA has a total of 2,446 streetlights luminaries. The Method of Repair (MOR) include the replacement of the damage lighting components including photocells, luminaires, arms, and associated hardware. Also include the replacement of the damage distribution and streetlight poles (wood, concrete, galvanized & aluminum), the replacement of the aerial secondary wiring connections, and the construction of new concrete base for the aluminum streetlight poles. According to the information provided by the Applicant, due to the high velocity hurricane winds, wind-blown debris, and prolonged heavy rain, were the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the Applicant is proposing as a mitigation measure, increase the strength of the poles, aluminum poles breakaway bases, and foundations (concrete bases) by increasing the wind tolerance of all materials to 160mph. **Note:** The FEMA Accelerated Award Strategy (FAASt) MOR included the PREPA distribution standards and specifications that were based on a 90mph sustained winds for all materials. Although in PREPA Technical Communication #13-02 (August 22, 2013) a design-criteria of 145mph winds were published, the specifications for streetlighting material were never revised, and in the specification documents, the 90mph winds stayed as the requirement for procurement purposes of all streetlighting materials. The 160mph wind tolerance mitigation measure, will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards.

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

In order to prevent or reduce future damages from similar events, the applicant proposed the following mitigation measures:

Mitigation Measures *(Replacement)*

1. To avoid damage in a future event, the Applicant is proposing as a mitigation measure, increase the strength of aluminum and concrete poles, breakaway bases, and foundations (concrete bases) by increasing the wind tolerance of all materials to 160mph. The FAASt MOR used PREPA distribution standards and specifications that were based on a 90mph sustained winds for all materials. Although in PREPA Technical Communication #13-02 (August 22, 2013) a design-criteria of 145mph winds were published, the specifications for streetlighting material were never revised, and in the specification documents, the 90mph winds stayed as the requirement for procurement purposes of all streetlighting materials. These mitigation measures will protect and make the affected infrastructure more resistant, stronger, and resilient to similar hazards. Refer to Appendix J: Section VI.D.1 of the PAPPG V3.1.

406 Mitigation Scope of Work:

- Replace (17ea) 33ft octagonal concrete poles by (17ea) 35ft octagonal concrete poles.
- Replace (636ea) 35ft galvanized poles by (636ea) 35ft S3.5 galvanized poles.
- Replace (1ea) 30ft aluminum poles by (1ea) 40ft aluminum poles.
- Replace (1ea) 30ft aluminum poles breakaway bases by (1ea) 40ft aluminum poles breakaway bases.
- Replace (1ea) 30ft aluminum poles concrete bases [2.5ft(D) x 5.5ft(H)] by (1ea) 40ft aluminum poles concrete bases [3ft(D) x 10ft(H)].

Hazard Mitigation Proposal (HMP) Cost

Total Net Hazard Mitigation Cost (Base Cost) =	$ 300,862.12
+ HM (Applicant A&E, Management & General Conditions) =	$ 105,724.46
Hazard Mitigation Total Cost =	**$ 406,586.58**

Hazard Mitigation Proposal (HMP) Cost Distribution:

Equ1pment and Materials (E&M) =	$ 0.00
Architecture and Engineering (A&E) =	$ 48,560.66
Construction Cost=	$ 358,025.92
Hazard Mitigation Total Cost =	**$ 406,586.58**

HMP Cost-Effectiveness Calculations

FEMA's Benefit-Cost Analysis (BCA), methodology evaluates expected risk reduction benefits of a hazard mitigation project and compares those benefits

to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide (PAPPG) Chapter 2. Section VII. C. defines cost effective mitigation as: The Hazard Mitigation Measure is cost effective through an acceptable Benefit Cost Analysis (BCA) with a resulting Benefit Cost Ratio equal to or greater than (1).

The Island Wide Benefit Cost Analysis (IWBCA) created for the PREPA infrastructure defines a maximum potential benefit using the incurred costs of the PREPA FEMA Accelerated Award Strategy (FAASt) fixed cost estimate, the mission assignments utilized for the reconnection effort, and the costs associated with loss of service. This maximum benefit has been developed to fund all mitigation projects from both Public Assistance Hazard Mitigation and the Hazard Mitigation Grant program.

It is the applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects.". Please see attached IWBCA Package.

The cost of the Hazard Mitigation Proposal (HMP) described herein is $406,586.58 (Hazard Mitigation Total Cost). The cost of this HMP combined will all other proposals (both PA and HMGP) does not exceed the maximum potential benefit and is therefore deemed cost effective per FEMA Public Assistance Program and Policy Guide (PAPPG) V3.1 April 2018, Chapter 2, VII., Section C, BCA Rule. This Hazard Mitigation Proposal meets eligible repair and restoration cost-effective requirements.

****See Mitigation Profile Documents Tab in Grants Manager for complete version of this HMP and supporting documents *(HMP, HMP co***

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$8,607,983.82	Uncompleted

CRC Gross Cost	$8,607,983.82
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$8,607,983.82
Federal Share (90.00%)	$7,747,185.44
Non-Federal Share (10.00%)	$860,798.38

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.

- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.

- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.

- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.

- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.

- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.

- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.

- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

- The Applicant certifies that all work claimed was or will be delivered in an impartial manner without discrimination as required by Title VI of the Civil Rights Act, Section 308 of the Stafford Act, 42 U.S.C. § 5151, and applicable provisions of laws and authorities prohibiting discrimination.

- The Applicant certifies that all impacts/damage claimed was a direct result of the Presidential declaration, was not pre-exisiting damage, and did not result from a lack of maintenance.

- The applicant certifies that all work claimed was required as a direct result of the major disaster declaration, is located within the designated area, and is the Applicant's legal responsibility.

- The applicant certifies that all costs claimed are reasonable and of a type recognized as ordinary and necessary for the type of work as required by 44 C.F.R. § 206.228 and 2 C.F.R. § 200.404.

- The applicant certifies that no work or costs claimed are covered by another funding source. Pursuant to section 312 of the Stafford Act, 42 U.S.C. § 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The applicant acknowledges it is

required to notify FEMA through the recipient if it receives assistance for the same work or costs from another Federal agency, insurance, or any other source and return any duplicated funds to FEMA.

- The applicant certifies that all facilities are being restored in accordance with all federal and SLTT code and standard requirements.
- The applicant acknowledges it must comply with EHP laws, regulations, and Executive Orders (EO), including but not limited to, the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and the National Historic Preservation Act (NHPA). The applicant must afford FEMA the opportunity to perform EHP reviews prior to starting any work that has potential to impact the environment or historic properties, including archaeological resources. If the applicant starts work prior to FEMA's completion of the EHP review, it jeopardizes PA funding for the entire project.
- The applicant acknowledges that under 2 C.F.R. Part 200, it must follow their documented procurement procedures, provided they conform to federal procurement and contracting requirements. The applicant certifies that it is using the most restrictive of either its own documented policies and procedures for procurement or federal procurement and contracting laws in accordance with 2 C.F.R. §§ 200.317 - 200.327. The Applicant is following Environmental Protection Agency guidelines for procurement of recovered materials; and including all applicable required contract provisions.
- The applicant certifies that all information provided is true and correct. Upon submittal this project application becomes a legal document. The False Claims Act (31 U.S.C. §§ 3729-3733) prohibits the submission of false or fraudulent claims for payment to the federal government. It is a violation of federal law to intentionally make false statements or hide information when applying for Public Assistance. This can carry severe criminal and civil penalties including a fine of up to $250,000, imprisonment, or both (18 U.S.C. §§ 287, 1001, 1040, and 3571).
- The applicant acknowledges that it must obtain and maintain insurance coverage for all buildings, contents, equipment, and vehicles in an amount equal to or greater than the total cost, prior to any reductions as required by the Stafford Act § 311, 42 U.S.C. §5154, 44 C.F.R §§ 206.251 - 206.253, and in accordance with FEMA Policy 206-086-1 Public Assistance Policy on Insurance.

Insurance

Additional Information

7/22/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [Patillas Streetlighting] / Former project 724670 (Distribution)**.

406 Mitigation

There is no additional mitigation information on **FAASt [Patillas Streetlighting] / Former project 724670 (Distribution)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- The Subrecipient and/or Subrecipient's contractor must follow the Low Impact Debris Removal Stipulations (LIDRS) outlined in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022.
- Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm.
- Additional staging areas and/or work pads within work site area haven't been identified yet. The Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to previously disturbed or hardened surfaces can be provided at close-out.
- All borrow or fill material must come from pre-existing stockpiles, material reclaimed from maintained roadside ditches (provided the designed width or depth of the ditch is not increased), or commercially procured material from a source existing prior to the event. For any FEMA-funded project requiring the use of a non-commercial source or a commercial source that was not permitted to operate prior to the event (e.g., a new pit, agricultural fields, road ROWs, etc.) in whole or in part, regardless of cost, the Applicant must notify FEMA and the Recipient prior to extracting material. FEMA must review the source for compliance with all applicable federal environmental planning and historic preservation laws and executive orders prior to a Sub-recipient or their contractor beginning borrow extraction. Consultation and regulatory permitting may be required. Non-compliance with this requirement may jeopardize receipt of federal funding. Documentation of borrow sources utilized is required at close-out and must include fill type (private, commercial, etc.), name, fill site GPS coordinates (not of the company/governmental office), address, and type of material.
- ESA Condition 1: The Sub-recipient must provide documentation at close-out that proves completion of required Conservation Measures.
- ESA Condition 2: For DI 1335653: Conditions for Callicarpa ampla, Gonocalyx concolor, Ottoschulzia rhodoxylon, Eugenia haematocarpa: Before initiating any work within the range of listed plant species and in areas with suitable habitat, applicants must conduct plant surveys. In the event that listed species are discovered at the project site, the Service must be notified through the Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov When listed species are discovered

at the project site, the conservation measures below apply to each species. a. Where threatened and endangered plants are identified, flag individuals and avoid to the extent feasible. If the plants cannot be avoided, they should be salvaged and replanted as close to the impact area as possible. b. If space allows, leave a 5-foot buffer around individuals and/or clusters c. For trees and palm trees, if space allows, leave a 15-foot buffer around the tree d. When pruning, prune dead branches. If pruning live branches do not prune more than 10%. Please contact the USFWS Field Office if additional pruning is necessary for a listed plant species: Office Direct Line: 786-244-0081. Email: caribbean_es@fws.gov

- ESA Condition 3: For DI 1335653 and staging area: Puerto Rican boa (Chilabothrus inornatus) Part 1 a. Inform all project personnel about the potential presence of the PR boa in areas where the proposed work will be conducted. A pre-construction meeting should be conducted to inform all project personnel about the need to avoid harming the species as well as penalties for harassing or harming PR boas. An educational poster or sign with photo or illustration of the species should be displayed at the project site. b. Prior to any construction activity, including removal of vegetation and earth movements, the boundaries of the project and areas to be excluded and protected should be clearly marked in the project plan and in the field in order to avoid further habitat degradation into forested and conservation areas. c. Once areas are clearly marked, and prior to the use of heavy machinery and any construction activity (including removal of vegetation and earth movement), a biologist or project personnel with experience on this species should survey the areas to be cleared to verify the presence of any PR boa within the work area. d. If a PR boa is found within any of the working or construction areas, activities should stop at that area and information recorded (see #e). Do not capture the boa. If boas need to be moved out of harm's way, designated personnel shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for safe capture and relocation of the animal: (787) 999-2200 ext. 2911. If immediate relocation is not an option, project-related activities at that area must stop until the boa moves out of harm's way on its own. Activities at other work sites, where no boas have been found after surveying the area, may continue. e. For all boa sightings (dead or alive), record the time and date of the sighting and the specific location where it was found. PR boa data should also include a photo of the animal (dead or alive), site GPS coordinates, the time and date, and comments on how the animal was detected and its behavior. f. If a PR boa is captured by PRDNER personnel, record the name of that person and information on where the PR boa will be taken. This information should be reported to the Service.
- ESA Condition 4: For DI 1335653 and staging area: Puerto Rican boa (Chilabothrus inornatus) Part 2 g. Measures should be taken to avoid and minimize PR boa casualties by heavy machinery or motor vehicles being used on site. Any heavy machinery left on site (staging) or near potential PR boa habitat (within 50 meters of potential boa habitat), needs to be thoroughly inspected each morning before work starts to ensure that no boas have sheltered within engine compartments or other areas of the equipment. If PR boas are found within vehicles or equipment, do not capture the animal, and let it move on its own or call PRDNER Rangers for safe capture and relocation of the animal (see #d). If not possible, the animal should be left alone until it leaves the vehicle on its own. h. PR boas may seek shelter in debris piles. Measures should be taken to avoid and minimize boa casualties associated with sheltering in debris piles as a result of project activities. Debris piles should be placed far away from forested areas. Prior to moving, disposing or shredding, debris piles should be carefully inspected for the presence of boas. If debris piles will be left on site, we recommend they be placed in areas that will not be disturbed in the future. i. If a dead PR boa is found, immediately cease all work in that area and record the information accordingly (see #e). If the PR boa was accidentally killed as part of the project actions, please include information on what conservation measures had been implemented and what actions will be taken to avoid further killings. A dead boa report should be sent by email to the Service at Caribbean_es@fws.gov, within 48 hours of the event. j. Projects must comply with all state laws and regulations. Please contact the PRDNER for further guidance.
- ESA Condition 5: For DI 1335653: Coqui Guajón (Eleutherodactylus cooki): a. Inform all project personnel about the potential presence of the coquí guajón in areas where the proposed work will be conducted. A pre-construction meeting must be conducted to inform all project personnel about the requirement of avoiding harm to the species. Take (e.g., capture and relocation) of the coquí guajón is not authorized. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. An educational poster or sign with photos or illustrations of the species should be displayed at the project site. b. Be advised that the designated critical habitat is not the entire range of the species; the coquí guajón can be found in any boulder type habitat in streams, ravines, or drainages, etc., within the municipalities where the species is known to occur. Thus, the species can be detected outside of its designated critical habitat areas, it is still protected under the ESA. c. Project boundaries, buffer zones and areas to be excluded or protected must be clearly marked in the project plans and in the field, prior to any construction activity, including removal of vegetation and earth movement. d. Erosion and Sedimentation Control Best Management Practices (BMP's) must be included in the project scope of work when working within or adjacent to the coquí guajón habitat (e.g., rivers, streams, drainages, ravines, big boulder areas) to avoid or minimize erosion and sedimentation. Sediment runoff from the project can adversely affect the species and its habitat by filling the caves and crevices where the species occurs and uses to lay its eggs. As water is a very important component of the species' habitat, any stream, creek, or similar body of water with the habitat characteristics indicated above may harbor the species, hence it shall be protected to the maximum extent possible. e. All project associated with streams, rivers, bridges, culverts, etc., must follow the Post-Disaster Guidance for Repair, Replacement, and Clean-up Projects in Streams and Waterways of Puerto Rico from Hurricane María. The guide is available at: https://www.fws.gov/media/guidance-repair-replacement-and-clean-structures-streams-and-waterways-puerto-rico-and-us f. A record of all coquí guajón detections, including date, time, location, and approximate number of individuals

should be established. Also, a before and after photographic record of the project area should be established to document habitat changes.

- ESA Condition 6: For DI 1335653: Conservation measures for Puerto Rican plain pigeon (Patagioenas inornata wetmorei), Puerto Rican broad-winged hawk (Buteo platypterus brunnescens), Puerto Rican sharp-shinned hawk (Accipiter striatus venator): a. All personnel will be advised that there are civil and criminal penalties for harming, harassing, or killing species protected under the ESA. During breeding seasons (see below), nest surveys shall be conducted if a project occurs within the range of any of the species listed above and if habitat for those species will be impacted by the proposed actions. Nest searches must be conducted by qualified personnel with the appropriate permits from the Puerto Rico Department of Natural and Environmental Resources (PRDNER) prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 50-meter buffer around any nest(s) found within the project area. This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Outside breeding season no nest surveys are required. However, some bird species may nest year-round, therefore, if a nest is encountered while the project is being conducted, all construction activities or human disturbance must be avoided within a 50-meter buffer around that nest(s). This avoidance strategy must be kept until fledglings successfully leave the nest(s) permanently. Furthermore, if any of the species indicated above is observed (e.g., foraging, resting) within the project area, avoid any disturbance to the individual(s) and do not flush the bird until it leaves on its own. Nesting seasons: *. Puerto Rican plain pigeon: April-September. *. Puerto Rican broad-winged hawk: December-June. *. Puerto Rican sharp-shinned hawk: December-June. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office at Caribbean_es@fws.gov. Office phone: 786-244-0081.
- RCRA Condition 1: The contractor/sub-recipient will be responsible for the proper disposition of construction debris, unusable equipment, white goods, scrap metal, bituminous, non-recyclable material and damaged transformers in authorized landfills providing FEMA the name, location, coordinates and permits of the facility to FEMA by closeout. All coordination pertaining to final disposal activities should be documented and forwarded to FEMA by closeout as part of the permanent project file.
- Condition for NEPA 1: Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging area or work pads for EHP evaluation as soon as available especially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at close-out.
- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Patillas Streetlighting] / Former project 724670 (Distribution)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/25/2026 7:25 PM PDT

Review Comments

Version 0 contemplates $7,747,185.44, (federal share) for restoration of Patillas Streetlighting. Reviewed, found eligible and reasonable. CLG.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 10/01/2026 9:01 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$7,747,185.44	90%	Accepted	4339DRPRP01082791

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1070356 **P/W #** 108320	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [38kV Line 3800 – Entire Line] (Vegetation)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1872601; FAASt [38kV Transmission Line 3800 – Entire Line] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [38kV Transmission Line 3800 – Entire Line] (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1872601 **FAASt [38kV Transmission Line 3800 – Entire Line] (Vegetation)**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:
Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost o?er in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Sta?ord Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-

FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the onetime vegetation clearance and removal operation intended to mitigate the 38kV Line 3800 – Entire Line (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE o?er for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $205,888.76

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1872601	$15,433.57	13.76	$212,365.92	$(6,477.16)	$205,888.76

Work to be completed total: $212,365.92

A&E Deduction (Global A&E FAASt 335168): -$6,477.16

Project Total: $205,888.76

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.
2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the di?erent ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.
3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A FEMA letter dated March 24 2023.pdf.
4. For details on the SOW, refer to filename 1070373-FAASt [38kV Line 1200 – Entire Line] (Vegetation) DSOW.pdf
5. Vegetation clearance funds will not be allocated to SubFAASt projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS Project.

406 HMP Scope

Project number: [1070356] FAASt [38kV Line 3800 – Entire Line] (Vegetation)

Damage #: 1872601

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Caguas, Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.

- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

FAASt [38kV Line 3800 – Entire Line] (Vegetation)

This is a project for 38kV transmission lines in Region 4 Caguas. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within Caguas (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth

characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34%% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **13.76 miles,** with a total project cost of **$212,365.92.** For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1872601] FAASt [38kV Transmission Line 3800 – Entire Line] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 4 Caguas TL of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

· Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

· Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.

· Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.

· Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.
- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.
- **Cutting**: Hand removal of small-diameter incompatible species.
- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyze the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows

determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

The total miles to be addressed in the Hazard Mitigation Proposal (HMP) is **14.48 miles**, which includes a 10% buffer due the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **13.76 miles,** which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

	HMP	**Cost Estimate**
Total Project Miles:	23.57	23.57
Vegetation Miles at 100% of Work	11.86	11.86
Vegetation Miles at 50% of Work	1.30	0.65
Total Miles to Clean	13.16	12.51
Buffer Acceptance:	0.10	10%
Vegetation Miles at 100% + Buffer	**13.05**	**13.05**
Vegetation Miles at 50% + Buffer	**1.43**	**0.71**
Total Miles to Clean with Buffer	**14.48**	**13.76**
% of Miles to Clean with Buffer	61%	58%

(III) <u>Hazard Mitigation Proposal (HMP) Cost:</u>

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by the DR4339-PR leadership (5%) =	<u>$8,808.67 / mile</u>

Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57/ mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**
Project Total Miles with Vegetation: Buffer Acceptance:	12.51-miles 10%
Project Total Miles with Vegetation:	13.76 miles
Hazard Mitigation Total Cost =	**$2,332,988.32**

Note: The $169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$2,221,893.66
+ HM (Management & General Conditions Factors) =	$111,094.66
Hazard Mitigation Total Cost =	**$2,332,988.32**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$71,156.14	
Remaining Vegetation Clearance Cost =	$2,261,832.18	
Hazard Mitigation Total Cost =	**$2,332,988.32**	

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of $2,332,988.32 (Hazard Mitigation Total Cost)]. In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is $4,984,487,331.30. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements. See the Mitigation Profile Documents tab in Grants Manager for the complete supporting documentation, including the HMP cost estimate and supporting documents file.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

· Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.

· A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).

· Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a

landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. "Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"
2. "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"
3. "Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"
4. "IWBCA HMP Package.pdf"

6. "PN1070356-38KV_TL3800.kmz"
7. "PN1070356-DR4339PR-HMCE-IEP-20260828-REG.xlsm"
8. "PN1070356-DR4339PR-HMP-202600828-REG.pdf

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$212,365.92	Uncompleted
3510	1	Lump Sum	($6,477.16)	Uncompleted

CRC Gross Cost	$205,888.76
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$205,888.76
Federal Share (90.00%)	$185,299.89
Non-Federal Share (10.00%)	$20,588.87

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Applicant/Subrecipient was informed of the PA Alternative Procedures (Pilot Program). The Subrecipient has elected FEMA's standard procedures for this project.

Insurance

Additional Information

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [38kV Line 3800 – Entire Line] (Vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [38kV Line 3800 – Entire Line] (Vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the

FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [38kV Line 3800 – Entire Line] (Vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:37 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 13.76 miles of 38kV transmission lines in 3800 - Entire Line; no permanent infrastructure repairs are included. The WTBC cost is $212,365.92, based on $15,433.57 per mile. The final PA project cost is $205,888.76.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 1:51 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned

Reviewed On Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$185,299.89	90%	Accepted	4339DRPRP01083201

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1070363 **P/W #** 108327	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [38kV Line 5400 – Entire Line] (Vegetation)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1872605; FAASt [38kV Transmission Line 5400 – Entire Line] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [38kV Transmission Line 5400 – Entire Line] (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1872605 FAASt [38kV Transmission Line 5400 – Entire Line] (Vegetation)

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Ricc Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work withou detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost o?er in the PREPA FAASt Project until the Subrecipient submits it actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Sta?ord Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation

Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and

removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the onetime vegetation clearance and removal operation intended to mitigate the 38kV Line 5400 – Entire Line (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE o?er for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estima Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $191,823.69

D#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
18972605	$15,433.57	12.82	$197,858.37	$(6,034.68)	$191,823.69

Work to be Completed Total: $197,858.37

A&E Deduction (Global A&E FAASt 335168): -$6,034.68

Project Total: $191,823.69

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.
2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the di?erent ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.
3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A FEMA letter dated March 24 2023.pdf.
4. For details on the SOW, refer to filename 1070363 FAASt [38kV Line 5400 – Entire Line] (Vegetation) DSOW.pdf
5. Vegetation clearance funds will not be allocated to SubFAASt projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number: [1070363] FAASt [38kV Line 5400 – Entire Line] (Vegetation)

Damage #: 1872605 FAASt [38kV Line 5400 - Entire Line] (Vegetation)

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: San Juan, Puerto Rico

GPS Latitude/Longitude: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

FAASt [38kV Line 5400 – Entire Line] (Vegetation)

This is a project for 38kV transmission lines in region 1 San Juan. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within San Juan (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34%% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **12.82 miles,** with a total project cost of **$197,858.37.** For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1070363] FAASt [38kV Line 5400 – Entire Line] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 1 San Juan TL of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant

Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

· Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

· Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.

· Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.

· Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.
- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.
- **Cutting**: Hand removal of small-diameter incompatible species.
- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of

vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyze the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

The total miles to be addressed in the Hazard Mitigation Proposal (HMP) is **15.02 miles**, which includes a 10% buffer due to the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **12.82 miles,** which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

	HMP	**Cost Estimate**
Total Project Miles:	26.77	26.77
Vegetation Miles at 100% of Work	9.66	9.66
Vegetation Miles at 50% of Work	3.99	2.00
Total Miles to Clean	13.65	11.66
Buffer Acceptance:	10%	10%
Vegetation Miles at 100% + Buffer	**10.63**	**10.63**
Vegetation Miles at 50% + Buffer	**4.39**	**2.19**
Total Miles to Clean with Buffer	**15.02**	**12.82**
% of Miles to Clean with Buffer	56%	48%

Cost Summary:

The Hazard Mitigation Proposal is divided into 1ea Sub-Project: Damage #1872605; FAASt [38kV Transmission Line 3800 – Entire Line] (Vegetation). The total HMP Cost is the HM Net Cost ($2,070,107.32) + Applicant A&E, Management & General Conditions ($103,505.35) = $2,173,612.67.

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by DR4339-PR leadership (5%) =	$8,808.67 / mile
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57/ mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**
Project Total Miles with Vegetation: Buffer Acceptance:	11.66-miles 10%
Project Total Miles with Vegetation:	12.82 miles
Hazard Mitigation Total Cost =	**$2,173,612.67**

Note: The $169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$2,070,107.32
+ HM (Management & General Conditions Factors) =	$103,505.35
Hazard Mitigation Total Cost =	**$2,173,612.67**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$66,295.19	
Remaining Vegetation Clearance Cost =	$2,107,317.48	
Hazard Mitigation Total Cost =	**$2,173,612.67**	

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of **$2,173,612.67**. In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is **$4,984,436,563.74**. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

· Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.

· A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).

· Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo an EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. "Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"
2. "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"
3. "Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"
4. "IWBCA HMP Package.pdf"
6. "PN1070363-San Juan 38KV.kmz"
7. "PN1010363-DR4339PR-HMCE-IEP-20260831-KPC"
8. "PN1070363-DR4339PR-HMP-20260831-KPC.pdf"

Cost

Code	Quantity	Unit	Total Cost	Section
3510	1	Lump Sum	($6,034.68)	Uncompleted
9001	1	Lump Sum	$197,858.37	Uncompleted

CRC Gross Cost	$191,823.69
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$191,823.69
Federal Share (90.00%)	$172,641.33
Non-Federal Share (10.00%)	$19,182.36

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/3/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [38kV Line 5400 – Entire Line] (Vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [38kV Line 5400 – Entire Line] (Vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law

or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [38kV Line 5400 – Entire Line] (Vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:40 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 12.82 miles of 38kV transmission lines in 5400 - Entire Line; no permanent infrastructure repairs are included. The WTBC cost is $197,858.37, based on $15,433.57 per mile. The final PA project cost is $191,823.69.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 1:12 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

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Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$172,641.33	90%	Accepted	4339DRPRP01083271

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1070364 **P/W #** 108328	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [38kV Line 5600 – Entire Line] (Vegetation)	**Event**	4339DR-PR (4339DR)
Project Size	Small	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1872606; FAASt [38kV Transmission Line 5600 – Entire Line] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [38kV Transmission Line 5600 – Entire Line] (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1872606 **FAASt [38kV Transmission Line 5600 – Entire Line] (Vegetation)**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost o?er in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Sta?ord Act may be madeavailable for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the onetime vegetation clearance and removal operation intended to mitigate the 38kV Line 5600 – Entire Line (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE o?er for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completedwill be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fix€dst Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdfThe PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $91,067.55

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1872606	$15,433.57	5.95	$91,829.74	$(762.19)	$91,067.55

Work to be completed total: $91,829.74

A&E Deduction (Global A&E FAASt 335168): -$762.19

Project Total: $91,067.55

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.
2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the di?erent ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.
3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A FEMA letter dated March 24 2023.pdf.
4. For details on the SOW, refer to filename 1070373-FAASt [38kV Line 1200 – Entire Line] (Vegetation) DSOW.pdf
5. Vegetation clearance funds will not be allocated to SubFAASt projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number: [1070364] FAASt [38kV Line 5600 – Entire Line] (Vegetation)

Damage #: 1872606

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Mayaguez, Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Island wide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinaft PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added t projects for the restoration of disaster damaged facilities and must prevent future damage to that caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius o 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 kV Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of

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work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

FAASt [38kV Transmission Line 5600 – Entire Line] (Vegetation)

This is a project for 38kV transmission lines in Region 5 – Mayagüez. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within Mayagüez (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employe within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including: reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as: lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **5.95 miles,** with a total project cost of **$91,829.74**. For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf".

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(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1070364] FAASt [38kV Line 5600 – Entire Line] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 5 Mayagüez. TL of Puerto Rico.

The extent and execution of this scope include performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will be used for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.
- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.
- **Cutting**: Hand removal of small-diameter incompatible species.
- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full widthof the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Donepoorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the basewith an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyzing the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

	HMP	Cost Estimate
Total Project Miles:	27.27	27.27
Vegetation Miles at 100% of Work	4.60	4.60
Vegetation Miles at 50% of Work	1.61	0.81
Total Miles to Clean	6.22	5.41
Buffer Acceptance:	0.10	10%
Vegetation Miles at 100% + Buffer	**5.06**	**5.06**
Vegetation Miles at 50% + Buffer	**1.78**	**0.89**
Total Miles to Clean with Buffer	**6.84**	**5.95**
% of Miles to Clean with Buffer	25%	22%

The total miles to clean in the Hazard Mitigation Plan (HMP) i**6.84 miles**, which includes a 10% buffer due to the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **5.95 miles,** which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

Cost Summary:

The Hazard Mitigation Proposal is divided into 1ea Sub-Project: Damage #1872606; FAASt [38kV Transmission Line 5600 – Entire Line] (Vegetation) The total HMP Cost is the HM Net Cost ($960,775.24) + Applicant A&E, Management & General Conditions $48,038.75) = $1,008,813.99

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by DR4339-PR leadership (5%) =	$8,808.67 / mile
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57 / mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**
Project Total Miles to Clear:	5.41-miles
Buffer Acceptance:	10%
Project Total Miles to Clear:	**5.95-miles**

	-
Hazard Mitigation Total Cost =	**$1,008,813.99**

Note: The 169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$960,775.24
+ HM (Management & General Conditions Factors) =	$48,038.75
Hazard Mitigation Total Cost =	**$1,008,813.99**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution

Architecture and Engineering (A&E)=	$8,373.16
Remaining Vegetation Clearance Cost =	$1,000,440.83
Hazard Mitigation Total Cost =	**$1,008,813.99**

[1] Validated by FEMA.

[2] FEMA cost analysis in "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf".

[3] FEMA cost estimate "*PN1070364-DR4339PR-HMCE-20260901-ENR-*"

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cos effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system le rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAAS project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for th reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disast Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost o**$1,008,813.99**. In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is**$4,990,870,087.10** The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Ri because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, an supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements. See the Mitigation Profile Documents Tab in Grants Manager for the complete supporting documentation, including the HMP cost estimate and supporting documents file.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cos**$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile**.

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.
- A digital map in ArcGIS format showing all areas where vegetation removal was performed Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).
- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun o overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions cou funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, an Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different th the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure t the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulatio

outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental la regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. *"Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"*
2. *"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*
3. *"Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"*
4. *"IWBCA HMP Package.pdf"*
5. *"PN 1070364_TL5600_38KV_Mayaguez"*
6. *"PN1070364-DR4339PR-HMCE-20260901-ENR"*

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$91,829.74	Uncompleted
3510	1	Lump Sum	($762.19)	Uncompleted

CRC Gross Cost	$91,067.55
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$91,067.55
Federal Share (90.00%)	$81,960.80
Non-Federal Share (10.00%)	$9,106.75

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of all of its small projects and compliance with all environmental and historic preservation requirements within 180 days of the applicant's completion of its last small project, or the latest approved deadline, whichever is sooner.

Insurance

Additional Information

9/9/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [38kV Line 5600 – Entire Line] (Vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [38kV Line 5600 – Entire Line] (Vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to

Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

> There is no additional environmental historical preservation on **FAASt [38kV Line 5600 – Entire Line] (Vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:12 PM PDT

Review Comments

PDMG Final Review completed for Project 1070364. The PA Scope of Work is limited to incidental vegetation clearance associated with 5.95 miles of 38kV transmission lines in 5600 - Entire Line; no permanent infrastructure repairs are included. The WTBC cost is $91,829.74, based on $15,433.57 per mile. The final PA project cost is $91,067.55.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 1:31 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$81,960.80	90%	Accepted	4339DRPRP01083281

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1070373 **P/W #** 108337	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [38kV Line 1200 – Entire Line] (Vegetation)	**Event**	4339DR-PR (4339DR)
Project Size	Small	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1872585; FAASt [38kV Transmission Line 1200 – Entire Line] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [38kV Transmission Line 1200 – Entire Line] (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1872585 **FAASt [38kV Transmission Line 1200 – Entire Line] (Vegetation)**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost o?er in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Sta?ord Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the onetime vegetation clearance and removal operation intended to mitigate the 38kV Line 1200 – Entire Line (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE o?er for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $95,506.14.

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
18972585	$15,433.57	6.24	$96,305.48	$(799.34)	$95,506.14

Work to be completed total: $96,305.48

A&E Deduction (Global A&E FAASt 335168): -$799.34

Project Total: $95,506.14

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.
2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution:13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the di?erent ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.
3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A FEMA letter dated March 24 2023.pdf.
4. For details on the SOW, refer to filename 1070373-FAASt [38kV Line 1200 – Entire Line] (Vegetation) DSOW.pdf
5. Vegetation clearance funds will not be allocated to SubFAASt projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number : [1070373] FAASt [38kV Line 1200 – Entire Line] (Vegetation)

(vegetation)

Damage #: 1872585

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Ponce, Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.
- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

FAASt [38kV Transmission Line 1200 – Entire Line] (Vegetation)

This is a project for 38kV transmission lines in Region 6 Ponce. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within Ponce (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not

synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **6.24 miles**, with a total project cost of **$96,305.48.** For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

1070373; FAASt [38kV Transmission Line 1200 – Entire Line] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 6 Ponce TL of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay,

resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

· Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

· Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.

· Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.

· Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.
- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.
- **Cutting**: Hand removal of small-diameter incompatible species.
- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of

vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyze the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

The total length to be cleared, according to the Hazard Mitigation Proposal (HMP), is**6.99 miles**, which includes a 10% buffer due to the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **6.24 miles**, which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

	HMP	Cost Estimate
Total Project Miles:	25.62	25.62
Vegetation Miles at 100% of Work	4.99	4.99
Vegetation Miles at 50% of Work	1.36	.68
Total Miles to Clean	6.35	5.67
Buffer Acceptance:	10%	10%
Vegetation Miles at 100% + Buffer	**5.49**	**5.49**
Vegetation Miles at 50% + Buffer	**1.50**	**.75**
Total Miles to Clean with Buffer	**6.99**	**6.24**
% of Miles to Clean with Buffer	27%	24%

(III) Hazard Mitigation Proposal (HMP) Cost:

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by the DR4339-PR leadership (5%) =	$8,808.67 / mile
Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57/ mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**

Project Total Miles with Vegetation:	5.67 miles
Buffer Acceptance:	10%
Project Total Miles with Vegetation:	6.24 miles
	-
Hazard Mitigation Total Cost =	**$1,057,983.08**

Note: The $169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$1,007,6
+ HM (Management & General Conditions Factors) =	$50,3
Hazard Mitigation Total Cost =	**$1,057,9**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$8,781.26	
Remaining Vegetation Clearance Cost =	$1,049,201.82	
Hazard Mitigation Total Cost =	**$1,057,983.08**	

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of $1,057,983.08. In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is $4,987,560,689.63. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements. See the Mitigation Profile Documents Tab in Grants Manager for the complete supporting documentation, including the HMP cost estimate and supporting documents file.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

· Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.

· A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).

· Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a

landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. "Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"
2. "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"
3. "Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"
4. "IWBCA HMP Package.pdf"

5. "PN1070373 - Ponce 38KV - WJPT.kmz"
6. "PN1070373 -DR4339PR-HMCE-20260826-WJPT.xslm"
7. "PN1070373-DR4339PR-HMP-20260901-WJPT"

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$96,305.48	Uncompleted
3510	1	Lump Sum	($799.34)	Uncompleted

CRC Gross Cost	$95,506.14
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$95,506.14
Federal Share (90.00%)	$85,955.53
Non-Federal Share (10.00%)	$9,550.61

Subgrant Conditions

- As described in Title 2 Code of Federal Regulations (C.F.R.) § 200.333, financial records, supporting documents, statistical records and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three (3) years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient. Federal awarding agencies and pass-through entities must not impose any other record retention requirements upon non-Federal entities. Exceptions are stated in 2 C.F.R. §200.333(a) – (f)(1) and (2). All records relative to this project are subject to examination and audit by the State, FEMA and the Comptroller General of the United States and must reflect work related to disaster-specific costs.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date of this emergency declarations or major disaster, as applicable, are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise.
- The Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 110.
- The subrecipient must submit a written request through the Recipient to FEMA before it makes a change to the approved scope of work in this project. If the subrecipient commences work associated with a change before FEMA approves the change, it will jeopardize financial assistance for this project. See FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide.
- When any individual item of equipment purchased with PA funding is no longer needed, or a residual inventory of unused supplies exceeding $5,000 remains, the subrecipient must follow the disposition requirements in Title 2 Code of Federal Regulations (C.F.R.) § 200.313-314.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- The Recipient must submit its certification of the subrecipient's completion of all of its small projects and compliance with all environmental and historic preservation requirements within 180 days of the applicant's completion of its last small project, or the latest approved deadline, whichever is sooner.

Insurance

Additional Information

9/9/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jean-Carlo Echevarria, PA Insurance Specialist, CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [38kV Line 1200 – Entire Line] (Vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [38kV Line 1200 – Entire Line] (Vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required

to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

> There is no additional environmental historical preservation on **FAASt [38kV Line 1200 – Entire Line] (Vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:12 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 6.24 miles of 38kV transmission lines in 6500 - Entire Line; no permanent infrastructure repairs are included. The WTBC cost is $96,305.48, based on $15,433.57 per mile. The final PA project cost is $95,506.14.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 8:31 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned **Reviewed On** Unsigned

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$85,955.53	90%	Accepted	4339DRPRP01083371

Department of Homeland Security
Federal Emergency Management Agency

v0

General Info

Project #	1070379 **P/W #** 108343	**Project Type**	Specialized
Project Category	F - Utilities	**Applicant**	PR Electric Power Authority (000-UA2QU-00)
Project Title	FAASt [38kV Line 2200 – Entire Line] (Vegetation)	**Event**	4339DR-PR (4339DR)
Project Size	Large	**Declaration Date**	9/20/2017
Activity Completion Date	9/20/2027	**Incident Start Date**	9/17/2017
		Incident End Date	11/15/2017
Process Step	Obligated		

Damage Description and Dimensions

The Disaster # 4339DR, which occurred between *09/17/2017* and *11/15/2017*, caused:

Damage #1872594; FAASt [38kV Transmission Line 2200 – Entire Line] (Vegetation)

General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** FAASt [38kV Transmission Line 2200 – Entire Line] (Vegetation)
- **Facility Description:** The Puerto Rico Electric Power Authority (PREPA) owns more than 19,000 miles of transmission and distribution lines, as well as more than 400 substations. The facilities addressed in this project are all the overhead transmission and distribution lines (16,000+ miles), as well as substations. To ensure the functioning of this infrastructure to the level of service needed, keeping this equipment clear from vegetation is significant.
- **Approx. Year Built:** 1950
- **GPS Latitude/Longitude:** [redacted]

Final Scope

1872594 **FAASt [38kV Transmission Line 2200 – Entire Line] (Vegetation)**

Project 136271 (hereinafter PREPA FAASt Project) authorized $9,459,885,412.39 (Federal Share) to be awarded to the Puerto Rico Electric Power Authority (PREPA, Subrecipient) as a fixed cost estimate (FAASt FCE agreement) based on eligible work without detailed scopes of work to restore disaster-damaged facilities. Eligible work for the Transmission and Distribution (T&D) system included restoration of:

Broken structures due to high winds such as poles/towers (counted as broken when poles where inclined, bent, torn, and/or cracked); and other damages/broken components such as transformers, insulators, conductors, grounding system, jumpers, Gang Operated Air Breakers (GOABs), pole hardware, guy wires and anchors.

FEMA deferred the 406 Hazard Mitigation Proposal (HMP) fixed cost o?er in the PREPA FAASt Project until the Subrecipient submits its actual recovery solutions. FEMA also issued a clarification letter regarding whether hazard mitigation funding under Section 404 or Section 406 of the Sta?ord Act may be made available for the execution of a one-time, island-wide vegetation clearing and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. See FEMA's letter to COR3, document Signed Vegetation

Management March 24 2023.pdf. The Subrecipient's actual recovery solution seeks a one-time Island-wide vegetation clearance and removal operation intended to mitigate the threat to the existing vegetation, if untended to, poses to Puerto Rico's electric T&D system. The actual recovery solution seeks to mitigate Puerto Rico's electric T&D system, including areas without infrastructure repairs.

The actual recovery solution (scope and cost) will be captured in multiple individual projects (hereinafter Vegetation clearance HMP Sub-FAASt projects) to provide flexibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAASt projects do not include infrastructure repair work.

This project captures a portion of the Island-wide actual recovery solution, specifically the onetime vegetation clearance and removal operation intended to mitigate the 38kV Line 2200 – Entire Line (see project note #1 and #2).

FEMA 406 Hazard Mitigation (HM) team will review this actual recovery solution and issue an FCE o?er for the portion of the recovery solution that reduces risk of future similar damages. The Work to be Completed will be captured in the 406 HM scope section. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAASt Post-Fixed Cost Estimate Obligation Vegetation HMP Approach: 38kV. See document 956345 DR4339PR FAAStVegetationHMPApproach_38kVTrans.pdf. The PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope. WTBC Cost (PA) = $15,433.57 per mile. Therefore, the total cost (PA) for this project will be $182,696.35.

DI#	PA Vegetation Clearance Overlap per mile	Total miles	WTBC - PA Cost with Subrecipient Management & General Conditions	A&E - PA	Total - PA
1872594	$15,433.57	12.21	$188,443.89	$(5,747.54)	$182,696.35

Work to be completed total: $188,443.89

A&E Deduction (Global A&E FAASt 335168): -$5,747.54

Project Total: $182,696.35

Project Notes:

1. This is a 38kV Transmission-Vegetation clearanceHMP Sub-FAASt project.
2. Vegetation clearance HMP Sub-FAASt projects will be written according to line type (Distribution: 13.2kV and down, and Transmission: 38 kV, 115kV, and 230 kV) because of the di?erent ROWs and other characteristics. Multiple projects of each type will be submitted and reviewed for eligible PA 406 HM funding. Vegetation clearing work will only be submitted for those areas that vegetation represents strike potential (may cause future similar damage to the T&D system when subject to high winds). In the submittal of this project the Subrecipient's Authorized Representative attests that only the vegetation clearance submitted is to reduce strike potential and that the ROW for these lines has been, and will be, counted only once to avoid duplication within the vegetation clearance projects.
3. For more details of the requirements and conditions for the execution of a one-time, island-wide vegetation clearance and removal operation considered as an eligible Section 406 hazard mitigation proposal (HMP), please refer to document labeled: Attachment A FEMA letter dated March 24 2023.pdf.
4. For details on the SOW, refer to filename 1070379-FAASt [38kV Line 2200 – Entire Line] (Vegetation) DSOW.pdf
5. Vegetation clearance funds will not be allocated to SubFAASt projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAASt Project #335168, A&E, as shown in the table above. The A&E project was obligated to track and account for costs associated with individual FAASt projects.
7. This project is part of Donor FAASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASt Project.

406 HMP Scope

Project number: [1070379] FAASt [38kV Line 2200 – Entire Line] (Vegetation)

Damage #: 1872594

Applicant: PR Electric Power Authority (000-UA2QU-00)

Location: Bayamon, Puerto Rico

GPS Latitude/Longitude: From: [redacted]

Introduction:

Puerto Rico's electrical grid infrastructure has been severely compromised by extreme weather events, particularly with Hurricane Maria in September 2017. The hurricane caused widespread disruptions to transmission and distribution systems, largely due to vegetation impacts that collapsed distribution and transmission lines. Substantial infrastructure was damage when trees downed utility power lines and poles, causing most of the transmission/distribution system fail. Post-hurricane vegetation clearance to enable grid repair and restoration progressed slowly, considerably delaying overall electrical recovery. Remaining excess vegetation continues to cause operational outages, as ground faults occur when vegetation contacts power lines even during normal weather events. After the passage of Hurricane María, minimal cleaning work was carried out exclusively to clear the areas to carry out emergency repairs to the electrical system. These works were covered by Category B - Emergency Protective Measure, but excess vegetation on the electrical system remains an outstanding vulnerability.

Puerto Rico's grid modernization and mitigation one time ROW clearance strategy will prioritize effective and proactive vegetation management protocols to prevent prolonged storm-related outages, thereby increasing the reliability of the electric system. These reliability and resiliency gaps are especially impactful to Puerto Rico, which has been facing increasingly frequent natural hazards such as hurricanes. This project is part of the for Vegetation Reset Program which will impact the Transmission and Distribution systems for each of the 78 municipalities.

Hazard Mitigation Narrative:

In order to minimize damages in a future event, the Subrecipient's actual recovery solution seeks a one-time Islandwide vegetation remediation clearance for the above work included in the PREPA FAASt Project, as according to the Public Assistance Alternative Procedures (PAAP) (Section 428) Guide for Permanent Work FEMA-4339-DR-PR (hereinafter PR PAAP Guide) and FEMA's letter to COR3, document Signed Island-Wide Vegetation Clearance March 24, 2023. Section 406 hazard mitigation are funds that can be added to projects for the restoration of disaster damaged facilities and must prevent future damage caused by the declared event. Under DR-4339-PR, Section 406 hazard mitigation funds are based on eligible, technically feasible, and cost- effective mitigation activities proposed to reduce risk to the function of the disaster- damaged facilities. The portion of the recovery solution that reduces risk of future damage may be considered as eligible 406 mitigation.

The island-wide transmission and distribution grid was significantly damaged by the strong winds and heavy rainfall during the atmospheric event hurricane Maria. This resulted in many trees and other vegetation becoming a direct hazard to the electrical grid. A one-time 406 hazard mitigation island-wide vegetation clearance will benefit the reliability and resiliency of the Puerto Rico electrical grid, including the number and duration of customer outages during and after the work to complete the repairs to the electrical grid through other PREPA 428 FAASt Projects. The scope of the global 406 Hazard Mitigation (HM) projects includes vegetation clearing across the entire width of the easement, plus a radius of 12 to 25 feet from energized conductors to directly reduce the potential for future damage to the "transmission and/or distribution" (T&D) systems. Each 406 HM Vegetation Reset project is correlated with an eligible 428 T&D project, in association with PREPA's electrical grid. Different regional projects are developed to impact all lines of the electrical system, including distribution lines and high-voltage transmission lines. Also, projects are defined in terms of line type (distribution or transmission) and population density of the area (high or low) to simplify the evaluation by the Environmental and Historical Preservation team (EHP).

The global project was divided into the following regions:

- Region 1 – San Juan
- Region 2 – Arecibo
- Region 3 – Bayamón
- Region 4 – Caguas
- Region 5 – Mayagüez
- Region 6 – Ponce

For each Region of the island, there will be two types of projects to capture the Vegetation Clearing activities within scopes of work: (1) single transmission line projects based on LUMA's priority list, capturing the lines or segments of lines affected most by vegetation interference, and (2) Regional DSOWs divided into groups (Groups A – F), as follows:

- Region 1 – San Juan
- Region 2 – Arecibo
- Group A – High/Low Density Distribution Lines
- Group B – 38 kV Transmission.

- Group C – Overlapped Distribution and Transmission Lines
- Group D - 115 kV Facilities
- Group E - Substation and Telecommunication Facilities.
- Group F – 230 Kv Facilities (Non-Region – Specific)

This 406 HM work is limited to what is necessary to directly reduce the potential of future damage to the T&D system assets, that exceeds what is necessary to clear vegetation for accessing facilities when carrying out repairs which are already established as eligible for FEMA funding utilizing the 428 FAASt Grant. Each 406 HM will correlate with an eligible 428 Transmission and/or Distribution (T&D) project in association with the PREPA power grid. There will be 7 Regional DSOW's developed capturing planned actions within scopes of work formulated with established criteria detailed for Distribution and Transmission lines/facility locations. The first DSOW is Group A - High Density areas with a low reflection of infrared light; the second DSOW is Group A Low Density locations where more vegetation density is present, which is determined by a higher level of reflection of infrared associated with Vegetation for 13.2kV and below locations; the third DSOW is Group B locations at 38kV level; the fourth DSOW is Group C - with known local environmental sensitivities at 38kv and below levels locations; the fifth DSOW is 115kV Facilities; and the sixth DSOW is Substation and Telecommunication Facilities. There will also be 230 kV Facilities (these installations have a separate Vegetation Clearance project that is not region- specific).

[1070379]; FAASt [38kV Transmission Line 2200 – Entire Line] (Vegetation)

This is a project for 38kV transmission lines in Region 3 Bayamón. The DSOW captures the scope of work and cost estimate for Vegetation Clearing intended to mitigate the threat that the existing vegetation, along 38kV lines within Bayamón (if left untended to), poses Puerto Rico's electric grid.

This SOW is aligned with and leverages FEMA's Island-Wide Benefits Cost Analysis (IWBCA), which was used for this purpose and fully supports the mitigation measures employed within this project scope of work.

The Subrecipient's authorized representative (LUMA) estimates that this 406 Hazard Mitigation proposal for island-wide vegetation clearance will have immediate and future widespread benefits, including:

- Mitigation of the hazards due to vegetation impacts and damages.
- 70% annual reduction of outages caused by vegetation.
- 35-45% annual reduction of customer interruptions.
- Faster restoration for impacted customers.
- Improved safety for utility workers and the public.
- Support the rebuilding of the grid and effective execution of large-scale construction projects.

The following terms, when used in this document, shall have the meaning described below.

Compatible Species – Compatible species are those that are congruent with the intended use of the site, and include small trees, shrubs and herbaceous vegetation that will never grow into conflict with overhead conductors.

Incompatible Species – Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors.

Clearance - The minimum distance between two conductors, between conductors and their support or other objects, or between conductors and the ground. The National Electrical Safety Code (NESC) and PREPA's Technical Communication (See 12-02 attached) determine the minimum requirements regarding distances (vertical and horizontal) between an energized conductor or device and a structure, building or surface. Vegetation Clearing will be limited to clearing any vegetation affecting these clearances. This term is not synonymous with easement. Clearances can be met without being within an easement. Clearance requirements must be complied with either when the Authority builds its facilities, as well as when a third party builds a structure. Clearances, in both cases, must be complied with by regulation, regardless of whether an easement exists. regardless of whether an easement exists.

Easement - is a line imposed on a property for the benefit of another belonging to a different owner. The property, in favor of which the easement is constituted, is called the dominant estate; the one who suffers it, servant property. An easement for electrical power lines provides PREPA and Luma as its agent various rights including reasonable access to the electric infrastructure to provide maintenance, repair, expand, operate and is established on the strips or portions of land where facilities of the T & D system are located or will be located, such as lines, poles, towers, equipment, and accessories. These acquired rights make it easier to carry out vegetation clearing work.

The PREPA distribution and transmission systems are populated with millions of plants but only some have the conditions, growth

characteristics, and/or locations that make them compatible or incompatible with the safe and reliable energy delivery service. The Subrecipient's authorized representative recognizes the diversity of species in tropical ecosystems, and the general remediation strategy is to control incompatible species while encouraging the growth of compatible species. Compatible species may, on occasion, need control if their height or density impedes the necessary line of sight for inspections or access to perform resilience work. Within Appendix A and B are lists of protected flora species and incompatible flora species expected to be encountered during scope performance.

(I) Proposed 428 Public Assistance Scope of Work (SOW):

This project includes Public Assistance (PA) works; however, PA Scope of Work and Cost is limited to the incidental vegetation clearance. No permanent infrastructure repairs are included as part of this scope, $15,433.57 / mile calculation represents the PA Overlap.

PA incidental works will be deducted from the Section 406 Hazard Mitigation project costs to avoid duplication of works. To address the overlap between the incidental vegetation work needed to carry out the repairs and the mitigation work, the Vegetation clearance HMP Sub-FAASt projects.

FEMA performed an analysis to the PREPA FAASt documents and determined that vegetation clearing on each mile of 38 kV line requiring repair was on average 8.34%% related to the repair (428 PA) and 91.66% related to a mitigation measure (406 HM). The fixed-cost estimate for the PA scope is $15,433.57 per **12.21 miles,** with a total project cost of **$188,443.89.** For further details, refer to the document "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"

(II) Hazard Mitigation Proposal (HMP) Scope of Work:

[1070379]; FAASt [38kV Transmission Line 2200 – Entire Line] (Vegetation)

As a result of DR-4339-PR, vegetation surrounding T&D assets are falling onto these facilities and interfering with the safe and reliable operation of the assets. The vegetation at present is currently causing outages when vegetation is in contact with the T&D assets. To mitigate the future damage across T&D assets and protect the 428 repairs and replacement along these facilities, clearing vegetation materials will be required. This 406 Hazard Mitigation Scope of Work is to directly reduce the potential of future, damages to the T&D system by clearing vegetative materials that pose an immediate threat to the power distribution lines, and identification for corrective actions related to clearing vegetation (consisting of shrubs, branches, limbs, stumps, bamboo, and trees that are directly impacting the resilience and productivity of the power grid) applicable to the existing PREPA electrical grid within Region 3 Bayamón TL of Puerto Rico.

The extent and execution of this scope includes performing verification of facilities, assets and condition assessments for determining the most appropriate remediation, preparing work orders for executing the necessary vegetation remediation, by ways of tree felling, vegetation remediation, mechanical vegetation remediation, vegetative debris disposal via chipping, mulching, hauling, and recycling where applicable in easement of the PREPA power Distribution lines. LUMA is not planning to construct access roads. If the work to be done is not adjacent to an existing road, our contractor tree crews will minimize environmental disturbance by utilizing vegetation crews hiking by foot in and out of our existing easement.

Parameters for Performing 406 Hazard Mitigation Vegetation Clearing

Regulation 7282 requires that only shrubs and plants (no trees) be planted within the easement under power lines. Climbing plants and vines, as well as bamboo, are prohibited from being planted within an easement. The branches of trees planted outside the easement must not obstruct free passage of the power lines. The National Electrical Safety Code (NESC) and PREPA's Technical Communication establish the minimum required distances, both vertical and horizontal, between an energized conductor or device and any structure, building, or surface. Vegetation clearing will be restricted to removing any vegetation that interferes with these clearances. For power distribution lines, NESC and Regulation 7282 define the vertical distance from vegetation as 12-15 feet. By law, any trees, shrubs, or plants planted in violation of Regulation 7282 may be uprooted, removed, or cut down in accordance with the provisions of Regulation 7282 – for both compatible and incompatible species.

Industry standard practices will determine how the work will be performed. A healthy tree is less likely to fall over in a storm and damage overhead lines; therefore, vegetation will be pruned according to ANSI A300 (Part 1) – 2017 Tree, Shrub, and Other Woody Plant Management – Standard Practices (Pruning). Vegetation that is improperly pruned could become susceptible to disease and decay, resulting in a hazard to both the line and public safety. ANSI A300 is the tree care industry standard of care in the USA. It was developed by Tree Care Industry Association and maintained by a consensus of various industry stakeholders through periodically reviewing and updating the guidelines. These standards provide guidance on how and where to prune vegetation to achieve clearances and maintain a healthy plant. In all cases, Subrecipient's authorized representative's vegetation clearing contractors will be required to perform clearing activities in a manner consistent with ANSI A300, NESC, and Regulation 7282 alignment with Resolution 4987, Organic Law 83 (amended version), Communication 12-02, and PREPA 's Comprehensive Management Plan establishing standard Distribution easement widths. Easement Clearance widths for distribution lines are given in the table below:

Recommended Easement width for overhead Transmission & Sub-Transmission Lines (feet)				
Construction type	Area	Voltage(Kv)		
		38	115	230
Single Circuit	Urban	25 ft	30 ft	40 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Same Structure	Urban	25 ft	40 ft	60 ft
	Rural	50 ft	100 ft	100 ft
Double Circuit, Different Structures	Rural	50 ft	100 ft	100 ft

Scope of Work Inside Easement – Incompatible Species

Incompatible species are those that are not congruent with the intended use of the site and include tall growing trees and other plant forms (e.g., bamboo and palms) with the potential to conflict with overhead conductors. For the power distribution lines, all Incompatible Species will be cleared from the full width of the easement. "Clearing" in this context includes the following activities: tree removal, severing of vines, cutting, vegetation mastication.

· Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.

· Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified working at ground level. The upper portion of the vine remains attached and is not removed.

· Cutting: Cutting typically involves the removal of small diameter Incompatible Species by hand.

· Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

Scope of Work Inside Easement – Compatible Species:

Compatible vegetation species will be cleared consistent with the distances identified in Regulation 7282, which means that any species with the potential to encroach within 12 feet of the conductors at full size will be removed using the same methods discussed above. Even though the distances identified in Regulation 7282 are vertical clearances, Compatible Species encroaching on the conductors from any direction can pose a hazard to the distribution system, with the maximum edge of the conductors to be 12 feet wide centered on the pole. Therefore, the 12-foot clearance is being applied to both vertical and horizontal clearances. For areas with overhead distribution systems located in the backyard or side yard, the certified easement width from LUMA Land Records office will use for clearing.

In rare cases where Subrecipient's authorized representative encounters significant resistance from landowners or stakeholders to remediate vegetation, Subrecipient's authorized representative will work with landowners or stakeholders to determine if Incompatible and Compatible Species can be pruned to mitigate the hazard to the lines instead of being completely removed

Vegetation with the potential to encroach within 12 feet of conductor — Compatible or Incompatible.

Any vegetation species—whether Compatible or Incompatible—that have the potential (when at full size) to encroach within 20 feet of the conductor will be cleared using one of the methods discussed below:

- **Tree Removal**: Removing above-ground portions of trees while leaving stumps in place.
- **Severing of Vines**: Cutting vines at the base to create an air gap between the root system and the structure.
- **Cutting**: Hand removal of small-diameter incompatible species.
- **Vegetation Mastication**: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch. Using heavy equipment to reduce standing trees to woody debris.

All Other Incompatible Species within the Recommended Easement Width:

- All other Incompatible Species will be cleared from the full width of the recommended easement width. The clearing methods described above (tree removal, severing of vines, cutting, and vegetation mastication) will be utilized.

Scope of Work Outside Easement – Species Growing into the Easement

There is the potential for vegetation outside or along the boundary of the easement to interfere with the operation of power distribution lines. Appropriate clearances around the conductors must be achieved to protect the lines from future damage. For distribution lines, Subrecipient's authorized representative has established a minimum clearance distance of 12 feet from all conductors, with the maximum edge of the conductors to be 12 feet wide centered on the pole. This distance is consistent with the vertical distance established in Regulation 7282. If there are species encroaching on the 12-foot clearance outside or along the boundary of the easement, these species will be pruned to obtain at least 20 feet of clearance from the conductors at the time clearance work occurs. In cases where following ANSI A300 best practices require clearance beyond 12 feet, the maximum distance cleared will not exceed an additional 3 feet from set clearing distance. Diagrams illustrating these clearing distances are provided as attachments within Grants Portal. The following clearing methods will be provided as Attachment B-*"FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"*

- Tree pruning: Qualified personnel work from an aerial platform or while climbing within a crown of trees to prune the tree. All pruning work wounds the tree. Done poorly, pruning can result in an exaggerated regrowth response by adversely altering tree architecture and increasing exposure to decay organisms that can weaken the tree. These adverse consequences increase the likelihood of tree-initiated faults causing system interruptions and customer outages. Proper arboriculture techniques will be utilized.
- Tree removal: Qualified line clearance crews work at ground level or on aerial platforms to remove the portion of the tree that is above ground, leaving the stump in place.
- Severing of vines: Vines will be severed at the base with an airgap created between the root system and the portion of the vine climbing on the structure. Vines are severed and treated by a qualified worker at ground level. The upper portion of the vine remains attached and is not removed.
- Cutting: Cutting typically involves the removal of small diameter species by hand.
- Vegetation mastication: also known as mulching, slash-busting, or brush-cutting, involves technique for reducing the size of vegetation and downed material in forests. It involves grinding, shredding, or chopping vegetation into smaller pieces, which are then left on the site as mulch.

FEMA 38kV Assessment & Methodology:

LUMA documentation claims a 100% clearance for the entire project segment based on the total length of the feeder. This analysis would not be considered as the method for validation purposes.

Consequently, FEMA perform a 100% evaluation of each feeder to determine the quantity of miles of vegetation non-compatible. The tools used for this analysis are Google Earth, that allows a street view evaluation where the HM Specialist uses the imagery data for analyze the feeder lines adjacent to roads. Where the feeder is through mountains FEMA use top and 3D view maps that allows

determine the elevations for mountains, forested areas (assess vegetation), and the topography of the land. When poles are at the top of mountains and lines run between mountains, only the vegetation around the poles will be considered. The total percentage of each line is the result of compiling all the sections analyzed. It is important to emphasize that after work completed, the subrecipient can submit additional eligible vegetation clearance distance not included in this vegetation clearance percent analysis.

FEMA Analysis:

The total miles to be addressed in the Hazard Mitigation Proposal (HMP) is **18.30 miles**, which includes a 10% buffer due the method of assessment (desktop review), providing sufficient funds to ensure vegetation works are covered. This amount is estimated value, that will be adjusted based on the amount of actual work performed.

The cost estimate is based on two vegetation clearance scenarios, (1) the full clearance represents those lines that at both side sides of the right of way have vegetation that needs to be cleared. (2) is the half clearance represented for those circuits alongside roadways and only needs clearance at one side of the right of way. As a result, the total miles used for the cost estimate is **12.21 miles,** which reflects these adjustments for segments that do not require full clearing. This amount is estimated value, based on a desktop review that will be adjusted based on the amount of actual work performed and evidence of the actual work performed.

	HMP	**Cost Estimate**
Total Project Miles:	74.81	74.81
Vegetation Miles at 100% of Work	5.56	5.56
Vegetation Miles at 50% of Work	11.07	5.54
Total Miles to Clean	16.64	11.10
Buffer Acceptance:	0.10	10%
Vegetation Miles at 100% + Buffer	**6.12**	**6.12**
Vegetation Miles at 50% + Buffer	**12.18**	**6.09**
Total Miles to Clean with Buffer	**18.30**	**12.21**
% of Miles to Clean with Buffer	24%	16%

(III) <u>Hazard Mitigation Proposal (HMP) Cost:</u>

[1] Vegetation Clearance Cost per Mile (Base Cost) =	$176,173.47 / mile
Risk Factor approved by the DR4339-PR leadership (5%) =	<u>$8,808.67 / mile</u>

Vegetation Clearance Cost per Mile (w/Soft Cost) =	$184,982.14 /mile
[2] PA Vegetation Clearance Overlap per Mile (Deduction) =	($15,433.57/ mile)
Hazard Mitigation Total Cost per Mile =	**$169,548.57 / mile**
Project Total Miles with Vegetation: Buffer Acceptance:	11.10-miles 10%
Project Total Miles with Vegetation:	12.21 miles
Hazard Mitigation Total Cost =	**$2,070,188.04**

Note: The $169,548.57 / mile calculation represents the total cost (base costs + soft costs – PA Overlap). For this project, breaking down that total cost further yields the approximate figures below. For additional information please see the attached document.[3]

Total Net Hazard Mitigation Cost (Base Cost) =	$1,971,607.67
+ HM (Management & General Conditions Factors) =	$98,580.37
Hazard Mitigation Total Cost =	**$2,070,188.04**

(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

Architecture and Engineering (A&E) =	$63,140.74	
Remaining Vegetation Clearance Cost =	$2,007,047.30	
Hazard Mitigation Total Cost =	**$2,070,188.04**	

(V) HMP Cost-Effectiveness Calculations:

FEMA's Benefit-Cost Analysis, BCA, methodology evaluates the expected risk reduction benefits of a hazard mitigation project and compares those benefits to the cost of the mitigation project. FEMA Public Assistance Program and Policy Guide, PAPPG, Version 3.1, April 2018, Chapter 2, Section VII.C, page 98, considers mitigation measures to be cost-effective when they are demonstrated through an acceptable BCA using FEMA's BCA methodologies and have a resulting Benefit-Cost Ratio, or BCR, equal to or greater than 1.0.

For PREPA infrastructure under FEMA DR-4339-PR, FEMA developed an Island Wide Benefit Cost Analysis, or IWBCA, to evaluate cost-effectiveness at the electrical system level rather than through separate project-specific BCAs. The IWBCA characterizes the PREPA/LUMA system as a single project for mitigation purposes, focuses on system-wide resiliency, and supports the development of cost-effective mitigation projects while avoiding double counting, or duplication, of benefits. The IWBCA applies one BCA to the entire FAASt project and includes benefits based on future costs avoided from physical damage to infrastructure, costs related to the response and reconnection effort, and loss of function for electric service caused by the storm.

The IWBCA established a maximum potential mitigation benefit for the PREPA system of $7.6 billion. This figure represents the estimated total potential mitigation benefit with the highest confidence and was developed using the incurred costs of the PREPA FEMA Accelerated Award Strategy, FAASt, fixed cost estimate, FCE, the mission assignments used for the reconnection effort, and costs associated with loss of service. The IWBCA results were developed by the PA Mitigation team using the best available data and were further refined and concurred with by FEMA Region 2 PA Mitigation team members and FEMA HQ groups, including the Community Infrastructure Resilience, CIR, Branch and Disaster Implementation, DI, Branch. This maximum potential benefit must be tracked to ensure that the combined cost of all approved mitigation proposals does not exceed the maximum potential benefit.

The Hazard Mitigation Proposal, HMP, described herein has a total Hazard Mitigation cost of **$2,070,188.04**. In accordance with FEMA's internal IWBCA benefit tracking, the maximum potential benefit remaining in the IWBCA is **$4,984,487,331.30**. The cost of this HMP, when combined with all other approved IWBCA-related proposals funded, does not exceed the remaining available IWBCA benefit. Therefore, this HMP is deemed cost-effective under the FEMA PAPPG Version 3.1, April 2018, Chapter 2, Section VII.C, BCA Rule, because the IWBCA demonstrates an acceptable BCA with a Benefit-Cost Ratio equal to or greater than 1.0.

For validation, reviewers should refer to the attached IWBCA Package, including the IWBCA narrative and backup documentation, which define the IWBCA methodology, inputs, and supporting calculations. Reviewers should also confirm that the project has been included in the current IWBCA benefit tracking record to verify that the total approved IWBCA-related mitigation costs remain below the maximum potential benefit and that no duplication of benefits has occurred.

This Hazard Mitigation Proposal meets the eligible repair and restoration cost-effectiveness requirements. See the Mitigation Profile Documents tab in Grants Manager for the complete supporting documentation, including the HMP cost estimate and supporting documents file.

(VI) Compliance and Assurance Requirements:

A) HMP GENERAL NOTES:

By agreeing to implement the hazard mitigation measures in this HMP, the Applicant/Sub-Applicant is bound by the specific guidelines listed within this document.

COSTS AND GENERAL CONDITIONS: The vegetation removal cost is established according to the average base cost of **$176,173.47 / mile**. Additionally, DR4339-PR leadership has approved the application of a 5% risk factor to the average cost per mile, resulting in **$184,982.14 / mile**. After deducting Public Assistance (PA) $15,433.57 amount (incidental work- refer to document FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf), the final total obligated amount through PA 406 is **$169,548.57 / mile.**

DOCUMENTATION REQUIREMENTS: The subrecipient shall document all vegetation removal work, including but not limited to the following:

- Before and after photographs of the total distance included in the HMP Scope of work that clearly show the condition of the area before and after the vegetation clearance.

- A digital map in ArcGIS format showing all areas where vegetation removal was performed. Location information must be provided, including the physical address, GPS coordinates from start to finish of clearance work, and contact information for private property (when applicable).

- Work orders must account for the entire feeder length distance and include a description of the sections both with and without vegetation. Material disposal documentation must specify whether the material was chipped and removed, left on-site, or transported to a landfill.

Note: All vegetation clearance projects must include the above documentation to define the work completed prior to project closeout.

COST DISTRIBUTION: Recognizing that the established cost is an average per mile, it is understood that actual expenses for each feeder or area may deviate (either underrun or overrun) from the estimated project amount. The 406 HMP scope and cost agreement sets an average cost per mile for vegetation clearance, allowing the subrecipient to manage funds across the various projects that comprise the vegetation asset. The *Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR, January 1, 2022 (PR PAAP Guide)*, states that if funds for 406 Mitigation are included in the fixed-cost subaward, the subrecipient must complete the approved Scope of Work (SOW) of the Hazard Mitigation Proposal (HMP) in order to retain the 406 Mitigation funding. Consequently, only completed distance in the HM Scope of work, supported by the necessary back-up documentation (e.g., verified mitigated clearance distance), will be eligible for fund retention. Any uncompleted work from the HM SOW (e.g., miles not documented with mitigated clearance distance) will be de-obligated during the closeout process.

SCOPE OF WORK DEVELOPMENT OF HAZARD MITIGATION: FEMA will evaluate each mitigation opportunity to first determine what measures or portions of solutions could be funded through Section 406 mitigation. FEMA analyzes the proposed mitigation measures for cost-effectiveness, technical feasibility, and compliance with EHP laws, regulations, and Eos. FEMA, the Applicant, Recipient, and Sub-recipients will develop and agree to scopes of work (SOW) and cost estimates to repair, restore, or replace eligible facilities including 406 Hazard Mitigation" (Page 6).

COMPLETION OF HAZARD MITIGATION SCOPE OF WORK: If this HMP is approved and the mitigation is not performed, the Applicant must apply for a change in the Scope of Work and a de-obligation of the HMP funding. Failure to complete the work of the HMP may limit future FEMA funding of repairs at the site in the event that a similar disaster event results in similar damage at the site.

CHANGES TO THE HAZARD MITIGATION SCOPE OF WORK FOR LARGE PROJECTS:

Per PAAP PA Process (Section 428), Guide for Permanent Work, February 10, 2020, "A Subrecipient may alter the 406-hazard mitigation SOW (HMP) after FEMA, the Recipient, and Subrecipient agree on the cost estimate for the initial proposal. After the project is obligated, the SOW for the HMP can be changed only once and the timeline for this change will be established based on a facility-by-facility basis. The proposed change will require evaluation by FEMA for eligibility and EHP. As part of the eligibility review, FEMA will evaluate the SOW, technical feasibility, the level of protection, the revised cost estimate, and cost effectiveness of the new hazard mitigation proposal, and, if approved, will adjust the scope and cost estimate accordingly." (Page 14)

HAZARD MITIGATION DESIGN: This HMP is for estimating purposes only and not to be construed as a project design. If the site's final placement and configuration are different than the preliminary estimate, the Applicant should submit a change in scope request. This HMP is subject to further review prior to award.

HAZARD MITIGATION CONSTRUCTION: The Applicant must provide & maintain competent & adequate engineering design & supervision during the construction phase to ensure that the completed work conforms to the approved plans & specifications & all applicable material & construction standards.

As a condition of the FEMA mitigation grant, the Applicant is responsible for the determination of and compliance with all applicable requirements, codes, standards and specifications in connection with the project, including but not limited to the Puerto Rico Building Code of 2018 (2018 PRBC), IBC, IRBC, NFIP Floodplain Management Regulations outlined in 44 C.F.R 60.3, ASCE 24, ASCE 7, and receiving all applicable permits & approvals prior to construction.

MAINTENANCE OF HAZARD MITIGATION: The Applicant shall ensure proper maintenance of the installed mitigation measures, per manufacturer and designer specifications. Any adaptations or installations not approved or that renders the hazard mitigation measure ineffective shall be removed by the Applicant. Examples include, but are not limited to, improper installation of roof-mounted equipment or installation of window-mounted air-conditioning units.

ENVIRONMENTAL AND HISTORIC PRESERVATION: Eligibility and funding for the mitigation at this site on this project will be subject to the compliance of all environmental laws, regulations, and executive orders applicable to the site. This project will undergo a EHP compliance review, after obligation any changes to the SOW will likely trigger an additional EHP compliance review of the revised SOW.

ATTACHMENTS:

Please refer to the following documents.

1. "Island-Wide Vegetation Clearance - FEMA letter dated March 24, 2023.pdf"
2. "FAAStVegetationHMPApproach_38kV Sub-Transmission_05.15.2025.pdf"
3. "Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"
4. "IWBCA HMP Package.pdf"
5. "PN1070379-TL2200_38KV_Bayamon.kmz"

6. "PN1070379-DR4339PR-HMCE-IEP-20260902-REG"

7. "PN1070379-DR4339PR-HMP-20260909-REG-RGL.pdf

Cost

Code	Quantity	Unit	Total Cost	Section
9001	1	Lump Sum	$188,443.89	Uncompleted
3510	1	Lump Sum	($5,747.54)	Uncompleted

CRC Gross Cost	$182,696.35
Total 406 HMP Cost	$0.00
Total Insurance Reductions	$0.00
CRC Net Cost	$182,696.35
Federal Share (90.00%)	$164,426.72
Non-Federal Share (10.00%)	$18,269.63

Subgrant Conditions

- Applicants must retain all source documentation for each large project for three years after the date the Recipient submits to FEMA certification of completion of the project and all source documentation for small projects for three years after the Recipient submits to FEMA certification of the applicant's last small project. See Title 2 Code of Federal Regulations (C.F.R.) § 200.334. Recipients may require longer retention periods. Real property and equipment disposition, audits, and litigation may also require longer retention periods. If requested, Applicants must provide documentation to FEMA. Recipients may require documentation not otherwise required by FEMA (such as actual cost documentation for Small Projects). In such cases, the Applicant must provide the documentation to the Recipient.
- The terms of the FEMA-State Agreement are incorporated by reference into this project under the Public Assistance award and the applicant must comply with all applicable laws, regulations, policy, and guidance in effect at the time of the declaration. This includes, among others, the Robert T. Stafford Disaster Relief and Emergency Assistance Act; Title 44 of the Code of Federal Regulations; FEMA Policy No. 104-009-2, Public Assistance Program and Policy Guide; and other applicable FEMA policy and guidance.
- The DHS Standard Terms and Conditions in effect as of the declaration date are incorporated by reference into this project under the Public Assistance grant, which flow down from the Recipient to subrecipients unless a particular term or condition indicates otherwise. DHS Standard Terms and Conditions are viewable at https://www.dhs.gov/publication/dhs-standard-terms-and-conditions.
- The applicant acknowledges that the Uniform Administrative Requirements, Cost Principles, and Audit Requirements set forth at Title 2 Code of Federal Regulations (C.F.R.) Part 200 apply to this project award under the Public Assistance grant, which flow down from the Recipient to all subrecipients unless a particular section of 2 C.F.R. Part 200, the FEMA-State Agreement, or the terms and conditions of this project award indicate otherwise. See 2 C.F.R. §§ 200.101 and 200.110.
- The applicant acknowledges that PA funding must be used exclusively for the work specified in the approved project. If a change to the approved scope of work is needed, the applicant must submit a written request through the Recipient to FEMA before it commences work associated with a change.
- Applicants must inform FEMA of each purchased equipment item with a fair market value over $10,000 after it is no longer needed for federally funded programs or projects. Applicants must also inform FEMA of any unused residual supplies when the aggregate total exceeds $10,000. See Title 2 C.F.R. §§ 200.313 and 200.314. FEMA reduces eligible funding by this amount.
- Pursuant to section 312 of the Stafford Act, 42 U.S.C. 5155, FEMA is prohibited from providing financial assistance to any entity that receives assistance from another program, insurance, or any other source for the same work. The subrecipient agrees to repay all duplicated assistance to FEMA if they receive assistance for the same work from another Federal agency, insurance, or any other source. If an subrecipient receives funding from another federal program for the same purpose, it must notify FEMA through the Recipient and return any duplicated funding.
- In the seeking of proposals and letting of contracts for eligible work, the Applicant/Subrecipient must comply with its Local, State (provided that the procurements conform to applicable Federal law) and Federal procurement laws, regulations, and procedures as required by FEMA Policy 2 CFR Part 200, Procurement Standards, §§ 317-326.
- The Recipient must submit its certification of the subrecipient's completion of this project, the final claim for payment, and supporting documentation within 180 days from the date that the applicant completes the scope of work, or the project deadline, whichever occurs first. FEMA reimburses Large Projects (those with costs above the large project threshold) based on the actual eligible final project costs. Therefore, during the final project reconciliation (closeout), the project may be amended to reflect the reconciliation of actual eligible costs.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.

Insurance

Additional Information

9/9/2026

Does the Applicant have a Commercial Policy: Yes.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: No.

Property insurance coverage for the electrical distribution facilities represented on this project are not insured or insurable. No insurance relief is anticipated. No Obtain and Maintain requirement will be made.

FEMA requires the applicant to take reasonable efforts to pursue claims to recover insurance proceeds that it is entitled to receive from its insurer(s). In the event that any insurance proceeds are received for these expenses those proceeds must be reduced from FEMA Public Assistance funding to ensure no duplication of benefits has occurred.

No duplication of benefits from insurance is anticipated for work described in this application. In the event any part or all costs are paid by an insurance policy, a duplication of benefits from insurance will occur. Applicant must notify grantee and FEMA of such recoveries, and the Sub-Grant award amount must be reduced by actual insurance proceeds.

No insurance requirements will be required for this project. Insurance requirements are specific to permanent work to replace, restore, repair, reconstruct, or construct buildings, contents, equipment, or vehicles. (FEMA Recovery Policy FP 206-086-1).

No insurance narrative will be produced or uploaded into documents or attachments.

Jorge Parrilla, PA Insurance Specialist

CRC Atlantic, Guaynabo, PR

O&M Requirements

There are no Obtain and Maintain Requirements on **FAASt [38kV Line 2200 – Entire Line] (Vegetation)**.

406 Mitigation

There is no additional mitigation information on **FAASt [38kV Line 2200 – Entire Line] (Vegetation)**.

Environmental Historical Preservation

Is this project compliant with EHP laws, regulations, and executive orders? **Yes**

EHP Conditions

- Any change to the approved scope of work will require re-evaluation for compliance with NEPA and other Laws and Executive Orders.
- This review does not address all federal, state and local requirements. Acceptance of federal funding requires recipient to comply with all federal, state and local laws. Failure to obtain all appropriate federal, state and local environmental permits and clearances may jeopardize funding.
- If ground disturbing activities occur during construction, applicant will monitor ground disturbance and if any potential archaeological resources are discovered, will immediately cease construction in that area and notify the State and FEMA.
- On May 16, 2025, the Secretary of the U.S. Department of Energy (DOE) issued Order 202-25-2 (Order), pursuant to the authority vested in him by section 202(c) of the Federal Power Act (FPA), 16 U.S.C. § 824a(c), and section 301(b) of the Department of Energy Organization Act, 42 U.S.C. § 7151(b). The Order sought to expedite repair and maintenance efforts to the electrical grid of Puerto Rico by directing the Puerto Rico Electric Power Authority (PREPA) to perform vegetation management, including vegetation clearing to reestablish a right-of-way, for particular transmission and distribution facilities in the Territory as specified in the Order. The Order required PREPA to identify certain parameters by which the directed work would be performed, and required that all work be performed, to the maximum extent practicable, in a manner consistent with all applicable Federal, State, or local environmental laws or regulations and minimize any adverse environmental impacts. However, pursuant to Section 202(c)(3) of the

FPA, to the extent any omission or action taken by PREPA that was necessary to comply with the Order, including any omission or action taken to voluntarily comply with the Order, caused PREPA to not comply with any Federal, State, or local environmental law or regulation, including any environmental conditions in this REC's "Standard Conditions," such omission or action shall not be considered a violation of such environmental law or regulation, or subject PREPA to any requirement, civil or criminal liability, or citizen suit under such environmental law or regulation. On August 15, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. To renew/reissue the Order, DOE was required to consult with the primary Federal agency with expertise in the environmental interest protected by such law or regulation and include in the Order conditions necessary to minimize any adverse environmental impacts to the extent practicable. Pursuant to Section 202(c)(4)(B) of the FPA, DOE provided the relevant agencies the opportunity to submit conditions for worked performed under the Order, to be included in the Order. According to DOE, no conditions were submitted by the agencies for inclusion in the Order. On November 12, 2025, DOE reissued the Order to direct PREPA to also perform asset management, including component refurbishment and replacement. DOE and FEMA have agreed that DOE is the lead agency for activities that fall under the prior and any future DOE 202(c) orders issued under the Federal Power Act to resolve the current and related emergencies in Puerto Rico. FEMA has requested that DOE provide FEMA with all documentation relating to their EHP compliance. FEMA will review and incorporate all available information and data for this project pertaining to applicable environmental laws and regulations into this REC when it is received from DOE. On February 10, 2026, and again on May 7, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities. On August 07, 2026, DOE reissued the Order to direct PREPA to perform vegetation management, including vegetation clearing to re-establish the right-of-way, and asset management, including component refurbishment and replacement, to ensure operational availability of the transmission and distribution facilities.

- If ground disturbing activities occur during construction, the applicant will monitor ground disturbance, and if any previously unidentified historic properties, including archeological resources, are discovered, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA. Should any unanticipated effects to previously identified historic properties, including archaeological resources, be identified during construction activities, the applicant will immediately cease construction in that area and notify the Recipient (if applicable) and FEMA.

EHP Additional Info

There is no additional environmental historical preservation on **FAASt [38kV Line 2200 – Entire Line] (Vegetation)**.

Final Reviews

Final Review

Reviewed By LEFRANC-GARCIA, CARLOS L. **Reviewed On** 09/11/2026 9:19 PM PDT

Review Comments

The PA Scope of Work is limited to incidental vegetation clearance associated with 12.21 miles of 38kV transmission lines in 2200 - Entire Line; no permanent infrastructure repairs are included. The WTBC cost is $188,443.89, based on $15,433.57 per mile. The final PA project cost is $182,696.35.

Recipient Review

Reviewed By Mulero, Noel **Reviewed On** 09/23/2026 8:12 PM PDT

Review Comments

Recipient review completed. Applicant must ensure to compliance with all regulatory requirements, Record of Environmental Consideration (REC) Special Conditions and PA policy. This project applies to the Department of Energy's executive order. This means that DOE is the lead agency for environmental matters. Project is ready for applicant review.

Project Signatures

Reviewed By Unsigned

Reviewed On Unsigned

Date Downloaded: 10/9/26 10:27am PDT

Award Information

EMMIE Imported Version Information

Version #	Eligibility Status	Current Location	Bundle Number	Project Amount	Cost Share	Federal Share Obligated	Date Obligated
No Records							

Drawdown History

EMMIE Drawdown Status As of Date	IFMIS Obligation #	Expenditure Number	Expended Date	Expended Amount
No Records				

Obligation History

Version #	Date Obligated	Obligated Cost	Cost Share	IFMIS Status	IFMIS Obligation #
0	10/8/2026	$164,426.72	90%	Accepted	4339DRPRP01083431