

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

**NEPR**

**Received:**

**Sep 8, 2026**

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**IN RE:**

IN RE: REVIEW OF THE PUERTO RICO  
ELECTRIC POWER AUTHORITY'S 10-  
YEAR INFRASTRUCTURE PLAN-  
DECEMBER 2020

**CASE NO. NEPR-MI-2021-0002**

**SUBJECT: Motion Submitting Ten (10) Amended  
FEMA Approvals of Project, Request for  
Confidential Treatment, and Supporting  
Memorandum of Law**

**MOTION SUBMITTING TEN (10) AMENDED FEMA APPROVALS OF PROJECT,  
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. Submittal of Ten Amended FEMA Approvals of Projects and Request for Confidentiality**

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 26<sup>th</sup> 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.<sup>1</sup> 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 29, 2022, LUMA filed a *Motion Submitting Four Scopes of Work and Updated List of Projects and Request for Confidentiality and Supporting Memorandum* (“July 29<sup>th</sup> Motion”) whereby it submitted four (4) scopes of work (“SOWs”) for the Energy Bureau’s review and approval prior to submitting them to COR3 and FEMA (“July 29<sup>th</sup> 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.

3. 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 29<sup>th</sup> Motion were necessary to improve the system’s reliability (“August 25<sup>th</sup> Order”). Therefore, it approved all of the projects presented in the July 29<sup>th</sup> 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.

4. Afterward, on April 24, 2023, LUMA submitted a *Motion Submitting Scope of Work and Request for Confidentiality and Supporting Memorandum of Law* (“April 24<sup>th</sup> Motion”), whereby it submitted one (1) SOW for the Energy Bureau’s review and approval prior to submitting it to COR3 and FEMA (“April 24<sup>th</sup> Motion”). LUMA submitted the SOW for the “Island-Wide Vegetation Clearing” T&D Project.

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

5. 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 5<sup>th</sup> 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.

6. 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.

7. On November 27, 2023, the Energy Bureau issued a Resolution and Order (“November 27<sup>th</sup> 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.

8. As shown in Exhibit 5 of the Motion filed on July 31, 2024, *Motion Submitting Three Amended Scopes of Work, and One Scope of Work, an Updated Project List, and Request for Confidentiality and Supporting Memorandum of Law*, and most recently in Exhibit 1 of the Motion filed on October 27, 2025, *Motion Submitting LUMA’s Consolidated List with Costs Incurred for Obligated Projects*, the “Transmission and Distribution Automation Program Installation of Intelligent 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 divided into separate groups, which include the “FAASt [Automation Program Group 30- DAR – Bayamon 9203 - FY24] (TL/Distribution)” T&D Project.

9. The “Island-Wide Vegetation Clearing” SOW was also divided into separate projects, by group, which include the “FAASt [San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC] (Vegetation)” T&D Project.

10. Thereafter, on September 20, 2024, LUMA filed a *Motion Submitting One FEMA Project Approval, Request for Confidential Treatment and Supporting Memorandum of Law*, whereby, in compliance with the August 25<sup>th</sup> and November 27<sup>th</sup> Orders, LUMA submitted a copy of the project approval issued by FEMA on September 18, 2024, for the “FAASt [Automation Program Group 18: DAR – SAN JUAN 2001- FY24] (Distribution)” T&D Project.

11. Similarly, on February 11, 2025, LUMA filed a *Motion Submitting Seven FEMA Approvals of Projects, Request for Confidential Treatment and Supporting Memorandum of Law* (“February 11<sup>th</sup> Motion”). There, in compliance with the August 25<sup>th</sup> and November 27<sup>th</sup> Orders, LUMA submitted copies of the project approvals issued by FEMA on February 6, 2025, for the “FAASt [Automation Program Group 14 DAR ARECIBO 8404- FY24] (Distribution)”;<sup>2</sup> the “FAASt [Automation Program Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24] (Distribution)”;<sup>3</sup> the “FAASt [Automation Program Group 19: Arecibo] (Distribution)”;<sup>4</sup> the

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<sup>2</sup> Described as the “FAASt [Automation Program Group 14] (TL/Distribution)” T&D Project in the February 11<sup>th</sup> Motion.

<sup>3</sup> Described as the “FAASt [Automation Program Group 12] (TL/Distribution)” T&D Project in the February 11<sup>th</sup> Motion.

<sup>4</sup> Described as the “[Automation Program Group 19] (TL/Distribution)” T&D Project in the February 11<sup>th</sup> Motion.

FAAST [Automation Program Group 20: Caguas] (Distribution)”;<sup>5</sup> and the “FAAST [Automation Program Group 15] (Distribution)”<sup>6</sup> T&D Projects

12. Finally, on September 26, 2025, LUMA filed a *Motion Submitting Eighteen FEMA Approvals of Projects, Request for Confidential Treatment and Supporting Memorandum of Law* (“September 26<sup>th</sup> Motion”), whereby, in compliance with the August 25<sup>th</sup>, May 5<sup>th</sup>, and November 27<sup>th</sup> Orders, LUMA submitted copies of the project approvals issued by FEMA on September 17, 2025, for the “FAAST [Automation Program Group 24] (Distribution)”;<sup>7</sup> the “FAAST [Automation Program Group 31] (Distribution)”; the “FAAST [Automation Program Group 36] (Distribution)”;<sup>8</sup> and the “FAAST [San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC] (Vegetation)” T&D Projects.

13. In compliance with the August 25<sup>th</sup>, May 5<sup>th</sup>, and November 27<sup>th</sup> Orders, LUMA hereby submits copies of the following ten (10) amended approvals by FEMA, which state they were re-obligated on August 27, 2026:<sup>9</sup> “FAAST [Automation Program Group 14 DAR ARECIBO 8404- FY24] (Distribution)”; “FAAST [Automation Program Group 18: DAR – SAN JUAN 2001- FY24] (Distribution)”; “FAAST [Automation Program Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24] (Distribution)”; “FAAST [Automation Program Group 19: Arecibo] (Distribution)”; “FAAST [Automation Program Group 20: Caguas] (Distribution)”; “FAAST [Automation Program Group 15] (Distribution)”; FAAST [Automation Program Group 24] (Distribution)”; “FAAST [Automation Program Group 31] (Distribution)”; “FAAST [Automation Program Group 36]

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<sup>5</sup> Described as the “FAAST [Automation Program Group 20] (TL/Distribution)” T&D Project in the February 11<sup>th</sup> Motion.

<sup>6</sup> Described as the “[Automation Program Group 15] (TL/Distribution)” T&D Project in the February 11<sup>th</sup> Motion.

<sup>7</sup> Described as the “FAAST [Automation Program Group 24] (TL/Distribution)” T&D Project in the September 26<sup>th</sup> Motion.

<sup>8</sup> Described as the “FAAST [Automation Program Group 36] (TL/Distribution)” T&D Project in the September 26<sup>th</sup> Motion.

<sup>9</sup> The amended FEMA approvals are listed in the order they appear in **Exhibit 1**.

(Distribution)”; and “FAAST [San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC] (Vegetation)” T&D Projects. *See Exhibit 1* to this Motion.<sup>10</sup>

14. Version 1 of “FAAST [Automation Program Group 14 DAR ARECIBO 8404- FY24] (Distribution)”, “FAAST [Automation Program Group 20: Caguas] (Distribution)”, and “FAAST [Automation Program Group 36] (Distribution)” approved T&D projects were created to capture the change in scope and cost as per LUMA-provided documentation. *See, respectively, Exhibit 1* of this Motion, FEMA re-obligation for “FAAST [Automation Program Group 14 DAR ARECIBO 8404- FY24] (Distribution)”, p. 16; *Id.*, FEMA re-obligation for “FAAST [Automation Program Group 20: Caguas] (Distribution)”, p. 20; *Id.*, FEMA re-obligation for “FAAST [Automation Program Group 36] (Distribution)”, p. 17.

15. As for the “FAAST [Automation Program Group 18: DAR – SAN JUAN 2001- FY24] (Distribution)” approved T&D project, the most recent version (Version 2) was created to capture LUMA change in project cost, as an amendment at the request of Event Leadership. The project currently reflects a negative pending federal share obligated. To address this, a new amendment/version was created specifically to offset the Consolidated Resource Center (“CRC”) gross cost from the previous version. In the current version, \$243,352.22 will be reobligated to the CRC gross cost, effectively canceling out the CRC gross costs 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. *See id.*, FEMA re-obligation for “FAAST [Automation Program Group 18: DAR – SAN JUAN 2001- FY24] (Distribution), pp. 1-2.

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<sup>10</sup> Please note that **Exhibit 1** has digitalization and table format issues, which are found on the documents as issued by FEMA.

16. Version 1 of the “FAASt [Automation Program Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24] (Distribution)”, “FAASt [Automation Program Group 19: Arecibo] (Distribution)”, and “FAASt [Automation Program Group 24] (Distribution)” approved T&D Projects were 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 it will de-obligate the negative portion.<sup>11</sup> *See, respectively, id.*, FEMA re-obligation for “FAASt [Automation Program Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24] (Distribution)”, p. 21; *Id.*, FEMA re-obligation for “FAASt [Automation Program Group 19: Arecibo] (Distribution)”, p. 18; *Id.*, FEMA re-obligation for “FAASt [Automation Program Group 24] (Distribution)”, p. 19.

17. As for “FAASt [Automation Program Group 15] (Distribution)” approved T&D Project, this FEMA cost approval has been amended several times. Versions 1 and 2 were created to correct the fund code from FC6E to FC06 for FAASt projects. This administrative amendment did not change the previously approved scope of work or costs; however, to process the correction, a version was submitted to de-obligate the available balance in this PW, and a subsequent version was to be submitted to reconcile available funding in the correct code. *See id.*, FEMA re-obligation for “FAASt [Automation Program Group 15] (Distribution)”, pp. 12, 18. Version 3 of the aforementioned project was approved to re-obligate the available balance de-obligated in a previous version as part of the fund code fix under FC06. *Id.*, p. 24. Version 4 was created to

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<sup>11</sup> As LUMA stated in its *Motion Submitting Two (2) Amended FEMA Approvals of Project, Statement on New FEMA Guidance, Request for Confidential Treatment and Supporting Memorandum of Law*, filed on September 1, 2026, in the present docket, FEMA recently clarified that certain projects would require multiple versions of obligations due to system limitations within Sub-FAASt transactions. Specifically, when a project includes both 406 HMP and 428 PA cost modifications—with one being positive and the other negative—FEMA cannot process both changes within a single version. Thus, two separate versions are required 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. *See id.*, at p.4.

capture the LUMA change in the project cost and to request an amendment to the SOW. LUMA requested component additions to the project scope of work and cost estimates that were not included in the obligated project. *Id.*, p. 30. Finally, Version 5 was created to capture LUMA's change in project cost, as an amendment at the request of Event Leadership. 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. In the current version, \$367,283.08 will be reobligated to the CRC gross cost, effectively canceling out the CRC gross costs from the prior version. Once this amendment/version moves to Pending Award, only the 406 HMP amount of \$250,899.06 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. *Id.*, p. 46.

18. Version 1 of the “FAASt [Automation Program Group 31] (Distribution)” T&D Project was created to capture the change in scope and cost as per LUMA-provided documentation. It was also to include both 406 HMP and 428 PA costs, one with a positive amount and the other negative, in order to be able to process the project within the grants management systems. This version includes the positive funds; a later version will include the negative costs. *See id.*, FEMA re-obligation for “FAASt [Automation Program Group 31] (Distribution)”, p. 17.

19. Finally, Version 1 of the “FAASt [San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC] (Vegetation)” T&D Project was created to capture additional miles identified as needing vegetation clearing. LUMA is submitting those miles to FEMA for approval and obligation. Also, Version 0 of this project was submitted as 100% 428 cost, while this project amendment requests aligning the 406 and 428 cost based on the agreed cost split with LUMA and FEMA. Version 1 was also changed to capture the change in scope and cost as per LUMA-



provided documentation. *See id.*, FEMA re-obligation for “FAASt [San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC] (Vegetation)”, p. 11.

20. LUMA is submitting herein redacted public versions of the ten (10) amended FEMA approvals (**Exhibit 1**) protecting confidential information associated with Critical Energy Infrastructure Information (“CEII”). As explained below, portions of the amended FEMA approvals of projects 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.

## **II. Memorandum of Law in Support of Request for Confidentiality**

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

21. 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).

22. 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).

23. 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.

24. 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.

25. 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).

26. 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 [...] Article 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**

27. Portions of the ten (10) amended FEMA Approvals included in **Exhibit 1** contain CEII that, under relevant federal law and regulations, are protected from public disclosure. LUMA stresses that the amended 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.

28. This Energy Bureau has granted LUMA's requests for confidential treatment of portions of the amended 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.

29. 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.

30. 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.*

31. 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.*

32. 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”).<sup>12</sup>

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<sup>12</sup> 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;

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).<sup>13</sup>

33. Portions of the ten (10) amended FEMA Approvals in **Exhibit 1** 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 amended FEMA Approvals with CEII in **Exhibit 1** from disclosure, given the nature and scope of the details included in those portions of the Exhibit.

34. Based on the above, LUMA respectfully submits that portions of the amended FEMA Approvals should be designated as CEII. This designation is a reasonable and necessary

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- (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.

<sup>13</sup> 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
- (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.

measure to protect the specific location of the energy facilities listed or discussed in the amended FEMA approvals in **Exhibit 1**. 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**

35. 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 amended FEMA approvals for which we present this request for confidential treatment.

| <b>Document</b> | <b>Name</b>                                                                             | <b>Pages in which Confidential Information is Found, if applicable</b> | <b>Summary of Legal Basis for Confidentiality Protection, if applicable</b>           | <b>Date Filed</b> |
|-----------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------|
| Exhibit 1       | FAAST [Automation Program Group 14 DAR ARECIBO 8404- FY24] (Distribution)               | Pages 1, 3-9, 16, 19, 21-43, 46.                                       | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|                 | FAAST [Automation Program Group 18: DAR – SAN JUAN 2001- FY24] (Distribution)           | Pages 1-2                                                              | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|                 | FAAST [Automation Program Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24] (Distribution) | Pages 1, 3-14, 21, 23-31, 34                                           | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113;                      | September 8, 2026 |

| <b>Document</b> | <b>Name</b>                                                    | <b>Pages in which Confidential Information is Found, if applicable</b> | <b>Summary of Legal Basis for Confidentiality Protection, if applicable</b>           | <b>Date Filed</b> |
|-----------------|----------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-------------------|
|                 |                                                                |                                                                        | 6 U.S.C. §§ 671-674.                                                                  |                   |
|                 | FAASt [Automation Program Group 19: Arecibo]<br>(Distribution) | Pages 1, 3-10, 18, 20-41, 43                                           | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|                 | FAASt [Automation Program Group 20: Caguas]<br>(Distribution)  | Pages 1, 3-12, 20, 22-31, 34                                           | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|                 | FAASt [Automation Program Group 15]<br>(Distribution)          | Pages 1, 3-4, 12, 18, 24, 30, 32, 34, 37, 46-47.                       | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|                 | FAASt [Automation Program Group 24]<br>(Distribution)          | Pages 1, 3-11, 19, 23-39, 41-48, 53                                    | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|                 | FAASt [Automation Program Group 31]<br>(Distribution)          | Pages 1, 3-10, 17, 19-24, 27, 29,                                      | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113;                      | September 8, 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.                                                                  |                   |
|          | FAASt [Automation Program Group 36] (Distribution)                                         | Pages 1, 3-9, 17, 20, 22-29, 31-34, 36, 38-42, 45.              | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |
|          | FAASt [San Juan Region 1 Transmission Line 36800 – Canovanas TC to Palmer TC] (Vegetation) | Pages 1-2, 4, 11, 13                                            | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | September 8, 2026 |

**WHEREFORE**, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned; **accept** the copy of the ten (10) Amended FEMA approvals attached herein as **Exhibit 1**; and **grant** the request for confidential treatment of **Exhibit 1**.

**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](mailto:alexis.rivera@prepa.pr.gov), and through its counsel of record, Natalia Zayas Godoy, [nzayas@gmlex.net](mailto:nzayas@gmlex.net), Richard Cruz Franqui, [rcruzfranqui@gmlex.net](mailto:rcruzfranqui@gmlex.net), and Mirelis Valle Cancel, [mvalle@gmlex.net](mailto:mvalle@gmlex.net), to Genera PR LLC, through its counsel of record, Jorge Fernández-Reboredo, [jfernandez@ecija.com](mailto:jfernandez@ecija.com), José J. Díaz Alonso, [jdiaz@ecija.com](mailto:jdiaz@ecija.com), and Ernesto R. Ramos Maldonado, [eramos@ecija.com](mailto:eramos@ecija.com).

In Guaynabo, Puerto Rico, on this 8<sup>th</sup> day of September 2026.



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*/s/ Yahaira De la Rosa Algarín*

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Exhibit 1

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

**Department of Homeland Security  
Federal Emergency Management Agency**

v0

## General Info

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

## 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") 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 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       | <div></div> |         |
| Arecibo | 8404-04       |             |         |

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 |                        | (E-1-2-3)<br>(F-1-3) | (REC-2-1)<br>(E-1-2-3)<br>(F-1-3)<br>(K-5) | <ul style="list-style-type: none"> <li>• Replace existing primary framing.</li> <li>• Install secondary framing.</li> <li>• Remove and dispose down guy.</li> <li>• Remove and dispose anchor.</li> <li>• Install (2) Down guys.</li> <li>• Install (2) anchors.</li> <li>• Install 1 kva transformer (7.62kv/120v) from source side.</li> <li>• Install (1) three- phase Recloser 8404-03A in existing 50' S8 Steel pole.</li> </ul> |

| Pole FID   | Coordinates Lat./ Long | Existing                                                    | Install                                                                                                    | Scope of Work                                                                                                                                                                                                                                                                                                                                             |
|------------|------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19656773   |                        | (40' H3 CONCRETE POLE)<br>(AC-0)<br>(STL-10)<br><br>(E-2-1) | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br><br>(CP-06- XARM)<br><br>(REC-2-1)<br><br>(K-6)<br><br>(STL-10) | <ul style="list-style-type: none"> <li>• Remove and dispose 40' H3 Concrete pole</li> <li>• Replace with 50' S8 12 Sided Galvanized Steel Pole.</li> <li>• Replace primary framing.</li> <li>• Replace streetlight.</li> <li>• Install 1 Kva transformer (7.62kv/120v) from source side.</li> <li>• Install (1) Three-Phase Recloser 8404-03B.</li> </ul> |
| 21155576   |                        | (STD-SC- VERTICAL 38KV FRAMING)                             | (CP-06-XARM)<br><br>(REC-2-1)<br><br>(E-1-2-3)<br><br>(F-1-3)<br><br>(K-5)                                 | <ul style="list-style-type: none"> <li>• Replace primary framing.</li> <li>• Install down guy.</li> <li>• Install anchor.</li> <li>• Install 1 kva transformer (7.62kv/120v) from source side.</li> <li>• Install (1) Three Phase Recloser 8404-03C in existing 60' H6 Concrete Pole.</li> </ul>                                                          |
| 1001153163 |                        | (CP-06-XARM)                                                | (CP-06-XARM)<br><br>(REC-3-C)                                                                              | <ul style="list-style-type: none"> <li>• Replace primary framing.</li> <li>• Reuse secondary framing.</li> <li>• Install (3) Single- Phase Recloser in existing 70' Steel Pole.</li> </ul>                                                                                                                                                                |
| 1001153159 |                        | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                      | NA                                                                                                         | <ul style="list-style-type: none"> <li>• Remove and dispose fuse fid: 1001153182 (qty=3) due to single-phase recloser installation</li> </ul>                                                                                                                                                                                                             |
| 19582536   |                        | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                      | NA                                                                                                         | <ul style="list-style-type: none"> <li>• Remove and dispose fuse fid: 19582607 (qty=3) due to Single-phase recloser installation.</li> </ul>                                                                                                                                                                                                              |

|          |  |                                                                                                                    |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                 |
|----------|--|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19583050 |  | (50' C2 WOOD POLE)<br>(AC-C1)<br>(CP-C5-XARM) (ASSY-1509)<br>(E-1-2-3)<br><br>(F-1-3)<br><br>(K-5)<br><br>(STL-10) | (50' S8 STEEL POLE)<br>(CP-C6- XARM) (CP-C5-<br>XARM)<br>(ASSY-1509) (E-1-2-3)<br><br>(F-1-3)<br><br>(K-5)<br><br>(STL-10)<br><br>(REC-3-C) | <ul style="list-style-type: none"> <li>Remove and dispose 50' C2 wood pole .</li> <li>Replace with 50' S8 12 sided galvanized steel pole.</li> <li>Replace primary framings.</li> <li>Use existing secondary framing.</li> <li>Replace down guy.</li> <li>Replace anchor.</li> <li>Replace streetlight.</li> <li>Install (3) Single- Phase recloser.</li> </ul> |
| 19585342 |  | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                                                                             | NA                                                                                                                                          | <ul style="list-style-type: none"> <li>Remove fuse and dispose fid: 19585360 (qty=3) due to single-phase recloser installati</li> </ul>                                                                                                                                                                                                                         |

| Pole FID | Coordinates Lat/<br>Long | Existing                                                               | Install                                                                                                           | Scope of Work                                                                                                                                                                                                                                                                                                                          |
|----------|--------------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 32071682 |                          | (CP-C6-XARM)<br><br>(CP-CS-ARM) (ASSY- 1509) (FUSE<br>REMOVAL (QTY=3)) | (CP-C6-XARM)<br><br>(CP-CS-XARM)<br><br>(REC-3-C)                                                                 | <ul style="list-style-type: none"> <li>Replace primary framings.</li> <li>Use existing secondary framing.</li> <li>Remove fuse fid: 32071704 (qty=3)</li> <li>Install (3) Single-Phase- Recloser in existing 50' S8 Steel Pole.</li> </ul>                                                                                             |
| 32080734 |                          | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                                 | NA                                                                                                                | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 32080748 (qty=3) due to single-phase recloser installation.</li> </ul>                                                                                                                                                                                             |
| 32083926 |                          | (45' S3 STEEL POLE)(CP-C6-<br>XARM)(CP- A5)(T1)(K-7-4)                 | (50' S8 12-SIDED STEEL POLE)<br><br>(CP-C6-VERT)<br><br>(CP-A5)<br><br>(K-7-4)<br><br>(T-1)<br><br>(REC-3-C-VERT) | <ul style="list-style-type: none"> <li>Remove and dispose 45' S3 steel pole.</li> <li>Replace with 50' S8 12-sided galvanized steel pole.</li> <li>Replace primary framings.</li> <li>Transfer secondary framing.</li> <li>Replace streetlight.</li> <li>Transfer transformer.</li> <li>Install (3) Single-phase reclosers.</li> </ul> |
| 21158750 |                          | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                                 | NA                                                                                                                | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 32072816 (qty=3) due to single-phase recloser installati</li> </ul>                                                                                                                                                                                                |
| 32080820 |                          | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                                 | NA                                                                                                                | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 32086124 (qty=3) due to single-phase recloser installati</li> </ul>                                                                                                                                                                                                |
| NA       |                          | NA                                                                     | (LABOR, cFCI) (QTY=3)                                                                                             | <ul style="list-style-type: none"> <li>Labor to install communicating fault current indicators on Segment Id 22102694</li> </ul>                                                                                                                                                                                                       |
| NA       |                          | NA                                                                     | (LABOR, cFCI) (QTY=3)                                                                                             | <ul style="list-style-type: none"> <li>Labor to install communicating fault current indicators on Segment ID 21157976.</li> </ul>                                                                                                                                                                                                      |



# Feeder 8404-04

| Pole FID   | Coordinates Lat./ Long | Existing                                                                                          | Install                                                                                                                                          | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|------------------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6317810    |                        | (50' H4 CONCRETE POLE)<br>(CP-C6)<br>(STL- 10) (E-1-2-3)<br>(F-1-3)                               | (50' S8 12 SIDED GALVANIZED<br>STEEL POLE)<br><br>(CP-C6-XARM)<br><br>(STL-10)<br><br>(REC-2)<br><br>(K-7-4)                                     | <ul style="list-style-type: none"> <li>Remove and dispose 50' H4 concrete pole</li> <li>Replace with 50' S8 12- sided Galvanized Steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Use existing triplex from source side due to three phase recloser <b>8404-04A</b>.</li> <li>Replace streetlight.</li> <li>Remove and dispose down guy.</li> <li>Remove and dispose anchor.</li> <li>Install (1) Three-phase recloser 8404-04A.</li> </ul> |
| 6317799    |                        | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                                                            | N/A                                                                                                                                              | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 100160086 (qty=3) due to three phase recloser <b>8404-04A</b> installation.</li> </ul>                                                                                                                                                                                                                                                                                                                            |
| 1001655999 |                        | (FUSE REMOVAL (QTY=3))<br>(LABOR ONLY)                                                            | N/A                                                                                                                                              | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 15600995 (qty=3) due to three phase recloser <b>8404-04A</b> installation.</li> </ul>                                                                                                                                                                                                                                                                                                                             |
| 12221060   |                        | (45' CLASS 3 WOOD POLE)<br>(CP- C1)<br>(CP-C1-XARM) (STL- 10)                                     | (60' S8 12 SIDED GALVANIZED STEEL<br>POLE)<br><br>(CP-C1)<br><br>(CP-C6-XARM)<br><br>(STL-10)<br><br>(K- 6)<br><br>(REC-2-1)                     | <ul style="list-style-type: none"> <li>Remove and dispose 45' class 3 wood pole</li> <li>Replace with 60' S8 12- sided Galvanized Steel pole.</li> <li>Replace primary framings.</li> <li>Replace secondary framing.</li> <li>Replace streetlight.</li> <li>Install two (2) 1 kva transformer (7.62kv/120v) from source side and load side.</li> <li>Install (1) Three-phase recloser 8404-04B.</li> </ul>                                                                            |
| 17458278   |                        | (45' H4 CONCRETE POLE)<br>(CP-C12- XARM)<br>(K-5)<br>(STL-10) (E-1-2-3)<br>(FUSE REMOVAL (QTY=3)) | (50' S8 12 SIDED GALVANIZED STEEL<br>POLE)<br><br>(CP-C6-XARM)<br><br>(REC-2)<br><br>(K-5)<br><br>(STL-10) (E-1-2-3)<br><br>(3/0TPX(QTY= 180FT)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole</li> <li>Replace with 50' S8 12 Sided Galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Install triplex from source side pole fid: 17458269.</li> <li>Replace streetlight.</li> <li>Replace down guy. Remove fuse fid: 29541626 (qty=3).</li> <li>Re attach riser.</li> <li>Install (1) Three-Phase Recloser 8404-04C</li> </ul>                   |

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

|          |  |                                                     |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                            |
|----------|--|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17458661 |  | (45' H4 CONCRETE POLE)<br>(CP-C6-XARM)<br>(E-1-2-3) | (50' S8 12 SIDED GALVANIZED STEEL<br>POLE)<br><br>(CP-C6-XARM)<br><br>(K-5) (3/0TPX(QTY= 200FT))<br><br>(REC-2) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 Concrete pole</li> <li>Replace with 50' S8 12 sided Galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Install secondary framing.</li> <li>Install triplex from source side pole fid: 17458269.</li> <li>Install Three-Phase Recloser 8404-04D.</li> </ul> |
| 17458269 |  | N/A                                                 | (K-6)                                                                                                           | <ul style="list-style-type: none"> <li>Install secondary framing due to three-phase reclosers <b>8404-04C &amp; 8404-04D</b></li> </ul>                                                                                                                                                                                                    |
| NA       |  | N/A                                                 | (LABOR cFCI) (QTY=3)                                                                                            | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current indicator on</li> <li>Segment id 22102697.</li> </ul>                                                                                                                                                                                                  |

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        | \$1,358,561.50                    | -   | \$1,358,561.50 |
| GROUP 14 DAR ARECIBO 8804 FY24 |                                   |     |                |
| GENERAL CONDITIONS             | \$87,195.23                       | -   | \$87,195.23    |
| CONTINGENCY                    | \$194,430.23                      | -   | \$194,430.23   |
| COST TOTALS                    | \$1,848,791.85                    | -   | \$1,848,791.85 |
| 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 PREPA work (see project: 335168 - FAASt A&E PREPA).

FAASt

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 Warehouse, whose address is 681 Street KM0.1, Islote Ward, Arecibo, PR. Coordinates are [REDACTED].

Regional

## 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

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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

6/25/2026

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.**

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 14] (TL/Distribution) (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.
- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boa 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 reinstate 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 reinstate 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 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
- Buteo platypterus brunescens 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: 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 . For questions, the Point of Contact (POC) is Jose Cruz-Burgos, Endangered Species Program Coordinator, and can be contacted at: 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
- 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 prickly 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](mailto: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's Caribbean Ecological Service Field Office at [caribbean\\_es@fws.gov](mailto:caribbean_es@fws.gov). j. For questions regarding the Puerto Rican harlequin butterfly, the Point of Contacts are:
  - o Jos Cruz-Burgos, Endangered Species Coordinator: 786-244-0081; Mobile: 305-304-1386; Office phone: 786-244-0081; Office Direct Line: 939-320-3120; Email: [jose\\_cruz-burgos@fws.gov](mailto:jose_cruz-burgos@fws.gov)
  - o Carlos Pacheco, Fish and Wildlife Biologist: 786-847-5951; Mobile: 786-847-5951; Office Direct Line: 939-320-3113; Email: [carlos\\_pacheco@fws.gov](mailto: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 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.
- 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'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) (Cost Only)**.

## 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

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

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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. 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 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**

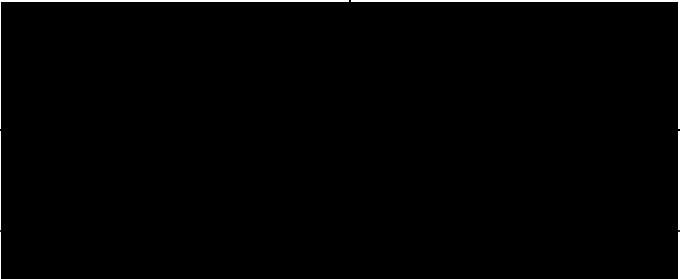
The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- 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       |  |         |
|         |               |                                                                                     |         |
| Arecibo | 8404-04       |                                                                                     |         |

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, P.R. The warehouse coordinates are [REDACTED], - [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.

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## **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 FAASSt [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.

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 0 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   |                       | (E-1-2-3)                       | (E-1-2-3)                | Remove, dispose and replace existing primary                                                                                                                                       |
|            |                       | (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.                                                                                                                                                |
|            |                       |                                 |                          | <ul style="list-style-type: none"> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul>              |
| 19656773   |                       | (40' H3 CONCRETE POLE)          | (50' ROUND TAPERED POLE) | <ul style="list-style-type: none"> <li>• Remove and dispose 40' H3 concrete pole and replace with 50ft galvanized round tapered pole.</li> </ul>                                   |
|            |                       | (AC- CI)                        | (CP-C6- XARM)            | <ul style="list-style-type: none"> <li>• Remove, dispose and replace primary framing.</li> </ul>                                                                                   |
|            |                       | (STL-10)                        | (K-6)                    | <ul style="list-style-type: none"> <li>• Remove, dispose and replace streetlight (LED Streetlight)</li> </ul>                                                                      |
|            |                       | (E-2-1)                         | (STL-10)                 | <ul style="list-style-type: none"> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the</li> </ul>                                                |
|            |                       |                                 | (ABS-3-XARM QTY=3)       | framing hardware to support them.                                                                                                                                                  |
| 21155576   |                       | (STD-SC- VERTICAL 38KV FRAMING) | (CP-CG-XARM)             | <ul style="list-style-type: none"> <li>• Remove, dispose and replace primary framing on existing pole.</li> </ul>                                                                  |
|            |                       |                                 | (E+2_3)                  | <ul style="list-style-type: none"> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them. Install down</li> </ul> |
|            |                       |                                 | (F-1-3)                  | guy.                                                                                                                                                                               |
|            |                       |                                 | (K-5)                    | <ul style="list-style-type: none"> <li>• Install anchor.</li> </ul>                                                                                                                |
|            |                       |                                 | (ABS-3-XARM QTY=3)       |                                                                                                                                                                                    |
| 1001153163 |                       | (CP-C6-XARM)                    | (CP-C6-XARM)             | <ul style="list-style-type: none"> <li>• Remove, dispose and replace primary framings.</li> </ul>                                                                                  |
|            |                       |                                 |                          | <ul style="list-style-type: none"> <li>• Reuse Secondary framing</li> </ul>                                                                                                        |
| NEW POLE   |                       | NONE                            | (50 ROUND POLE)          | <ul style="list-style-type: none"> <li>• Install a new 50ft galvanized round tapered pole.</li> </ul>                                                                              |
|            |                       |                                 | (CP-C6-XARM) (K-1)       | <ul style="list-style-type: none"> <li>• Install primary framing.</li> </ul>                                                                                                       |
|            |                       |                                 |                          | <ul style="list-style-type: none"> <li>• Install secondary framing.</li> </ul>                                                                                                     |
|            |                       |                                 |                          | <ul style="list-style-type: none"> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the</li> </ul>                                                |
|            |                       |                                 |                          | framing hardware to support them.                                                                                                                                                  |
| 1001153159 |                       | (FUSE REMOVAL (QTY=3))          | (FUSES QTY=3)            | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Cutouts</li> </ul>                                                                                   |
|            |                       | (LABOR ONLY)                    |                          |                                                                                                                                                                                    |
| 19582536   |                       | (FUSE REMOVAL (QTY=3))          | N/A                      | <ul style="list-style-type: none"> <li>• Remove and dispose (3) of Fuse Cutouts.</li> </ul>                                                                                        |
|            |                       | (LABOR ONLY)                    |                          |                                                                                                                                                                                    |



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

| POLE FID | Coordinates Lat, Long | Existing (Remove)                     | 428 Replacement                  | Scope of work                                                                                                                                                                            |
|----------|-----------------------|---------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                       |                                  | <ul style="list-style-type: none"> <li>Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                              |
| 19656796 | ■■■■■                 | ASSY-1505 FIG. C) (ASSY-1509 (QTY=3)) | (LABOR TO CLOSE JUMPERS (QTY=3)) | <ul style="list-style-type: none"> <li>Remove and dispose stand-off bracket assembly.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul> |

|                                       |  |                                                                    |                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------|--|--------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 24637074                              |  | ASSY-1505 FIG. C) (ASSY-1509<br>(QTY=3))                           | (40 ROUND TAPERED POLE) (E-2-1)<br>(E-1-2-3(QTY=2))<br>(F-1-3(QTY=2))    | <ul style="list-style-type: none"> <li>• Install downguy on an existing pole.</li> <li>• Install 40ft galvanized round tapered stub pole at coordinates</li> <li>• Install downguy and anchor for stub pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove and dispose crossarm.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> <li>• Install spanguly.</li> </ul> |
| Segment FID<br>32080794               |  | (WOOD POLE) (K-7-2 FIG. A) (WEDGE<br>(QTY=2))<br>(E-1-2-3) (F-1-3) | (45 ROUND TAPERED POLE) (CP-<br>C6-XARM) (K-7 FIG.<br>B) (WEDGE (QTY=2)) | <ul style="list-style-type: none"> <li>• Remove and dispose wood pole and replace with 45ft galvanized round tapered pole.</li> <li>• Install primary framing.</li> <li>• Remove, dispose and replace secondary framing.</li> <li>• Remove, dispose and replace (2) anchors.</li> <li>• Remove and dispose downguy.</li> </ul>                                                                                                                   |
| 19583878                              |  | ASSY-1505 FIG. C) (ASSY-<br>1509 (QTY=2))                          | (LABOR TO CLOSE<br>JUMPERS (QTY=2))                                      | <ul style="list-style-type: none"> <li>• Remove and dispose (2) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                      |
| 19583925                              |  | ASSY-1505 FIG. C) (ASSY-<br>1509 (QTY=4))                          | (LABOR TO CLOSE<br>JUMPERS (QTY=4))                                      | <ul style="list-style-type: none"> <li>• Remove and dispose (1) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                      |
| 19583051<br>Segment FID<br>19583187   |  | ASSY-1505 FIG. C) (ASSY-1509<br>(QTY=2))                           | (LABOR TO CLOSE JUMPERS<br>(QTY=2))                                      | <ul style="list-style-type: none"> <li>• Remove and dispose crossarm.</li> <li>• Remove and dispose (2) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                              |
| 32081307                              |  | ASSY-1505 FIG. C) (ASSY-1509<br>(QTY=3))                           | (LABOR TO CLOSE JUMPERS<br>(QTY=3))                                      | <ul style="list-style-type: none"> <li>• Remove and dispose crossarm.</li> <li>• Remove and dispose (3) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                              |
| 100125433*<br>Segment FID<br>22102694 |  | N/A                                                                | (LABOR, FCI) (QTY=3)                                                     | <ul style="list-style-type: none"> <li>• Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                        |
| 19657124<br>Segment FID<br>21157976   |  | N/A                                                                | (LABOR, FCI) (QTY=3)                                                     | <ul style="list-style-type: none"> <li>• Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                        |

\* 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  |                       | (50' H4 CONCRETE POLE) | (50' ROUND TAPERED POLE) | <ul style="list-style-type: none"> <li>• Remove and dispose 50' H4 concrete pole and replace with 50ft round tapered galvanized steel pole.</li> <li>• Remove, dispose and replace primary and secondary framing.</li> <li>• Remove, dispose and replace streetlight (LED Type)</li> <li>• Remove and dispose downguy.</li> <li>• Remove and dispose anchor.</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
|          |                       | (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  |  | (FUSE REMOVAL          | N/A                      | • Remove and dispose (3) Fuse Cutouts.                                                                                                                                                                                                                                                                                                                                                                                                                   |
|          |  | (QTY=3))               |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|          |  | (LABOR ONLY)           |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 12221060 |  | (45' CLASS 3 WOOD      | (50' ROUND TAPERED POLE) | <ul style="list-style-type: none"> <li>Remove and dispose 45' Class 3 wood pole and replace with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framings.</li> <li>Remove, dispose and replace secondary framing.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
|          |  | POLE)                  | (CP-CI)                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|          |  | (CP- CI)               | (CP-C6-XARM)             |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|          |  | (CP-CI-XARM) (STL-10)  | (STL-10)                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|          |  |                        | (K- 6)                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|          |  |                        | (ABS-3-XARM QTY=3)       |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|          |  |                        |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 17458278 |  | (45' H4 CONCRETE POLE) | (50' ROUND TAPERED POLE) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and replace with 50ft galvanized round tapered pole</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace secondary framing.</li> <li>Install triplex from source side pole FID: 17458269.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> </ul>                                                                   |
|          |  | (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                                                                                                                                                                                                                                                                                                             |
|----------|-----------------------|----------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |          |         | <ul style="list-style-type: none"> <li>Remove, dispose and replace downguy.</li> <li>Remove and dispose (3) Fuse Cutouts.</li> <li>Reattach riser to the new pole.</li> <li>Install and connect three (3) sets of Air Break Bypass Disconnecting Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |

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

| POLE FID   | Coordinates Lat, Long | Existing                                                                        | Install                                                                       | Scope of work                                                                                                                                                                                                                                                                                     |
|------------|-----------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001655999 |                       |                                                                                 |                                                                               | <ul style="list-style-type: none"> <li>Remove, dispose and replace downguy and anchor.</li> <li>Remove, dispose and replace (1) Fuse Cutout.</li> </ul>                                                                                                                                           |
|            |                       | (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)) | <ul style="list-style-type: none"> <li>Remove and dispose 50' H4 concrete pole and replace with 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Install (2) downguys and (2) anchors.</li> <li>Remove and dispose (3) fuse cutouts.</li> </ul> |
| 6321853    |                       | (40 FT H3 CONCRETE POLE) (E-1-2-3) (F-1-3)                                      | NONE                                                                          | <ul style="list-style-type: none"> <li>Remove and dispose 40'H3 concrete pole.</li> <li>Remove and dispose of crossarm.</li> <li>Remove and dispose downguy and anchor.</li> </ul>                                                                                                                |
| 6321854    |                       | (CROSSARM)                                                                      | NONE                                                                          | <ul style="list-style-type: none"> <li>Labor to top-off to secondary height.</li> <li>Remove and dispose crossarm.</li> </ul>                                                                                                                                                                     |

|                                    |  |                                                                                                                                 |                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6317831<br>Segment FID<br>29544052 |  | (45 FT H4 CONCRETE) (CP-CI)<br><br>(CP-C5-XARM)<br><br>(STL-10)<br>(K-7 FIG. A) (WEDGES QTY=2)<br><br>(E-2-1) (ASSY 1509 QTY=3) | (50 ROUND TAPERED POLE) (CP-CI)<br><br>(CP-C5-XARM)<br>(K-7 FIG. A) (WEDGES QTY=2) (STL-10)<br>(40 FT ROUND TAPERED POLE)<br><br>(E-2-1)<br>(E-1-2-3(QTY=2))<br>(F-1-3(QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and replace with 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Install 40ft galvanized round tapered pole on Coordinates [REDACTED] - 66.444613, for new stub pole for new span guy.</li> <li>Replace spanguy .</li> <li>Remove, dispose and replace downguy for existing pole.</li> <li>Install (2) downguys for stub pole.</li> <li>Install (2) anchors for stub pole.</li> </ul> |
| 17458529                           |  | 45 FT H4 CONCRETE POLE)<br>(CP-CI) (STL-10)                                                                                     | (45' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(Fuse Qty=3)                                                                                                           | <ul style="list-style-type: none"> <li>Remove and dispose 45'H concrete pole and replace with 45ft galvanized round tapered pole.</li> <li>Remove dispose and replace primary framing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                    |  |                                                                                                                                 |                                                                                                                                                                                | <ul style="list-style-type: none"> <li>Remove, dispose and replace Streetlight (LED/Type).</li> <li>Install (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 12219159                           |  | (40 FT C4 WOOD POLE) (CP-CI)                                                                                                    | (45FT GALVANIZED ROUND TAPERED POLE)<br>(CP-C6-XARM)                                                                                                                           | <ul style="list-style-type: none"> <li>Replace and dispose 40' C4 wood pole and replace with 45ft galvanized round tapered pole.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 6569234                            |  | (ASSY-1509 (QTY=3))                                                                                                             | (LABOR TO CLOSE JUMPERS (QTY=3))                                                                                                                                               | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| NEW POLE                           |  | NONE                                                                                                                            | (45 ROUND TAPERED POLE) (CP-A6)                                                                                                                                                | <ul style="list-style-type: none"> <li>Install a new 45ft galvanized round tapered pole.</li> <li>Install primary framings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 12220124                           |  | (ASSY 1509 QTY=4)                                                                                                               | (LABOR TO CLOSE JUMPERS (QTY=4))                                                                                                                                               | <ul style="list-style-type: none"> <li>Remove, dispose and replace (1) Fuse Cutout.</li> <li>Labor to close jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 20390449                           |  | (40 FT H3 CONCRETE POLE) (CP-C6-XARM) (K7 FIG. B) (WEDGES QTY=4) (E-1-2-3) (F-1-3) (STL-10)                                     | (45ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(K-7 FIG. B) (WEDGES QTY=4)<br>(E-1-2-3)<br>(F-1-3) (STL-10)                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose 40' H3 concrete pole and replace with 45ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace downguy and anchor.</li> <li>Remove, dispose and replace Streetlight (LED Type).</li> </ul>                                                                                                                                                                                                                                                                                                                  |
| 20390337                           |  | (ASSY-1509 (QTY=3))                                                                                                             | (LABOR TO CLOSE JUMPERS (QTY=3)) (FUSES QTY=3)                                                                                                                                 | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|         |                                                                                  |                                                 |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|----------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6569208 |  | (35 FT H3 CONCRETE POLE)<br>(CP-A6) (K-6) (K-5) | (45' ROUND TAPERED POLE) (CP-A12) (K-6)<br>(K-5) | <ul style="list-style-type: none"> <li>Remove and dispose 35' H3 concrete pole and replace with 45ft galvanized round tapered pole, 20 feet to the west (from  to  - 66.447681).</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Install stand-off bracket assembly.</li> <li>Install Fuse Cutout assembly.</li> </ul> |
|---------|----------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

\*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."<sup>1</sup> 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."<sup>2</sup> The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."<sup>3</sup> 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."<sup>4</sup>

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<br>Item                 | Quantity | FID                              | Coordinates<br>Lat, Long |
|---------|-------------------------------------------------|----------|----------------------------------|--------------------------|
| 8404-03 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 21155837                         |                          |
| 8404-03 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 19656773                         |                          |
| 8404-03 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 21155576                         |                          |
| 8404-03 | Three-Phase Recloser<br>Radio Communication Kit | 1        | New Pole Segment FID<br>32071694 |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | 1001153163                       |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | 19583050                         |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | 32071682                         |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | 32083926                         |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | New Pole<br>Segment FID 21156575 |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | 19656796                         |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | 24637074                         |                          |
| 8404-03 | Single-Phase Recloser                           | 3        | New Pole<br>Segment FID 32080794 |                          |

| Feeder | § 406 Hazard Mitigation<br>Item | Quantity | FID | Coordinates<br>Lat, Long |
|--------|---------------------------------|----------|-----|--------------------------|
|--------|---------------------------------|----------|-----|--------------------------|

|         |                                                 |   |                                  |
|---------|-------------------------------------------------|---|----------------------------------|
| 8404-04 | Three-Phase Recloser<br>Radio Communication Kit | 1 | 6317810                          |
| 8404-04 | Three-Phase Recloser<br>Radio Communication Kit | 1 | 12221060                         |
| 8404-04 | Three-Phase Recloser<br>Radio Communication Kit | 1 | 17458278                         |
| 8404-04 | Three-Phase Recloser<br>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<br>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<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
| 50ft 58.5 12-sided galvanized steel pole | 1        | 19656773 |                          |
| 50ft 58.5 12-sided galvanized steel pole | 1        | NEW POLE |                          |
| 50ft 58.5 12-sided galvanized steel pole | 1        | 19583050 |                          |
| 50ft 58.5 12-sided galvanized steel pole | 1        | 32083926 |                          |
| 50ft 58.5 12-sided galvanized steel pole | 1        | NEW POLE |                          |

|                                          |   |                      |  |
|------------------------------------------|---|----------------------|--|
| 40ft 55.7 12-sided galvanized steel pole | 1 | 24637074             |  |
| 45ft 55.7 12-sided galvanized steel pole | 1 | Segment FID 32080794 |  |

Feeder 8404-04

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

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.

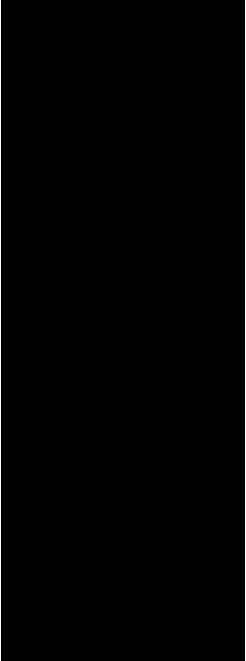
None of the poles being replaced in this project were replaced in other projects using PA 428 funds. LUMA requests § 406 hazard mitigation funding to address the increased costs associated with poles that exceed the height limits established by relevant codes and standards.

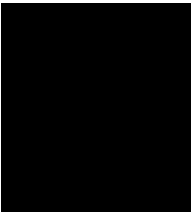
Additional information to justify these poles are included in *APPENDIX D - Pole Height Increase*

.Justification.

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<br>Lat, Long                                                              |
|---------|----------|--------------------------|---------------------------------------------------------------------------------------|
| 8404-03 | 3        | Segment FID<br>22102694  |  |
|         |          |                          |                                                                                       |
| 8404-03 | 3        | Segment FID              |                                                                                       |
|         |          | 21157976                 |                                                                                       |
|         |          |                          |                                                                                       |
| 8404-04 | 3        | Segment FID<br>221026697 |                                                                                       |
|         |          |                          |                                                                                       |
|         |          |                          |                                                                                       |
|         |          |                          |                                                                                       |

|             |    |                         |                                                                                    |
|-------------|----|-------------------------|------------------------------------------------------------------------------------|
| 8404-04     | 3  | Segment FID<br>29544053 |  |
|             |    |                         |                                                                                    |
|             |    |                         |                                                                                    |
| 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.<sup>5</sup>

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 cFCI 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<br>(7.62kv/120v) | 1        | 6317810  |                       |
| 8404-03 | 1 Kva Stainless Transformer<br>(7.62kv/120v) | 1        | 12221060 |                       |
| 8404-03 | 1 Kva Stainless Transformer<br>(7.62kv/120v) | 1        | 17458278 |                       |
| 8404-03 | 1 Kva Stainless Transformer<br>(7.62kv/120v) | 1        | 17458661 |                       |
| 8404-04 | 1 Kva Stainless Transformer<br>(7.62kv/120v) | 1        | 6317790  |                       |

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 than 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 FAAS 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    |  | <ul style="list-style-type: none"> <li>• Remove, dispose and replace existing primary framing on existing pole.</li> <li>• Install secondary framing.</li> <li>• Remove, dispose and replace downguy.</li> <li>• Remove, dispose and replace anchor.</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-</li> </ul> | 21155837 |  | <ul style="list-style-type: none"> <li>• Install (1) Three-Phase Recloser 8404-03A existing 50' 58 galvanized steel pole.</li> <li>• Install (1) 1 kVA stainless steel transform (7.62kV/120V) from source side.</li> <li>• Install and commission radio communication kit for Three-Phase Recloser.</li> </ul> |

| 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    |                       | <ul style="list-style-type: none"> <li>Remove and dispose 40' H3 concrete pole and replace with 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace streetlight (LED Streetlight)</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul> | 19656773   |                       | <ul style="list-style-type: none"> <li>Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.</li> <li>Install (1) 1 kVA stainless steel transformer (7.62kV/120V) from source side.</li> <li>Install (1) Three-Phase Recloser 8404-03B.</li> <li>Install and commission radio communication kit for three-phase recloser.</li> </ul>                       |
| 21155576    |                       | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing on existing pole.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> <li>Install down guy.</li> <li>Install anchor.</li> </ul>                                                                                                     | 21155576   |                       | <ul style="list-style-type: none"> <li>Install (1) Three Phase Recloser 8404-03( on existing 60ft H6 concrete pole.</li> <li>Install (1) 1 kVA stainless steel transformer (7.62kv/120v) from source side.</li> <li>Install and commission radio communication kit for three-phase recloser.</li> </ul>                                                                     |
| NEW POLE    |                       | <ul style="list-style-type: none"> <li>Install a new 50ft galvanized round tapered pole.</li> <li>Install primary framing.</li> <li>Install secondary framing.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                                                               | NEW POLE   |                       | <ul style="list-style-type: none"> <li>Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole.</li> <li>Install (1) Three-Phase Recloser 8404-03D.</li> <li>Install and commission radio communication k for three-phase recloser.</li> <li>Install (1) 1 kVA stainless steel transformer (4.80/7.62kV/120v) to feed recloser from source side.</li> </ul> |
| 1001153163  |                       | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framings.</li> <li>Reuse Secondary framing.</li> </ul>                                                                                                                                                                                                                                                                  | 1001153163 |                       | <ul style="list-style-type: none"> <li>Replace (3) Fuse Cutouts on FID 100115315E with the Installation of (3)</li> </ul>                                                                                                                                                                                                                                                   |

| 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 |  | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Cutouts</li> </ul>                                                                                                                                                                                                                                                                                                                |          |  |                                                                                                                                                                                                                                                    |
| 19583050   |  | <ul style="list-style-type: none"> <li>• Remove and dispose 50ft C2 wood pole and replace with 50ft galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Use existing secondary framing.</li> <li>• Remove, dispose and replace downguy.</li> <li>• Remove, dispose and replace anchor.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> </ul> | 19583050 |  | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with 50ft 58.5 12-sided galvanized steel pole.</li> <li>• Replace (3) Fuse Cutouts on FID 19585342 with the installation of (3) Single-Phase Recloser on FID 19583050.</li> </ul> |
| 19585342   |  | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Cutouts</li> </ul>                                                                                                                                                                                                                                                                                                                |          |  |                                                                                                                                                                                                                                                    |
| 32071682   |  | <ul style="list-style-type: none"> <li>• Remove, dispose and replace primary framings on existing pole.</li> <li>• Transfer existing secondary framing.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                     | 32071682 |  | <ul style="list-style-type: none"> <li>• Replace (3) Fuse Cutouts with the installation (3) Single-Phase-Recloser in existing 50' 58 pole.</li> </ul>                                                                                              |
| 32083926   |  | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft 53 steel pole and replace with 50ft galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Transfer secondary framing.</li> <li>• Remove, dispose and replace streetlight (LED Type)</li> <li>• Transfer existing transformer.</li> </ul>                                                          | 32083926 |  | <ul style="list-style-type: none"> <li>• Replace round pole with 50ft 58.5 12-sided galvanized steel pole.</li> <li>• Replace (3) Fuse Cutouts on FID 21158750 with the installation (3) Single-phase reclosers on FID 32083926.</li> </ul>        |

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



|                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 21158750             |  | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| NEW POLE             |  | <ul style="list-style-type: none"> <li>• Install a new 50ft galvanized round tapered pole.</li> <li>• Install primary framing</li> </ul>                                                                                                                                                                                                                                                                                         | NEW POLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 21156574             |  | <ul style="list-style-type: none"> <li>• Remove and dispose crossarm.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Labor to close jumpers</li> </ul>                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 19656796             |  | <ul style="list-style-type: none"> <li>• Remove and dispose stand-off bracket assembly.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                   | 19656796                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 24637074             |  | <ul style="list-style-type: none"> <li>• Install downguy on existing pole.</li> <li>• Install a new 40ft galvanized round tapered stub pole at coordinates 18.3866811, - 66.485422.</li> <li>• Install downguy and anchor</li> <li>• Remove, dispose and replace Primary framing.</li> <li>• Remove and dispose crossarm.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Labor to close jumpers.</li> </ul> | 24637074                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Segment FID 32080794 |  | <ul style="list-style-type: none"> <li>• Remove and dispose wood pole and replace with 45ft galvanized round tapered pole.</li> <li>• Install primary framing.</li> <li>• Remove, dispose and replace secondary framing.</li> <li>• Remove, dispose and replace (2) anchors.</li> <li>• Remove and dispose</li> </ul>                                                                                                            | Segment FID 32080794                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                                  | <ul style="list-style-type: none"> <li>• Replace 50ft round tapered pole with a 50ft 58.5 12-sided galvanized steel pole.</li> <li>• Replace (3) Fuse Cutouts from FID 21156574 with the installation of (3) Single-Phase Reclosers 200a on the new pole Segment FID 21156575.</li> <li>• Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Reclosers 200a.</li> <li>• Replace 40ft round pole with a 40ft 55.7 12-sided galvanized steel pole Stub Pole at coordinate 18.386681, - 66.48568.</li> <li>• Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Reclosers 200a.</li> <li>• Replace 45ft galvanized round pole with a 45ft 55.7 12-sided galvanized steel pole.</li> <li>• Replace (3) Fuse Cutouts from FID 19683050 with the installation of (3) Single-Phase Reclosers 200 A capacity on Segment FID 32080794.</li> </ul> |

428 Section

406 HM

| Pole FID                            | Coordinates Lat, Long | Scope of Work                                                                                                                                                         | Pole FID                | Coordinates Lat, Long | Scope of Work                                                                                                                                               |
|-------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                     |                       | downguy,                                                                                                                                                              |                         |                       |                                                                                                                                                             |
| 19583050                            |                       | <ul style="list-style-type: none"> <li>Remove and dispose crossarm.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Labor to close jumpers</li> </ul> |                         |                       |                                                                                                                                                             |
| 1001254333*<br>Segment FID 22102694 |                       | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                               | Segment FID<br>22102694 |                       | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul> |
| 19657124<br>Segment FID<br>21157976 |                       | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                               | Segment FID<br>21157976 |                       | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul> |

\*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     |                       | <ul style="list-style-type: none"> <li>Remove and dispose 50ft H4 concrete pole and replace with 50ft round tapered galvanized steel pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace streetlight (LED Type)</li> <li>Remove and dispose downguy.</li> <li>Remove and dispose anchor.</li> </ul> | 6317810  |                       | <ul style="list-style-type: none"> <li>Replace round pole with 50ft 58.512-sided tapered galvanized steel pole.</li> <li>Use existing secondary triplex conductor to feed the recloser 8404-04A from source side.</li> <li>Install (1) Three-Phase Recloser 8404-04A.</li> <li>Install and commission radio communication kit for Three-Phase Recloser.</li> </ul> |

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

|          |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |  |                                                                                                                                                                                                                                                                                                                                                                              |
|----------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |  | <ul style="list-style-type: none"> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |          |  |                                                                                                                                                                                                                                                                                                                                                                              |
| 12221060 |  | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft Class 3 wood pole and replace with a 50ft galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Remove, dispose and replace secondary framing.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                                                                                                                                     | 12221060 |  | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with 60ft 58.5 12-sided galvanized steel pole.</li> <li>• Install (2) 1 kVA stainless steel transformers (7.62kV/120v) from source side and load side.</li> <li>• Install (1) Three-Phase Recloser 8404-04B.</li> <li>• Install and commission radio communication kit for Three-Phase recloser.</li> </ul> |
| 17458278 |  | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove, dispose and replace secondary framing.</li> <li>• Install triplex from source side pole FID: 17458269.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove, dispose and replace downguy.</li> <li>• Remove and dispose (3) Fuse Cutouts.</li> <li>• Reattach riser to the new pole.</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the</li> </ul> | 17458278 |  | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with 50ft 58.5 12-sided galvanized steel pole.</li> <li>• Install (1) Three-Phase Recloser 8404-04C.</li> <li>• Install and commission radio communication kit for Three-Phase Recloser.</li> <li>• Use existing secondary triplex conductor to feed the recloser 8404-04C from source side.</li> </ul>     |

| 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                            |  | <ul style="list-style-type: none"> <li>Remove and dispose 45ft H4 Concrete pole and replace with 50ft galvanized round tapered pole.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them..</li> <li>Remove, dispose and replace primary framing.</li> <li>Install secondary framing.</li> <li>Install triplex from source side pole FID: 17458269.</li> </ul> | 17458661                           |  | <ul style="list-style-type: none"> <li>Replace 50ft round pole with 50ft 58.5 12-sided tapered galvanized steel pole.</li> <li>Install (1) Three-Phase Recloser 8404-04D on FID17458661.</li> <li>Install and commission radio communication kit for Three-Phase Recloser.</li> <li>Use exiting secondary triplex conductor to feed the recloser 8404-04D from source side.</li> </ul> |
| 1001254333*<br>Segment FID 22102697 |  | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                             | 1001254333<br>Segment FID 22102697 |  | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                            |
| 6317831<br>Segment FID 29544053     |  | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                             | 6317831<br>Segment FID 29544053    |  | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                            |
| 6317790                             |  | <ul style="list-style-type: none"> <li>Remove and dispose 40ft C2 wood pole and replace 45ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary Framing.</li> <li>Remove, dispose and replace downguy and anchor.</li> <li>Remove, dispose and replace (1) Fuse Cutout.</li> </ul>                                                                                                                         | 6317790                            |  | <ul style="list-style-type: none"> <li>Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.</li> <li>Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200a.</li> </ul>                                                                                                                                                                   |
| 1001655999                          |  | <ul style="list-style-type: none"> <li>Remove and dispose 50ft H4 concrete pole and replace with 50ft galvanized round tapered pole.</li> </ul>                                                                                                                                                                                                                                                                                     | 1001655999                         |  | <ul style="list-style-type: none"> <li>Replace 50ft round pole with a 50ft 510 12-sided galvanized pole.</li> <li>Replace (2) Fuse Cutout with the installation of (2) Single-Phase Recloser 200a.</li> </ul>                                                                                                                                                                          |

| 428 Section |                       |                                                                                                                                                                                  | 406 HM   |                       |               |
|-------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|---------------|
| Pole FID    | Coordinates Lat, Long | Scope of Work                                                                                                                                                                    | Pole FID | Coordinates Lat, Long | Scope of Work |
|             |                       | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Install (2) downguys and (2) anchors.</li> <li>Install (2) fuse cutouts.</li> </ul> |          |                       |               |

|                                 |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                 |                  |                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6317831<br>Segment FID 29544053 | ██████<br>██████ | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft H4 concrete pole and replace with 50ft galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary and secondary framing.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Install 40ft galvanized round tapered pole on Coordinates ██████ for new stub pole for new span guy.</li> <li>• Remove, dispose and replace downguy for existing pole.</li> <li>• Install (2) downguy's for stub pole.</li> <li>• Install (2) anchors for stub pole.</li> </ul> | 6317831<br>Segment FID 29544053 | ██████<br>██████ | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with a 50ft 58.5 12-sided galvanized steel Pole.</li> <li>• Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.</li> <li>• Replace 40ft Round stub pole with a 40ft 55.7 12-sided galvanized steel on Coordinates ██████ ██████</li> </ul> |
| 17458529                        | ██████<br>██████ | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft H concrete pole and replace with 45ft galvanized round tapered pole.</li> <li>• Remove dispose and replace primary framing.</li> <li>• Remove, dispose and replace Streetlight (LED/Type).</li> <li>• Install (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                                                                                                     | 17458529                        | ██████<br>██████ | <ul style="list-style-type: none"> <li>• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.</li> <li>• Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200a.</li> </ul>                                                                                                                 |
| 12219159                        | ██████<br>██████ | <ul style="list-style-type: none"> <li>• Replace and dispose 40ft C4 wood pole and replace with 45ft galvanized round pole.</li> <li>• Remove, dispose and replace primary framing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                  | 12219159                        | ██████<br>██████ | <ul style="list-style-type: none"> <li>• Replace 45ft round pole with 45ft 55.7 12-sided galvanized steel pole.</li> <li>• Replace (3) Fuse Cutouts on FID6569234 with the installation of (3) Single-Phase Recloser 200a.</li> </ul>                                                                                                     |

| 428 Section |                       |                                                                                                                                            | 406 HM   |                       |                                                                                                                                                                                                                                                   |
|-------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pole FID    | Coordinates Lat, Long | Scope of Work                                                                                                                              | Pole FID | Coordinates Lat, Long | Scope of Work                                                                                                                                                                                                                                     |
| 6569234     | ████████████████████  | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Labor to close jumpers</li> </ul>        |          |                       |                                                                                                                                                                                                                                                   |
| NEW POLE    |                       | <ul style="list-style-type: none"> <li>• Install a new 45ft galvanized round tapered pole.</li> <li>• Install primary framings,</li> </ul> | NEW POLE | ████████████████████  | <ul style="list-style-type: none"> <li>• Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.</li> <li>• Replace (1) Fuse Outcut on FID 12220124 with the installation of (1) Single-Phase Recloser 200A capacity.</li> </ul> |

|          |  |                                                                                                                                                                                                                                                                                                                   |          |            |                                                                                                                                                                                                                                   |
|----------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12220124 |  | <ul style="list-style-type: none"> <li>Remove, dispose and replace</li> </ul>                                                                                                                                                                                                                                     |          |            |                                                                                                                                                                                                                                   |
| 20390449 |  | (1) Fuse Cutout.<br><br><ul style="list-style-type: none"> <li>Labor to close jumpers</li> </ul>                                                                                                                                                                                                                  | 20390449 |            |                                                                                                                                                                                                                                   |
|          |  | <ul style="list-style-type: none"> <li>Remove and dispose 40ft H3 concrete pole and replace with 45ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace downguy and anchor.</li> <li>Remove, dispose and replace</li> </ul> |          |            | <ul style="list-style-type: none"> <li>Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.</li> <li>Replace (3) Fuse Cutouts on FID 20390337 with the installation of (3) Single-phase reclosers.</li> </ul> |
| 20390337 |  | Streetlight (LED Type).<br><br><ul style="list-style-type: none"> <li>Remove, dispose and replace</li> </ul>                                                                                                                                                                                                      |          |            |                                                                                                                                                                                                                                   |
|          |  | (3) Fuse Cutouts.<br><br><ul style="list-style-type: none"> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                |          |            |                                                                                                                                                                                                                                   |
| 6569208  |  | <ul style="list-style-type: none"> <li>Remove and dispose 35ft H3 concrete pole and replace with 45ft galvanized round tapered pole, 20 feet to the west (from - 66.447622 to</li> </ul>                                                                                                                          | 6569208  | 18.414909, | ? Replace 45ft round pole with a 45ft 55.7 12-sided galvanized steel pole.                                                                                                                                                        |
|          |  | -<br><br><ul style="list-style-type: none"> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Install stand-off bracket assembly.</li> <li>Install Fuse Cutout assembly.</li> </ul>                                                                                                         |          |            |                                                                                                                                                                                                                                   |

\*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.

☒ **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.

**IX| 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<br>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                              | <b>\$1,671,013.75</b>                | <b>\$1,001,406.99</b> | <b>\$2,672,420.74</b> |
| 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          |                       | <b>\$2,411,852.19</b> |
|                                          | FAASt A&E # 335168 -                 |                       | \$112,272.97          |
|                                          | FAASt A&E # 335168 - 406 HM          |                       | \$65,062.72           |
|                                          | FAASt A&E # 335168 T                 |                       | <b>\$177,335.69</b>   |
|                                          | FAASt E&M #673691 -                  |                       | \$148,295.58          |
|                                          | FAASt E&M #673691 - 406 HM           |                       | \$442,571.92          |
|                                          | FAASt E&M #673691                    |                       | <b>\$590,867.50</b>   |

#### 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 FAASSt projects.

4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASSt 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 FAASSt 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-FAASSt transactions; non-FAASSt transactions remain unchanged. See document file: " SP 745856 - DR4339PR - Email Confirmation Sub-FAASSt 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 Justification |

406 HMP Scope

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

Damage number: 1374348; FAASSt [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) = | <u>\$ 195,612.56</u>  |
| Hazard Mitigation Total Cost =                             | <b>\$1,001,406.99</b> |

#### Hazard Mitigation Proposal (HMP) Cost Distribution:

|                                      |                       |
|--------------------------------------|-----------------------|
| Equipment and Materials (E&M) =      | \$ 442,571.92         |
| Architecture and Engineering (A&E) = | \$ 65,062.72          |
| Construction Cost =                  | <u>\$ 493,772.35</u>  |
| Hazard Mitigation Total Cost =       | <b>\$1,001,406.99</b> |

-

#### 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 with 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

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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

6/25/2026

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.**

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) (Cost Only)**.

## 406 Mitigation

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

## EHP Additional Info

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

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 07/15/2026 12:26 PM PDT

#### Review Comments

[745856] FAAS [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



## 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 \$2,641,593.95 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 1         | 8/27/2026      | \$901,266.29   | 90%        | Accepted     | 4339DRPRP01079561  |
| 0         | 2/6/2025       | \$1,476,168.27 | 90%        | Accepted     | 4339DRPRP01079561  |

## Department of Homeland Security Federal Emergency Management Agency

### General Info

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

DDD for this facility codified in the 136271 - MEPA078 Puerto Rico Electrical Power Authority Island Wide FAASt Project.

#### 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]

#### General Damage Information:

- **Date Damaged:** 9/20/2017
- **Cause of Damage:** High winds & wind driven rain, caused by Cat 4 Hurricane Maria

### Final Scope

**1374351** **FAASt [Transmission and Distribution Automation Program]**

\*\*\*\*\* 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) = | <u>\$ 38,737.44</u>  |
| Hazard Mitigation Total Cost =                             | <b>\$ 198,410.11</b> |

#### **Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                      |                      |
|--------------------------------------|----------------------|
| Equipment and Materials (E&M) =      | \$ 77,702.27         |
| Architecture and Engineering (A&E) = | \$ 15,504.92         |
| Construction Cost =                  | <u>\$ 105,202.92</u> |
| Hazard Mitigation Total Cost =       | <b>\$198,410.11</b>  |

#### **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 with 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 (Contract (Reconcile of funds-V0 De-obligation V1))                                                                                       | 1.00     | Lump Sum | (\$467,287.59) | Uncompleted |
| 3510 (V0 Engineering and Design Services (Deduction - PREPA FAASt Global A&E 335168))                                                          | 1.00     | Lump Sum | (\$60,837.64)  | Uncompleted |
| 9001 (V1 (Equipment & Material Deduction (PREPA FAASt Global E&M 673691))                                                                      | 1.00     | Lump Sum | (\$33,515.73)  | Uncompleted |
| 3510 (V1 Engineering and Design Services: Deduction - PREPA FAASt Global A&E 335168))                                                          | 1.00     | Lump Sum | (\$21,856.33)  | Uncompleted |
| 9201 (PAAP Fixed Estimate (No Value - Tracking Purposes Only))                                                                                 | 1.00     | Lump Sum | \$0.00         | Completed   |
| 9001 (V2 Contract (Reconcile negative pending federal share obligated. Positive value to offset the CRC gross cost from the previous version)) | 1.00     | Lump Sum | \$243,352.22   | Uncompleted |
| 9001 (Contract V1 Work to Be Completed (WTBC))                                                                                                 | 1.00     | Lump Sum | \$279,307.43   | Uncompleted |
| 9001 (V0 Contract (PREPA FAASt Project 136271))                                                                                                | 1.00     | Lump Sum | \$528,125.23   | Uncompleted |

|                            |              |
|----------------------------|--------------|
| CRC Gross Cost             | \$467,287.59 |
| Total 406 HMP Cost         | \$198,410.11 |
| Total Insurance Reductions | \$0.00       |
| <hr/>                      |              |
| CRC Net Cost               | \$665,697.70 |
| Federal Share (90.00%)     | \$599,127.93 |
| Non-Federal Share (10.00%) | \$66,569.77  |



## Award Information

### 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  |

## 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.
- 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.
- 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.
- 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.
- The Subrecipient provided the estimate for this PW. FEMA validated the estimate and found it to be reasonable for the work to be performed.
- 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.

## Insurance

### Additional Information

7/14/2026

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.

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

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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 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** 07/31/2026 5:42 AM 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 9:07 AM 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.

## 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 \$665,697.70 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.

## Project Signatures

**Signed By** Miller, Thomas

**Signed On** 08/03/2026

Department of Homeland Security  
Federal Emergency Management Agency

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## General Info

|                  |                                                                |       |        |                     |                                            |
|------------------|----------------------------------------------------------------|-------|--------|---------------------|--------------------------------------------|
| Project #        | 745861                                                         | P/W # | 107957 | Project Type        | Specialized                                |
| Project Category | F - Utilities                                                  |       |        | Applicant           | PR Electric Power Authority (000-UA2QU-00) |
| Project Title    | FAASt [Automation Program Group 12] (Distribution) (Cost Only) |       |        | Event               | 4339DR-PR (4339DR)                         |
| Project Size     | Large                                                          |       |        | Declaration Date    | 9/20/2017                                  |
| Activity         | 9/20/2027                                                      |       |        | Incident Start Date | 9/17/2017                                  |
| Completion Date  |                                                                |       |        | 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 #1374353; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 12: DAR – ARECIBO 7402, 7403, 7702 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 12: DAR – ARECIBO 7402, 7403, 7702 FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders ARECIBO 7402, 7403, 7702 FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

1374353

**FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24**

### INTRODUCTION AND BACKGROUND

#### 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 745861 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 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 of this project.

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 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. 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/alerts 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    | Damage Number | Feeder Number | GPS Location |
|---------|---------------|---------------|--------------|
| Arecibo | 1374353       | 7402-01       |              |
| Arecibo | 1374353       | 7403-02       |              |
| Arecibo | 1374353       | 7702-02       |              |
| Arecibo | 1374353       | 7702-03       |              |

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 7402-01

| FID      | COORDINATES LAT, LONG | Existing                                                                         | Install                                                                                                                          | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------|-----------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21664670 |                       | (60' WOOD POLE) (38KV SC DEVERT)<br>(CP-C6- XARM)<br>(T-1)<br>(STL- 10)<br>(S-1) | (70' S8 12-SIDED GALVANIZED STEEL POLE)<br>(38KV SC DEVERT) (CP-C6- XARM)<br>(K-7-4)<br>(STL-10)<br>(3/0 TPX(QTY=400FT)) (REC-2) | <ul style="list-style-type: none"><li>Remove and dispose of 60' wood pole.</li><li>Replace with 70' S8 12- sided galvanized steel pole.</li><li>Replace primary framings.</li><li>Remove and dispose spacer framing and ckt.</li><li>Replace secondary framing.</li><li>Replace streetlight.</li><li>Transfer transformer to pole fid: 1001475449</li><li>Install triplex from source side pole fid: 10014 due to three phase recloser 7402-01A.</li><li>Install (1) Three-Phase</li></ul> |

| FID        | COORDINATES LAT, LONG | Existing                             | Install                                                                                          | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|-----------------------|--------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                       |                                      |                                                                                                  | Recloser 7402-01A on a radial circuit.                                                                                                                                                                                                                                                                                                                                                           |
| 1001475449 |                       | (CP-C6-XARM) (K-6)<br>(STL-10) (S-1) | (CP-C12-XARM)<br>(T-1)<br>(K-6)<br>(STL-10) (SOLID CUTOUT BLADES(QTY=3))<br>(3/0 TPX(QTY=300FT)) | <ul style="list-style-type: none"><li>Reuse 60' h6 concrete pole.</li><li>Adjust 38kv framing to standard.</li><li>Replace primary framing.</li><li>Replace secondary framing.</li><li>Remove and dispose streetlight from stub pole</li><li>Install streetlight.</li><li>Install transformer (37.5kva/ 4.16kv, 120/240v).</li><li>Install solid cutout Blades in cutout fuse assembly</li></ul> |



|            |  |                                                                         |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|--|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 28651889   |  | (45' H4 CONCRETE POLE) (S-6) (K-7)                                      | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br>(S-6)<br>(REC-2-2)<br>(K-7-B)<br>(3/0 TPX(QTY=500FT)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 Concrete pole.</li> <li>Replace with 50' S8 12- sided galvanized steel pole.</li> <li>Remove and dispose and dispose wood stub</li> <li>Replace primary framing.</li> <li>Replace secondary framing Feed recloser from existing source side secondary.</li> <li>Install (1) Three-Phase recloser 7402-01B on radial circuit</li> </ul> |
| 28651876   |  | N/A                                                                     | (SOLID CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3))<br>(ASSY-1505<br>FIG. C)                       | <ul style="list-style-type: none"> <li>Install stand-off bracket assembly.</li> <li>Install solid cutout blades (qty=3) on existing</li> </ul>                                                                                                                                                                                                                                                          |
| 1000331641 |  | (ASSY-1509 (QTY=2))                                                     | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 1001367496 (c and close jumpers due to three phase recloser 7402- 01b installation.</li> </ul>                                                                                                                                                                                                                                      |
| 33190825   |  | (ASSY-1509 (QTY=3))                                                     | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33823856 (c and close jumpers due to three phase recloser 01b installation.</li> </ul>                                                                                                                                                                                                                                              |
| 28654052   |  | (ASSY-1509 (QTY=3))                                                     | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33824437 (c and close jumpers due to three phase recloser 7402-01b installation.</li> </ul>                                                                                                                                                                                                                                         |
| 28651625   |  | (45' CLASS 3 WOOD POLE)<br>(S-6)<br>(K-5) (E-1-2-3)<br>(F-1-3)<br>(T-2) | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br>(S-6)<br>(REC-2-2)<br>(K-7-B)<br>(3/0 TPX(QTY=300FT)) | <ul style="list-style-type: none"> <li>Remove 45' Class 3 wood pole.</li> <li>Replace with 50' S8 12- sided galvanized steel and relocate 5ft outside of private property for</li> <li>Replace primary framing.</li> <li>Replace secondary</li> </ul>                                                                                                                                                   |

| FID      | COORDINATES LAT, LONG | Existing                                                  | Install                             | SCOPE OF WORK                                                                                                                                                                                                                                                                                |
|----------|-----------------------|-----------------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                                           |                                     | framing.<br>• Install triplex from source side pole fid: 22077<br>• Remove and dispose down guy.<br>• Relocate transformer two spans downstream pole fid: 28651671.<br>• Install (1) Three-Phase<br>recloser 7402-01C on radial circuit.<br>• Install secondary framing to feed recloser 740 |
| 22077816 |                       | N/A                                                       | (K-5)                               |                                                                                                                                                                                                                                                                                              |
| 28651671 |                       | N/A                                                       | (T-2)                               | • Transfer transformer from pole fid: 2865162 to three phase recloser<br>• 7402-01c.                                                                                                                                                                                                         |
| 22077813 |                       | (LABOR, FUSE REMOVAL (QTY=3))                             | (LABOR, SOLID CUTOUT BLADES(QTY=3)) | • Replace fuses (qty=3) with cutout blades (qty=3) on existing 70' s8 steel pole.                                                                                                                                                                                                            |
| 28652000 |                       | (ASSY- 1509(QTY=3))                                       | (LABOR TO CLOSE JUMPERS(QTY=3))     | • Remove and dispose fuse fid: 33823352 (c and close jumpers due to three phase recloser 01c installation.                                                                                                                                                                                   |
| 28654587 |                       | (ASSY-1509 (QTY=3)) (STAND- OFF BRACKET ASSY 1505-FIG. C) | (LABOR TO CLOSE JUMPERS(QTY=3))     | • Remove and dispose fuse fid: 1002131726 (c and close jumpers due to three phase recloser 01c installation.                                                                                                                                                                                 |

|          |  |  |                     |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|--|--|---------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  |  | N/A                 | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br>(S-6)<br>(REC-2-2)<br>(K-7-B)<br>(3/0 TPX(QTY=250FT)) | <ul style="list-style-type: none"> <li>• Install a new 50' S8 12- sided galvanized steel pole.</li> <li>• Install primary framing.</li> <li>• Install secondary framing.</li> <li>• Install triplex from source side pole fid: 22074</li> <li>• Install (1) Three-Phase recloser 7402-01D on radial circuit.</li> </ul>                                                                                            |
| 21663664 |  |  | (ASSY-1509 (QTY=3)) | (SOLID CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3)) (ASSY-1505 FIG. C) (K-2)                       | <ul style="list-style-type: none"> <li>• Straighten and reuse existing 45' h4 concrete pole.</li> <li>• Adjust guy wire tension.</li> <li>• Install secondary framing to feed three phase recloser 7402- 01d.</li> <li>• Replace existing crossarm with stand-off bra assembly.</li> <li>• Replace fuse fid: 33824826 (qty=3) with cut blade (qty=3) due to three phase recloser 7402-01D installation.</li> </ul> |
| 22074602 |  |  | N/A                 | (K-5)                                                                                            | <ul style="list-style-type: none"> <li>• Install secondary framing to feed three phase recloser 7402-01d.</li> </ul>                                                                                                                                                                                                                                                                                               |

| FID        | COORDINATES LAT, LONG | Existing                        | Install                                                   | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                    |
|------------|-----------------------|---------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000580231 |                       | (ASSY-1509 (QTY=3))             | (LABOR TO CLOSE JUMPERS(QTY=3))                           | <ul style="list-style-type: none"> <li>• Remove and dispose fuse fid: 1000580237 (c and close jumpers due to three phase recloser 7402-01d Installation.</li> </ul>                                                                                                                                                                                              |
| 21664915   |                       | (ASSY-1509 (QTY=3))             | (LABOR TO CLOSE JUMPERS(QTY=3))                           | <ul style="list-style-type: none"> <li>• Remove and dispose fuse fid: 1001475321 (c and close jumpers due to three phase recloser 7402-01d</li> <li>• Installation.</li> </ul>                                                                                                                                                                                   |
| 21665387   |                       | (ASSY-1509 (QTY=3))             | (LABOR TO CLOSE JUMPERS(QTY=3))                           | <ul style="list-style-type: none"> <li>• Remove and dispose fuse fid: 1002128988 (c and close jumpers due to three phase recloser 7402-01D installation.</li> </ul>                                                                                                                                                                                              |
| 21663839   |                       | (CP-06-XARM)<br>(S- 6)<br>(T-1) | (CP-06-XARM)<br>(REC-2)<br>(K7-B)<br>(3/0 TPX(QTY=250FT)) | <ul style="list-style-type: none"> <li>• Reuse 70' S8 steel pole.</li> <li>• Replace primary framing.</li> <li>• Replace secondary framing.</li> <li>• Remove and dispose transformer.</li> <li>• Install triplex cable from source side pole fid: 21663842 due to three phase recloser 7402-01E</li> <li>• Install (1) Three-Phase recloser 7402-01E</li> </ul> |
| 21663842   |                       | N/A                             | (K-5)                                                     | <ul style="list-style-type: none"> <li>• Install secondary framing to feed Three-phase recloser 7402-01E</li> </ul>                                                                                                                                                                                                                                              |
| 21663849   |                       | (S-5)                           | (SOLID CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3))         | <ul style="list-style-type: none"> <li>• Reuse 72" crossarm. Install cutout Blades (qty=3) on existing 70' s8 steel Pole.</li> </ul>                                                                                                                                                                                                                             |
| 21664232   |                       | (ASSY-1509 (QTY=3))             | (LABOR TO CLOSE JUMPERS(QTY=3))                           | <ul style="list-style-type: none"> <li>• Remove and dispose fuse fid: 33826922 (qty=3) and Close jumpers due to three phase Recloser 7402-01E installation.</li> </ul>                                                                                                                                                                                           |
| 21664540   |                       | N/A                             | (LABOR cFC) (QTY=3)                                       | <ul style="list-style-type: none"> <li>• Labor to install Communicating fault current indicator (cFCs)</li> </ul>                                                                                                                                                                                                                                                |

|          |                         |     |                       |                                                                                                                           |
|----------|-------------------------|-----|-----------------------|---------------------------------------------------------------------------------------------------------------------------|
| 12137275 | 18.472081<br>-66.936748 | N/A | (LABOR, cFCI) (QTY=3) | <ul style="list-style-type: none"> <li>Labor to install</li> <li>Communicating fault current indicator (cFCIs)</li> </ul> |
|----------|-------------------------|-----|-----------------------|---------------------------------------------------------------------------------------------------------------------------|

## Feeder 7403-02

| FID      | COORDINATES LAT, LONG | Existing            | Install                            | SCOPE OF WORK                                                                                         |
|----------|-----------------------|---------------------|------------------------------------|-------------------------------------------------------------------------------------------------------|
| 17203195 |                       | (35 FT H3           | (50' S8 12-SIDED                   | <ul style="list-style-type: none"> <li>Remove and dispose of 35'</li> </ul>                           |
|          |                       | CONCRETE POLE)      | GALVANIZED STEEL POLE)             | H3 concrete pole                                                                                      |
|          |                       | (S-3)               | (REC-2-2)                          | <ul style="list-style-type: none"> <li>Replace with 50' S8 12-</li> </ul>                             |
|          |                       |                     | (S-6)                              | sided galvanized steel pole.                                                                          |
|          |                       |                     | (E-1-2-3(QTY=2))<br>(F-1-3(QTY=2)) | <ul style="list-style-type: none"> <li>Install primary framing.</li> <li>Install downguys.</li> </ul> |
|          |                       |                     |                                    | <ul style="list-style-type: none"> <li>Install anchors.</li> </ul>                                    |
|          |                       |                     |                                    | <ul style="list-style-type: none"> <li>Install 1 kva transformers</li> </ul>                          |
|          |                       |                     |                                    | (2.40/7.62kv-120v) from                                                                               |
|          |                       |                     |                                    | source side.                                                                                          |
|          |                       |                     |                                    | <ul style="list-style-type: none"> <li>Install three phase recloser</li> </ul>                        |
|          |                       |                     |                                    | 7403-02A.                                                                                             |
| 17205736 |                       | (ASSY-1509 (QTY=2)) | (LABOR TO CLOSE                    | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                             |
|          |                       |                     | JUMPERS(QTY=2))                    | fid: 1001811666 (qty=2) and                                                                           |
|          |                       |                     |                                    | close jumpers due to three                                                                            |
|          |                       |                     |                                    | phase recloser 7403-02A                                                                               |
|          |                       |                     |                                    | installation.                                                                                         |
|          |                       | (ASSY-1509 (QTY=2)) | (LABOR TO CLOSE                    | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                             |
| 17205744 |                       |                     | JUMPERS(QTY=2))                    | fid: 33631235 (qty=2) and                                                                             |
|          |                       |                     |                                    | close jumpers due to three                                                                            |
|          |                       |                     |                                    | phase recloser 7403-02A                                                                               |
|          |                       |                     |                                    | installation.                                                                                         |
| 17207532 |                       | (35' C4 WOOD POLE)  | (45' S5.7 12-SIDED                 | <ul style="list-style-type: none"> <li>Remove and dispose the</li> </ul>                              |

|          |  |                                             |                                                                                             |                                                                                                                                                                                               |
|----------|--|---------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |  | (ASSY-1509 (QTY=2))                         | GALVANIZED STEEL POLE)                                                                      | 35' C4 wood pole.                                                                                                                                                                             |
|          |  | (42" CROSSARM) (CP-B6-XARM)                 | (CP-B6)<br>(CP-B5)                                                                          | <ul style="list-style-type: none"> <li>Replace with 45' S5.7 12- sided galvanized s pole.</li> </ul>                                                                                          |
|          |  | (CP-B5-XARM)<br>(K-7)<br>(STL- 10)<br>(T-1) | (CUTOUT BLADES(QTY=2))<br>(ASSY- 1509(QTY=2)) (ASSY-1505 FIG. B) (K-7)<br>(STL-10)<br>(T-1) | <ul style="list-style-type: none"> <li>Install primary framing.</li> <li>Replace secondary framing.</li> <li>Replace streetlight.</li> <li>Remove and dispose down guy. Remove and</li> </ul> |
|          |  |                                             |                                                                                             | dispose anchor.                                                                                                                                                                               |
|          |  |                                             |                                                                                             | <ul style="list-style-type: none"> <li>Transfer transformer to</li> </ul>                                                                                                                     |
|          |  |                                             |                                                                                             | new pole.                                                                                                                                                                                     |
|          |  |                                             |                                                                                             | <ul style="list-style-type: none"> <li>Remove and dispose</li> </ul>                                                                                                                          |
|          |  |                                             |                                                                                             | fuse fid: 33629050 (qty=2)                                                                                                                                                                    |
|          |  |                                             |                                                                                             | and install cutout blades                                                                                                                                                                     |
|          |  |                                             |                                                                                             | (qty=2) due to three phase                                                                                                                                                                    |
|          |  |                                             |                                                                                             | recloser 7403-02A                                                                                                                                                                             |
|          |  |                                             |                                                                                             | installation.                                                                                                                                                                                 |
| 17203210 |  | N/A                                         | (CUTOUT BLADES(QTY=3))                                                                      | <ul style="list-style-type: none"> <li>Install stand-off bracket</li> </ul>                                                                                                                   |
|          |  |                                             | (ASSY-1509 (QTY=3))                                                                         | assembly.                                                                                                                                                                                     |
|          |  |                                             | (ASSY-1505 FIG. C)                                                                          | <ul style="list-style-type: none"> <li>Install cutout blades</li> </ul>                                                                                                                       |
|          |  |                                             |                                                                                             | (qty=3) on existing 40' h3                                                                                                                                                                    |
|          |  |                                             |                                                                                             | concrete pole due to three                                                                                                                                                                    |
|          |  |                                             |                                                                                             | phase recloser <b>7403-02A</b>                                                                                                                                                                |
|          |  |                                             |                                                                                             | Installation.                                                                                                                                                                                 |
| 17203200 |  | (40' CLASS 3 WOOD                           | (45' S5.7 12-SIDED                                                                          | <ul style="list-style-type: none"> <li>Remove and dispose 40'</li> </ul>                                                                                                                      |
|          |  | POLE)                                       | GALVANIZED STEEL POLE)                                                                      | class 3 wood pole.                                                                                                                                                                            |
|          |  | (CP- C6-XARM)                               | (CP-C6-XARM)                                                                                | <ul style="list-style-type: none"> <li>Replace with 45' S5.7 12-</li> </ul>                                                                                                                   |
|          |  | (T-2)                                       | (T-2)                                                                                       | sided galvanized steel pole.                                                                                                                                                                  |
|          |  | (K-5)<br>(ASSY 1509 (QTY=3))                | (K-5)<br>(ASSY-1505-FIG. C) (REC-3-C)                                                       | <ul style="list-style-type: none"> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> </ul>                                                                                |
|          |  |                                             |                                                                                             | <ul style="list-style-type: none"> <li>Transfer transformers.</li> </ul>                                                                                                                      |
|          |  |                                             |                                                                                             | <ul style="list-style-type: none"> <li>Install (3) single-phase</li> </ul>                                                                                                                    |

| FID      | COORDINATES LAT, LONG | Existing            | Install                                   | SCOPE OF WORK                                                                                                                                               |
|----------|-----------------------|---------------------|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                     |                                           | recloser 200A<br><ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 1001744062 (due to single-phase</li> </ul> recloser 200a installation. |
| 33189780 |                       | (ASSY-1509 (QTY=3)) | (LABOR TO CLOSE JUMPERS                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                                                                                   |
|          |                       | (42" CROSSARM)      | (QTY=3))                                  | fid: 1001743346 (qty=3)                                                                                                                                     |
|          |                       |                     |                                           | and close jumpers due to                                                                                                                                    |
|          |                       |                     |                                           | three (3) single- phase                                                                                                                                     |
|          |                       |                     |                                           | recloser 200A installation.                                                                                                                                 |
| 33190400 |                       | (35' C4 WOOD POLE)  | (45' S5.7 12-SIDED GALVANIZED STEEL POLE) | <ul style="list-style-type: none"> <li>Remove and dispose 35' C4 wood pole</li> <li>Replace with 45' S5.7 12- sided galvanized s pole.</li> </ul>           |
|          |                       | (CP-C2)             | (CP-C6-XARM)                              | <ul style="list-style-type: none"> <li>Replace primary framing.</li> </ul>                                                                                  |
|          |                       | (K-7-B)             | (T-2)                                     | <ul style="list-style-type: none"> <li>Replace secondary framing.</li> </ul>                                                                                |
|          |                       | (T-2)               | (K-7-B)                                   | <ul style="list-style-type: none"> <li>Transfer transformer.</li> </ul>                                                                                     |
|          |                       | (42" CROSSARM)      | (ASSY 1505 FIG. C)                        | <ul style="list-style-type: none"> <li>Install (3) single-phase recloser 200A.</li> </ul>                                                                   |
|          |                       | (72" CROSSARM)      | (REC-3-C)                                 |                                                                                                                                                             |
|          |                       | (E-1-2-3)           |                                           |                                                                                                                                                             |
|          |                       | (F-1-3)             |                                           |                                                                                                                                                             |
| 33190452 |                       | (ASSY-1509 (QTY=3)) | (LABOR TO CLOSE                           | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                                                                                   |
|          |                       |                     | JUMPERS(QTY=3))                           | fid: 33628522 (qty=3) and                                                                                                                                   |
|          |                       |                     |                                           | close jumpers due to                                                                                                                                        |
|          |                       |                     |                                           | three(3) three-phase                                                                                                                                        |
|          |                       |                     |                                           | recloser 200a installation.                                                                                                                                 |
| 33190595 |                       | (ASSY-1509 (QTY=3)) | (LABOR TO CLOSE                           | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                                                                                   |
|          |                       |                     | JUMPERS(QTY=3))                           | fid: 3628373 (qty=3) and                                                                                                                                    |
|          |                       |                     |                                           | close jumpers due to                                                                                                                                        |
|          |                       |                     |                                           | three(3) single-phase                                                                                                                                       |
|          |                       |                     |                                           | recloser 200a installation.                                                                                                                                 |
| 17206664 |                       | (35' C5 WOOD POLE)  | (45'S5.7 12-SIDED                         | <ul style="list-style-type: none"> <li>Remove and dispose 35'</li> </ul>                                                                                    |

|            |  |                                |                                         |                                                                                                                                  |
|------------|--|--------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|            |  | (CP-B6-XARM)                   | GALVANIZED STEEL POLE                   | C5 wood pole.                                                                                                                    |
|            |  | (K-7-4)<br>(ASSY-1509 (QTY=2)) | (CP-B6-XARM)<br>(REC-3-B)               | <ul style="list-style-type: none"> <li>Replace with 45' S5.7 12- sided galvanized s pole.</li> </ul>                             |
|            |  | (E-1-2-3)<br>(F-1-3)           | (T-2)<br><br>(K-7-4) (ASSY 1505 FIG. B) | <ul style="list-style-type: none"> <li>Replace primary framing.</li> <li>Transfer transformer from fid: 17206667 pole</li> </ul> |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Replace secondary</li> </ul>                                                              |
|            |  |                                |                                         | framing.                                                                                                                         |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Remove and dispose</li> </ul>                                                             |
|            |  |                                |                                         | dow nguy.                                                                                                                        |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Remove and dispose</li> </ul>                                                             |
|            |  |                                |                                         | anchor.                                                                                                                          |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                                                        |
|            |  |                                |                                         | fid: 1001811684 (qty=2) due                                                                                                      |
|            |  |                                |                                         | to single-Phase recloser                                                                                                         |
|            |  |                                |                                         | installation.                                                                                                                    |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Install (2) single-phase</li> </ul>                                                       |
|            |  |                                |                                         | recloser 200a                                                                                                                    |
| 17206667   |  | (40' C3 WOOD POLE)             |                                         | <ul style="list-style-type: none"> <li>Remove and dispose 40'</li> </ul>                                                         |
|            |  | (CP-B6- XARM)                  | N/A                                     | C3 wood pole.                                                                                                                    |
|            |  | (T-8)                          |                                         | <ul style="list-style-type: none"> <li>Remove and dispose</li> </ul>                                                             |
|            |  | (T-2)                          |                                         | primary framing.                                                                                                                 |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Remove and dispose</li> </ul>                                                             |
|            |  |                                |                                         | voltage regulator.                                                                                                               |
|            |  |                                |                                         | <ul style="list-style-type: none"> <li>Transfer transformer to</li> </ul>                                                        |
|            |  |                                |                                         | fid:17206664.                                                                                                                    |
| 1001568083 |  | (ASSY-1509 (QTY=2))            | (LABOR TO CLOSE                         | <ul style="list-style-type: none"> <li>Remove and dispose fuse</li> </ul>                                                        |
|            |  | (42" CROSSARM)                 | JUMPERS(QTY=2))                         | fid: 1001568089 (qty=2)                                                                                                          |

| FID      | COORDINATES LAT, LONG | Existing                                                                                                            | Install                                                                                                            | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|-----------------------|---------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                                                                                                     |                                                                                                                    | and close jumpers due to two (2) single-phase recloser 200a Installation.                                                                                                                                                                                                                                                                                                                                          |
| 17207189 |                       | (40' S3 STEEL POLE) (CP-B5-XARM<br>(QTY=2))<br>(T-2 (QTY=2))<br>(K-7-4)<br>(ASSY 1509 (QTY=2)) (E-1-2-3)<br>(F-1-3) | (45' S5.7 12-SIDED GALVANIZED STEEL POLE) (CP-B4)<br>(T-2 (QTY=2))<br>(K-7-4)<br>(E-1-2-3)<br>(F-1-3)<br>(REC-3-B) | <ul style="list-style-type: none"> <li>Remove and dispose of 40' S3 steel pole.</li> <li>Replace with 45' S5.7 12-Sided galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Transfer transformers.</li> <li>Remove and dispose fuse fid: 1001813964 (due to single-phase recloser 200a Installation.</li> <li>Install (2) single-phase recloser 200A.</li> </ul> |
| 12137489 |                       | N/A                                                                                                                 | (LABOR, cFQ(QTY=3))                                                                                                | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator.</li> </ul>                                                                                                                                                                                                                                                                                                          |
| 17203167 |                       | N/A                                                                                                                 | (LABOR, cFQ(QTY=3))                                                                                                | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator.</li> </ul>                                                                                                                                                                                                                                                                                                          |

## Feeder 7702-02

| FID      | COORDINATES LAT, LONG | Existing                                           | Install                                                                                                 | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|-----------------------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19988467 |                       | (35' C4 WOOD POLE) (CP-C1)<br>(K-7-4)<br>(E-1-2-3) | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br><br>(CP- C6-XARM)<br><br>(K-6)<br><br>(REC-2)                | <ul style="list-style-type: none"> <li>Remove and dispose 35' C4 wood pole.</li> <li>Replace with 50' S8 12-sided Galvanized Steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Remove and dispose Down guy.</li> <li>Remove and dispose Anchor.</li> <li>Feed three phase recloser 7702- 02A from source side secondary.</li> <li>Install (1) three phase recloser 7702-02A in radial circuit.</li> </ul> |
| 33187098 |                       | (CP-C1)<br>(STL-10)                                | (CP-C6-XARM)<br>(STL-10) (ASSY 1505 FIG.Q(QTY=3))<br>(ASSY 1509 (QTY=3)) (CUTOUT BLADES<br><br>(QTY=3)) | <ul style="list-style-type: none"> <li>Replace primary framing.</li> <li>Replace streetlight.</li> <li>Lower transformer.</li> <li>Install cutout blades (qty=3) on existing pole due to three phase recloser 7702-02A installation.</li> </ul>                                                                                                                                                                                                    |
| 19988533 |                       | (ASSY-1509 (QTY=3)) (42" CROSSARM<br>(QTY=2)       | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33612446 (qty=3) and close jumpers due to three phase recloser 7702-02a installation.</li> </ul>                                                                                                                                                                                                                                                                               |
| 19982999 |                       | (ASSY-1509 (QTY=3))                                | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 1000213366 (qty=3) and close jumpers due to three phase recloser 7702-02a installation.</li> </ul>                                                                                                                                                                                                                                                                             |
| 19983519 |                       | (40' CLASS 2 WOOD                                  | (50'S8 12-SIDED                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose of 40' class</li> </ul>                                                                                                                                                                                                                                                                                                                                                                  |

| FID | COORDINATES LAT, LONG | Existing | Install | SCOPE OF WORK |
|-----|-----------------------|----------|---------|---------------|
|-----|-----------------------|----------|---------|---------------|

|          |  |  |                                                               |                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|--|--|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |  |  | POLE) (K-7-4) (ASSY- 1509 (QTY=3)) (STL-10) (E-1-2-3) (F-1-3) | GALVANIZED STEEL POLE)<br>(CP-06-XARM)<br><br>(K-7-4)<br><br>(STL-10)<br><br>(REC-2)                                                                                                                   | 2 wood pole.<br>• Replace with 50'S8 12-Sided Galvanized steel pole.<br><br>• Replace primary framing.<br><br>• Replace secondary framing.<br><br>• Remove and dispose downguy.<br><br>• Replace streetlight.<br><br>• Remove and dispose fuse fid:33612283 (qty=3) due to three phase recloser 7702-02B installation.<br>• Feed three-phase Recloser 7702- 02B from source side Secondary.<br>• Install (1) three-phase Recloser 7702-02B in radial circuit. |
| 19983514 |  |  | (40' H4 CONCRETE POLE) (S-5) (S-6-2) (K-7-4)                  | (50'S8 12-SIDED GALVANIZED STEEL POLE)<br><br>(S- 5)<br><br>(S-6-2)<br><br>(E-1-2-3)<br><br>(F-1-3) (LABOR, CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3))<br><br>(ASSY-1505 FIG. Q(QTY=3))<br><br>(K-7-4) | • Remove and dispose of 40' h4 concrete pole.<br>• Replace with 50' S8 12-Sided Galvanized steel pole.<br><br>• Replace primary framing.<br><br>• Replace secondary framing. Install anchor.<br><br>• Install downguy.<br><br>• Install cutout blades (qty=3) due to three phase recloser 7702-02b installation.                                                                                                                                              |
| 19985281 |  |  | (40' H4 CONCRETE POLE) (S-6)                                  | (50' S8 12-SIDED GALVANIZED STEEL POLE) (S- 6)<br>(3/0 TPX(QTY=160FT)) (REC-2)                                                                                                                         | • Remove and dispose 40' h4 concrete pole.<br>• Replace with 50' S8 12-sided galvanized steel pole.<br><br>• Replace primary framing.<br><br>• Install triplex from pole fid: 19985275.<br>• Install (1) three-phase recloser 7702-02c.                                                                                                                                                                                                                       |
| 19985275 |  |  | (S-1)                                                         | (S-6) (LABOR, CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3)) (ASSY-1505 FIG. (QTY=3))                                                                                                                      | • Replace primary framing.<br><br>• Splice conductor.<br><br>• Lower transformer<br><br>• Install cutout blades (qty=3) on existing concrete pole due to three phase recloser 7702-02c Installation.                                                                                                                                                                                                                                                          |
| 19986073 |  |  | (ASSY-1509 (QTY=3))                                           | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                                                                                        | • Remove and dispose fuse fid: 1001728390 (qty=3) and close jumpers due to three phase recloser 7702-02c Installation.                                                                                                                                                                                                                                                                                                                                        |
| 19986110 |  |  | (ASSY-1509 (QTY=2))                                           | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                                                                                                                        | • Remove and dispose fuse fid: 33612199 (qty=2) and close jumpers due to three phase recloser 7702-02c Installation.                                                                                                                                                                                                                                                                                                                                          |
| 19983537 |  |  | (ASSY-1509 (QTY=3))                                           | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                                                                                        | • Remove and dispose fuse fid: 1001103336 (qty=3) and close jumpers due to three phase recloser 7702-02c<br><br>• Installation.                                                                                                                                                                                                                                                                                                                               |

| FID | COORDINATES LAT, LONG | Existing | Install | SCOPE OF WORK |
|-----|-----------------------|----------|---------|---------------|
|-----|-----------------------|----------|---------|---------------|



|            |  |                                                                     |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                          |
|------------|--|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19983781   |  | (35' C4 WOOD POLE)<br>(CP-C1)<br>(T-3-2)<br>(STL-10)<br>(K-7- B)    | (45' S5.7 12-SIDED GALVANIZED STEEL<br>POLE)<br><br>(CP-C6-XARM)<br><br>(T-3-2)<br><br>(STL-10)<br><br>(K-7-B) (ASSY1505 FIG. C)<br><br>(REC-3-C) | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C4 wood pole.</li> <li>Replace with 45' S5.7 12-Sided Galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Replace streetlight.</li> <li>Transfer transformer.</li> <li>Install (3) Single-Phase Reclosers.</li> </ul>                                 |
| 19983780   |  | (ASSY-1509 (QTY=3))                                                 | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33612947 (qty=3) and close jumpers due to single-phase recloser installation.</li> </ul>                                                                                                                                                                                                             |
| 19984650   |  | (ASSY-1509 (QTY=3))                                                 | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33612752 (qty=3) and close jumpers due to single-phase recloser installation.</li> </ul>                                                                                                                                                                                                             |
| 19984278   |  | (ASSY-1509 (QTY=3))                                                 | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33612755 (qty=3) and close jumpers due to single-phase recloser installation.</li> </ul>                                                                                                                                                                                                             |
| 19985282   |  | (40' H4 CONCRETE POLE)<br><br>(S-1)<br><br>(S-5) ASSY 1509 (QTY=3)) | (50 S8 12-SIDED GALVANIZED STEEL POLE)<br><br>(S- 6)<br><br>(S-5)<br><br>(ASSY 1505 FIG. C) (REC-3-C)                                             | <ul style="list-style-type: none"> <li>Remove and dispose of 40' h4 concrete pole.</li> <li>Replace with 50' S8 12-sided galvanized steel pole.</li> <li>Replace primary framings.</li> <li>Remove and dispose Fuse fid: 33613082 (qty=3).</li> <li>Install (3) Single-Phase reclosers.</li> </ul>                                                                       |
| 19988674   |  | (40' C3 WOOD POLE) (CP-C1)<br>(E-1-2-3)<br>(F-1-3)                  | (45' S5.7 12-SIDED GALVANIZED STEEL<br>POLE)<br><br>(CP-C6-XARM)<br><br>(ABS-3- XARM) (LABOR, cFCI) (QTY=3)                                       | <ul style="list-style-type: none"> <li>Remove and dispose of 40' c3 wood pole.</li> <li>Replace with 45' S5.7 12-sided galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Remove and dispose down guy.</li> <li>Remove and dispose anchor.</li> <li>Install air break switch.</li> <li>Labor to install communicating fault current indicator.</li> </ul> |
| 1001640533 |  | n/a                                                                 | (LABOR, cFCI) (QTY=3)                                                                                                                             | <ul style="list-style-type: none"> <li>Labor to install communicating fault current indicator.</li> </ul>                                                                                                                                                                                                                                                                |

## Feeder 7702-03

| FD       | COORDINATES LAT, LONG | Existing                                      | Install                                                                  | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                              |
|----------|-----------------------|-----------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27385857 |                       | (40 FT C2 WOOD POLE) (S-2) (E-1-2- 3) (F-1-3) | 50' S8 12-SIDED GALVANIZED STEEL POLE<br><br>(S- 6)<br><br>(K-6) REC-2-2 | <ul style="list-style-type: none"> <li>Remove and dispose of 40 ft c2 wood pole.</li> <li>Replace with 50' S8 12-sided galvanized steel pole.</li> <li>Install primary framing.</li> <li>Install secondary framing.</li> <li>Install 1 kva transformer (2.40/4.16kv-120/240v) for sour side.</li> <li>Install three phase recloser 7702- 03A In radial circuit.</li> </ul> |

| FD       | COORDINATES LAT, LONG | Existing                               | Install                         | SCOPE OF WORK                                                                                                                                                        |
|----------|-----------------------|----------------------------------------|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27386240 |                       | (ASSY-1509 (QTY=3)) (ASSY 1510 FIG. C) | (LABOR TO CLOSE JUMPERS(QTY=3)) | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33633908 (qty=3) and close jumpers due to three phase recloser 7702-03A installation.</li> </ul> |
| 27385855 |                       | (ASSY-1509 (QTY=3)) (ASSY 1510 FIG. C) | (LABOR TO CLOSE JUMPERS(QTY=3)) | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33636412 (qty=3) and close jumpers due to three phase recloser 7702-03A installation.</li> </ul> |

|          |  |  |                                                                                                         |                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------|--|--|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27385861 |  |  | (S-1)                                                                                                   | (S-6) (SOLID CUTOUT BLADES(QTY=3))<br>(ASSY- 1509(QTY=3)) (ASSY-1505<br>FIG. C)                                                   | <ul style="list-style-type: none"> <li>Replace primary framing.</li> <li>Install cutout blades (qty=3) on existing pole due to t</li> </ul>                                                                                                                                                                                                                                                            |
| 27387694 |  |  | (40' H3 CONCRETE POLE)<br>(CP-C6-XARM)<br>(K-7-B)<br>(STL-10) (ASSY 1509 (QTY=3))<br><br>(42" CROSSARM) | (45' S5.7 12-SIDED GALVANIZED STEEL<br>POLE) (CP-C6-XARM)<br>(K-7-B) (ASSY-1505-FIG. C)<br><br>(STL-10)<br><br>(REC-3-C)          | <ul style="list-style-type: none"> <li>Removed and dispose of 40' h3 concrete pole with 45' 12- sided galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Replace streetlight.</li> <li>Remove and dispose fuse fid: 33635525 (qty=3) due to single- phase recloser installation.</li> <li>Install three (3) single-phase recloser 200 a.</li> </ul> |
| 27387698 |  |  | (ASSY 1509 (QTY=1))                                                                                     | (CP-C6-XARM) (CP-A5) (ASSY-1505- FIG. A)<br>(REC-3-A)                                                                             | <ul style="list-style-type: none"> <li>Replace primary framings.</li> <li>Remove and dispose fuse fid: 33635501 (qty=1) due to single- Phase recloser installation.</li> <li>Install (1) single- phase Recloser 200A on existing 45' H4 concrete pole</li> </ul>                                                                                                                                       |
| 27386961 |  |  | (CP-C1)<br><br>(CP-A5)                                                                                  | (CP-C6-XARM)<br><br>(CP-A5)<br><br>(REC-3-A) (ASSY-1505- FIG. A)                                                                  | <ul style="list-style-type: none"> <li>Replace primary framing.</li> <li>Relocate transformer fuse cut- out to other face of pole.</li> <li>Install (1) single-phase Recloser 200A on existing 45' H4 concrete pole.</li> </ul>                                                                                                                                                                        |
| 27386974 |  |  | (ASSY 1509 (QTY=2))                                                                                     | (LABOR TO CLOSE JUMPERS(QTY=1))                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33635472 (qty=1) and close jumpers due to single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                      |
| 27383583 |  |  | (45' H4 CONCRETE POLE)<br>(CP-B1)<br>(CP-A6)<br>(K-7)<br>(STL-10)                                       | (45' S5.7 12-SIDED GALVANIZED STEEL<br>POLE)<br><br>(CP-C6-XARM)<br><br>(K-7)<br><br>(STL-10) (ASSY-1505-FIG. C)<br><br>(REC-3-C) | <ul style="list-style-type: none"> <li>Remove and dispose of 45' h4 concrete pole.</li> <li>Replace with 45' S5.7 12-Sided Galvanized Steel pole and install outside of private fence.</li> <li>Replace primary framing.</li> <li>Replace secondary framing. Replace streetlight.</li> <li>Install (3) single-phase reclosers 200A.</li> </ul>                                                         |
| 27384491 |  |  | (ASSY 1509<br>(QTY=2)) (42" CROSSARM)                                                                   | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33638346 (qty=2) and close jumpers due to single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                      |
| 27383616 |  |  | (ASSY 1509 (QTY=3))                                                                                     | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose fuse fid: 33638358 (qty=3) and close jumpers due to single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                      |

| FID      | COORDINATES LAT, LONG | Existing | Install            | SCOPE OF WORK                                                                                                                                                |
|----------|-----------------------|----------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12137020 |                       | n/a      | (LABOR cFO(QTY=3)) | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicators.</li> </ul>                                                   |
| 27386235 |                       | n/a      | (LABOR cFO(QTY=3)) | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicators.</li> <li>Replace a spacer at section FID 33636114</li> </ul> |

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 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 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 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 Carr 861 Km 0.1 Isote 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 Remove 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 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**.

| COST ESTIMATE |              |     |               |
|---------------|--------------|-----|---------------|
| COST ELEMENT  | 428          | 406 | PROJECT TOTAL |
| PLANNING      | \$301,564.86 | 0   | \$301,564.86  |
| MANAGEMENT    | \$176,388.69 | 0   | \$176,388.69  |

|                                                    |                                          |          |                       |
|----------------------------------------------------|------------------------------------------|----------|-----------------------|
| Group 12- DAR – Arecibo<br>7402, 7403, 7702 - FY24 | <b>\$2,966,268.09</b>                    | <b>0</b> | <b>\$2,966,268.09</b> |
| <b>GENERAL CONDITIONS</b>                          | <b>\$190,483.18</b>                      | <b>0</b> | <b>\$190,483.18</b>   |
| <b>CONTINGENCY</b>                                 | <b>\$507,458.83</b>                      | <b>0</b> | <b>\$507,458.83</b>   |
| <b>COST TOTALS</b>                                 | <b>\$4,142,163.65</b>                    | <b>0</b> | <b>\$4,142,163.65</b> |
| <b>DEDUCTIONS</b>                                  | <b>TOTAL INSURANCE PROCEEDS RECEIVED</b> |          | <b>\$0</b>            |
| <b>FAAST ALLOCATIONS</b>                           | <b>FAAST Project # 745861 TOTAL</b>      |          | <b>\$3,664,210.10</b> |
|                                                    | <b>FAAST A&amp;E # 335168 TOTAL</b>      |          | <b>\$477,953.55</b>   |

FEMA Project Cost Summary, Version 0

Work to be Completed (WTBC): \$4,142,163.65

A&E Deduction (Global A&E FAAS 335168): -\$477,953.55

Project Total: \$3,664,210.10

Project Notes:

1. For SOW detailed information, refer to documents/attachments labeled: 745861 - DR4339PR - DSOW- Group 12- DAR - ARECIBO Rev 3.pdf
2. For Cost Estimate detailed information, refer to documents/attachments labeled: 745861-DR4339PR-APPENDIX B - Detailed Cost Estimate Rev 003 .xlsx
3. This project is part of Donor FAAS 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS Project.
4. Architectural and Engineering (A&E) costs are deducted given previously obligated PREPA FAAS Global A&E 335168 project.
5. Attachments:
  - 745861-DR4339PR-APPENDIX A - Initial Scope of Work
  - 745861-DR4339PR-APPENDIX B - Detailed Cost Estimate
  - 745861-DR4339PR-APPENDIX C - Project Considerations
  - 745861-DR4339PR-APPENDIX D - LUMA Active Project

#### 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 | \$4,142,163.65 | Uncompleted |
| 3510 | 1        | Lump Sum | (\$477,953.55) | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |

CRC Gross Cost \$3,664,210.10

Total 406 HMP Cost \$0.00

Total Insurance Reductions \$0.00

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CRC Net Cost \$3,664,210.10

Federal Share (90.00%) \$3,297,789.09

Non-Federal Share (10.00%) \$366,421.01

## 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

**7/6/2026**

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**

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**4/30/2026**

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 12] (Distribution) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 12] (Distribution) (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.
- Conditions for Puerto Rican Boa applicable to 7402 01, 7403 02, 7702 02, and 7702 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 harm 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).
- Conditions for (Chilabothrus inornatus) 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 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 reinstate 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 reinstate 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 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

- ### EHP Additional Info

Date Downloaded: 8/28/26 9:53am PDT



## Final Reviews

### Final Review

**Reviewed By** Amaro, Luis N.

**Reviewed On** 12/18/2024 6:48 PM PDT

#### Review Comments

LNA 12/18/24. 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** 12/19/2024 5:31 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

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 745861                                                         | <b>P/W #</b>               | 107957                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 12] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

**Damage #1374353; FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 12: DAR – ARECIBO 7402, 7403, 7702 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 12: DAR – ARECIBO 7402, 7403, 7702 FY24
- **Facility Description:** Transmission and Distribution Automation - Feeders ARECIBO 7402, 7403, 7702 FY24
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

1374353

### FAASt [Transmission and Distribution Automation Program Installation of Intelligent Reclosers, Single Phase Reclosers and Fault Current Indicators Group 12: DAR – ARECIBO 7402, 7403, 7702 FY24

\*\*\*\*\* 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 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 745861 Automation Program Group 12 (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 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 745861 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 7402-01, 7403-02, 7702-02 and 7702-03.

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 eleven 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 twophase 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 37 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/alerts 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

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 12 Feeder Lines

| Name | Feeder Number | GPS Start | GPS End |
|------|---------------|-----------|---------|
|------|---------------|-----------|---------|

|         |         |                           |                           |
|---------|---------|---------------------------|---------------------------|
| Arecibo | 7402-01 | [REDACTED],<br>[REDACTED] | [REDACTED],<br>[REDACTED] |
| Arecibo | 7403-02 | [REDACTED],<br>[REDACTED] | [REDACTED],<br>[REDACTED] |
| Arecibo | 7702-02 | [REDACTED],<br>[REDACTED] | [REDACTED],<br>[REDACTED] |
| Arecibo | 7702-03 | [REDACTED],<br>[REDACTED] | [REDACTED],<br>[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 that will be used for this project is the Arecibo Regional Warehouse, whose address is # 681 Street, 0.1 KM, Islote Ward. The warehouse coordinates are [REDACTED]. The staging area will be located in the Técnica Quebradillas in the following coordinates: 18.471594, - 66.936281.

## 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.
- ? 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 ten (10) Three Phase Reclosers.
- Install twenty-four (24) Single Phase Reclosers, remove fuses and close jumpers.
- Install twenty-four (24) communicating Fault Indicators (cFCIs).

LUMA requests the alignment of the scope and cost of Project 745861 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 a new pole installation. This DSOW aligns the scope of this pole 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 seven (7) poles that were not part of Version 0 of the project.
  - Five (5) new pole installations at new locations.
  - Two (2) 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.

#### DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

##### Feeder 7402-01

| POLE FID   | COORDINATES<br>LAT, LONG | EXISTING (REMOVE)                                                                          | 428 REPLACEMENT                                                                                                                          | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------|--------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21664670   |                          | (60' WOOD POLE) (38KV SC DE VERT) (CP-C6- XARM)<br><br>(T-1)<br><br>(STL- 10)<br><br>(S-1) | (70' ROUND TAPERED POLE)<br>(38KV SC DE VERT) (CP-C6- XARM)<br><br>(K-7-4)<br><br>(STL-10)<br><br>(3/0 TPX(QTY=400FT) (ABS-3-XARM QTY=3) | <ul style="list-style-type: none"> <li>• Remove and dispose of 60ft wood pole and replace with 70ft. galvanized round tapered pole.</li> <li>• Remove, dispose and replace 38kV and distribution primary framing</li> <li>• Remove and dispose distribution spacer framing and circuit.</li> <li>• Remove, dispose and replace secondary framing (K-7-4).</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Transfer existing transformer to pole FID: 1001475449.</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (XARM) and the framing hardware to support them</li> </ul> |
| 1001475449 |                          | (CP-C6-XARM) (K-6)<br>(STL-10) (S-1)                                                       | (CP-C12-XARM)<br><br>(T-1)<br><br>(K-6)<br><br>(STL-10) (SOLID CUTOUT BLADES(QTY=3))<br><br>(3/0 TPX(QTY=300FT))                         | <ul style="list-style-type: none"> <li>• On existing pole, readjust 38kV framing to standard.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove and dispose primary (S-1) framing.</li> <li>• Remove, dispose and replace secondary framing (K-6).</li> <li>• Relocate existing streetlight (LED Type) from a stub pole to this pole</li> <li>• Install (3) solid cutout blades in cutout fuse assembly.</li> <li>• Install galvanized steel transformer (37.5kVA/ 4.16kV, 120/240V).</li> <li>• Install 3/0 TPX cable qty=300</li> </ul>                                                           |
| 28651889   |                          | (45' H4 CONCRETE POLE) (S-6) (K-7)                                                         | (50' GALVANIZED ROUND TAPERED POLE)<br><br>(S-6)<br><br>(K-7-B)<br>(ABS-3-XARM QTY=3)                                                    | <ul style="list-style-type: none"> <li>• Remove and dispose 45' H4 concrete pole.</li> <li>• Replace with 50' galvanized round tapered pole and replace with galvanized steel round tapered pole.</li> <li>• Remove and dispose wood stub pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove, dispose and replace secondary framing (K-7-B).</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (XARM) and the framing hardware to support them</li> </ul>                                                                                                                  |
| 28651876   |                          | NA                                                                                         | (SOLID CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3)) (ASSY- 1505<br>FIG. C)                                                                 | <ul style="list-style-type: none"> <li>• Install stand-off bracket assembly.</li> <li>• Install (3) solid cutout blades.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1000331641 |                          | (ASSY-1509 (QTY=2)                                                                         | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                                                          | <ul style="list-style-type: none"> <li>• Remove and dispose (2) Fuse Outouts.</li> <li>• Close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 33190825   |                          | (ASSY-1509 (QTY=3))                                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                          | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 28654052   |                          | (ASSY-1509 (QTY=3))                                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                          | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|            |  |                                                                                          |                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------|--|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 28651625   |  | (45' CLASS 3 WOOD POLE)<br><br>(S- 6)<br><br>(K-5) (E-1-2-3)<br><br>(F-1-3)<br><br>(T-2) | (50' ROUND TAPERED POLE)<br><br>(S-6)<br><br>(K-7-B)<br><br>(3/0 TPX(QTY=300FT)) (ABS-3-XARM,QTY=3) | <ul style="list-style-type: none"> <li>Remove 45' Class 3 wood pole.</li> <li>Replace with 50' galvanized round tapered pole. Relocate 5ft c of private property fence.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace secondary framing (K-7-B).</li> <li>Remove and dispose anchor and down guy.</li> <li>Relocate existing transformer and to pole FID 28651671.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (A XARM) and the framing hardware to support them.</li> </ul> |
| 22077816   |  | N/A                                                                                      | (K-5)                                                                                               | <ul style="list-style-type: none"> <li>Install secondary framing to feed recloser 7402-0C on FID 28651625.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 28651671   |  | N/A                                                                                      | (T-2)                                                                                               | <ul style="list-style-type: none"> <li>Install the existing transformer from pole FID: 28651625.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 22077813   |  | (LABOR, FUSE REMOVAL (QTY=3))                                                            | (LABOR, SOLID CUTOUT BLADES(QTY=3))                                                                 | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Replace with (3) Outout Blades.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 28652000   |  | (ASSY- 1509(QTY=3))                                                                      | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 28654587   |  | (ASSY- 1509 (QTY=3)) (STAND- OFF BRACKET ASSY 1505-FIG. C)                               | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts. Replace with (3) Outout Blades.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                            |
| NEW POLE   |  | N/A                                                                                      | (50' GALVANIZED ROUND TAPERED POLE)<br><br>(S-6)                                                    | <ul style="list-style-type: none"> <li>Install a new 50' galvanized round tapered pole.</li> <li>Install primary framing.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                                                                                                                                                                                                                                                   |
| 21663664   |  | (ASSY-1509 (QTY=3))                                                                      | (SOLID CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3)) (ASSY- 1505 FIG. C) (K-2)                         | <ul style="list-style-type: none"> <li>Straighten and reuse existing pole.</li> <li>Adjust guy wire tension.</li> <li>Install secondary framing to feed three phase recloser 7402-01D.</li> <li>Remove, dispose and replace existing crossarm with stand-off bracket assembly.</li> <li>Remove and dispose (3) Fuse Outouts. Replace with (3) Outout Blades.</li> </ul>                                                                                                                                                                           |
| 22074602   |  | N/A                                                                                      | (K-5)                                                                                               | <ul style="list-style-type: none"> <li>Install secondary framing to feed three phase recloser 7402-01D on new pole in coordinates 18.459062, - 66.918267.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                              |
| 1000580231 |  | (ASSY-1509 (QTY=3))                                                                      | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 21664915   |  | (ASSY-1509 (QTY=3))                                                                      | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 21665387   |  | (ASSY-1509 (QTY=3))                                                                      | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 21663839   |  | (CP-05-XARM)<br><br>(S- 6)<br><br>(T-1)                                                  | (CP-05-XARM)                                                                                        | <p>Existing pole.</p> <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace Secondary framing (K-7-B).</li> <li>Remove and dispose of transformer.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3- XARM) and the framing hardware to support them.</li> </ul>                                                                                                                                                                                      |

|          |  |                     |                                                     |                                                                                                                   |
|----------|--|---------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| 21663842 |  | NA                  | (K-5)                                               | <ul style="list-style-type: none"> <li>Install secondary framing to feed Three-phase recloser 7402-01E</li> </ul> |
| 21663849 |  | (S-5)               | (SOLID CUTOUT BLADES(QTY=3))<br>(ASSY-1509 (QTY=3)) | <ul style="list-style-type: none"> <li>Reuse 72" crossarm</li> <li>Install (3) Outout Blades.</li> </ul>          |
| 21664232 |  | (ASSY-1509 (QTY=3)) | (LABOR TO CLOSE JUMPERS(QTY=3))                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> </ul>                            |
| 21664540 |  | NA                  | (LABOR, FCI) (QTY=3)                                | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators</li> </ul>                            |
| 12137275 |  | NA                  | (LABOR, FCI) (QTY=3)                                | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators</li> </ul>                            |

#### Feeder 7403-02

| POLE FID | COORDINATES LAT, LONG | EXISTING (REMOVE)                                                                                                  | 428 REPLACEMENT                                                                                                                               | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------|-----------------------|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17203195 |                       | (35 FT H3 CONCRETE POLE)<br>(S-3) (E-1-2-3) (F-1-3)                                                                | (50' GALVANIZED ROUND TAPERED POLE)<br>(S-6)<br>(E-1-2-3(QTY=2)) (F-4-2)<br>(ABS-3-XARM QTY=3)                                                | <ul style="list-style-type: none"> <li>Remove and dispose of 35' H3 concrete pole and replace with 50' galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace (1) anchor.</li> <li>Remove and dispose (1) downguy and install (2) downguy</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                                                      |
| 17205736 |                       | (ASSY-1509 (QTY=2))                                                                                                | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                                                               | <ul style="list-style-type: none"> <li>Remove and dispose (2) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 17205744 |                       | (ASSY-1509 (QTY=2))                                                                                                | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                                                               | <ul style="list-style-type: none"> <li>Remove and dispose (2) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 17207532 |                       | (35 FT C4 WOOD POLE)<br>(ASSY-1509 (QTY=2))<br>(CP-B6-XARM) (CP-B5-XARM) (K-7)<br>(STL-10) (E-1-2-3) (F-1-3) (T-2) | (50' ROUND TAPERED POLE)<br>(CP-B6)<br>(CP-B5) (CUTOUT BLADES(QTY=2))<br>(ASSY- 1509(QTY=2)) (ASSY-1505 FIG. B)<br>(K-7)<br>(STL-10)<br>(T-1) | <ul style="list-style-type: none"> <li>Remove 35' wood pole and replace with a 50' galvanized round tapered pole.</li> <li>Remove, dispose and replace (2) primary.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove and dispose downguy and anchor.</li> <li>Relocate existing transformer and framing to the new pole.</li> <li>Relocate existing fuse cutouts (FID:33629051) to the new pole.</li> <li>Remove and dispose (2) fuse cutouts (FID:33629050) and replace with (2) cutout blades.</li> </ul> |
| 17203210 |                       | NA                                                                                                                 | (CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3))<br>(ASSY-1505 FIG. C)                                                                             | <ul style="list-style-type: none"> <li>Install stand-off bracket assembly.</li> <li>Install (3) Outout blades.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               |
| 17203200 |                       | (40' CLASS 3 WOOD POLE)<br>(CP- C6-XARM)<br>(T-2)<br>(K- 5)<br>(ASSY 1509 (QTY=3))                                 | (50 FT GALVANIZED ROUND TAPERED POLE)<br>(CP-C6-XARM) (T-2) (K-5) (E-1-2-3) (F-1-3)                                                           | <ul style="list-style-type: none"> <li>Remove and dispose 40' class 3 wood pole and replace with 50' galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Relocate existing transformer to the new pole.</li> <li>Remove, dispose (2) downguys and (2) anchors and install downguy and anchor.</li> <li>Remove, dispose and replace (3) Fuse Outouts.</li> </ul>                                                                                                                 |

|            |  |                                                                                                                                            |                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|--|--------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 33189780   |  | (ASSY-1509 (QTY=3))<br>(42" CROSSARM)                                                                                                      | (LABOR TO CLOSE<br>JUMPERS (QTY=3))                                                              | <ul style="list-style-type: none"> <li>Remove and dispose 42" Crossarm</li> <li>Remove and dispose (3) Fuse Outouts.</li> </ul>                                                                                                                                                                                                                                                                                                                                    |
| 33190400   |  | (35 FT C4 WOOD POLE) (CP-C2) (K-7-B) (T-2)<br>(E-1-2-3)                                                                                    | (50 ROUND TAPERED POLE)<br>(CP-C6-XARM) (T-2)<br>(K-7-B) (3/0)                                   | <ul style="list-style-type: none"> <li>Remove and dispose 35' wood pole and replace with round tapered pole.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |
|            |  | (F-1-3)                                                                                                                                    | TPX (QTY=125))                                                                                   | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary and secondary framing</li> <li>Remove, dispose and replace open wire cable with second triplex cable.</li> <li>Relocate existing transformer and framing to the new pole.</li> <li>Remove and dispose downguy and anchor.</li> </ul>                                                                                                                                                    |
| 33190452   |  | (ASSY-1509 (QTY=3))                                                                                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                  | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |
| 33190595   |  | (ASSY-1509 (QTY=3))                                                                                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                     |
| 17206664   |  | (35 FT C5 WOOD POLE)<br>(CP-B6- XARM) (K-7-4) (STL-10)<br>(ASSY-1509 (QTY=2)) (E-1-2-3) (F-1-3)                                            | (50' ROUND TAPERED POLE)<br>(CP-B6-XARM)<br>(T-2) (K-7-4) (STL-10)                               | <ul style="list-style-type: none"> <li>Remove and dispose 35' wood pole and replace with a 50' galvanized steel tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing</li> <li>Relocate existing transformer and framing from FID: 1720666 to this pole.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove and dispose downguy and anchor.</li> <li>Remove, dispose and replace (2) Fuse Outouts.</li> </ul> |
| 17206667   |  | (40' C3 WOOD POLE) (CP-B6- XARM)<br>(T-8)<br>(T-2)                                                                                         | NA                                                                                               | <ul style="list-style-type: none"> <li>Remove and dispose 40' C3 wood pole.</li> <li>Remove and dispose primary framing.</li> <li>Remove and dispose voltage regulator.</li> <li>Transfer transformer to FID: 17206664.</li> </ul>                                                                                                                                                                                                                                 |
| 1001568083 |  | (ASSY-1509 (QTY=2)) (42" CROSSARM)                                                                                                         | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                  | <ul style="list-style-type: none"> <li>Remove, dispose and replace (2) Fuse Outouts.</li> <li>Close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |
| 1001568082 |  | (45 FT H4 CONCRETE POLE) (CP-CB-B1)                                                                                                        | (50 FT GALVANIZE ROUND TAPERED POLE) (CP-B6-XARM)                                                | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and replace with galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> </ul>                                                                                                                                                                                                                                                                    |
| 1001013297 |  | (45 FT H4 CONCRETE POLE)<br>(40 FT C2 WOOD POLE) (S-6)<br>(CP-B1(QTY=2))<br>(CP-C5-XARM)<br>(CP-B5-XARM)<br>(CP-B5-XARM)<br>(F-1-3(QTY=2)) | (50 FT GALVANIZED ROUND TAPERED POLE)<br>(S-5) (CP-B5-XARM)<br>(CP-B6-XARM)<br>(E-1-2-3) (F-1-3) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and replace with galvanized round tapered pole.</li> <li>Remove, dispose and replace (3) primary framings.</li> <li>Remove and dispose (2) downguys and (2) anchors.</li> <li>Replace (1) downguy and (1) anchor.</li> <li>Install (2) Fuse Outouts.</li> </ul>                                                                                                                     |
| 12137489   |  | NA                                                                                                                                         | (LABOR FC(QTY=3))                                                                                | Install (3) Fault Current Indicators (FCIs).                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 17203167   |  | NA                                                                                                                                         | (LABOR FC(QTY=3))                                                                                | Install (3) Fault Current Indicators (FCIs).                                                                                                                                                                                                                                                                                                                                                                                                                       |



|          |  |    |                    |                                              |
|----------|--|----|--------------------|----------------------------------------------|
| 17206720 |  | NA | (LABOR, FQ(QTY=3)) | Install (3) Fault Current Indicators (FCIs). |
|----------|--|----|--------------------|----------------------------------------------|

#### Feeder 7702-02

| FID      | COORDINATES LAT, LONG | EXISTING (REMOVE)                                  | 428 REPLACEMENT                                                                                                   | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|-----------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19988467 |                       | (35' C4 WOOD POLE) (CP-C1)<br>(K-7-4)<br>(E-1-2-3) | (50 FT GALVANIZED<br>ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(K-7-B)<br>(3/0 TPX(QTY=75FT)) (ABS-3-<br>XARM QTY=3) | <ul style="list-style-type: none"> <li>Remove and dispose 35' C4 wood pole and replace with 50' galv round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace secondary framing (K-7).</li> <li>Remove, dispose and replace 75 ft open wire cable with 3/0 secondary triplex conductor.</li> <li>Remove and dispose downguy and anchor.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them</li> </ul> |
| 33187098 |                       | (CP-C1)<br>(STL-10)                                | (CP-C6-XARM)<br>(STL-10) (ASSY 1505<br>FIG.C(QTY=3))                                                              | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> </ul>                                                                                                                                                                                                                                                                                                                                                                        |

|          |  |                                                                                                                                |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
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|          |  |                                                                                                                                | (ASSY 1509 (QTY=3)) (OUTOUT BLADES<br>(QTY=3))                                                                                                    | <ul style="list-style-type: none"> <li>Lower transformer.</li> <li>Install (3) outout blades.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 19988533 |  | (ASSY-1509 (QTY=3)) (42" CROSSARM(QTY=2)                                                                                       | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers.</li> <li>Remove and dispose (2) 42" crossarms.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 19982999 |  | (ASSY-1509 (QTY=3))                                                                                                            | (LABOR TO CLOSE<br>JUMPERS(QTY=3))                                                                                                                | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 19983519 |  | (40' C2 WOOD POLE)<br>(OPS-CP-C4-XARM) (K-7-B)<br>(ASSY-1509 (QTY=3)) (WOOD CROSSARM)<br>(STL-10) (E-1-2-3) (F-1-3)<br>(E-2-1) | (50' S8 STEEL POLE)<br>(OPS-CP-C4-XARM)<br>(K-7-B) (STL-10)                                                                                       | <ul style="list-style-type: none"> <li>Remove and dispose of 40ft Class 2 wood pole and replace with 50' galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace secondary framing (K-7-B).</li> <li>Remove and dispose downguy and anchor.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove and dispose crossarm.</li> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them</li> </ul> |
| 19983514 |  | (40' H4 CONCRETE POLE) (S-5) (S-6-2)<br>(K-7-4) (E-1-2-3)<br>(F-1-3) (E-2-1)                                                   | (50 FT GALVANIZED' ROUND TAPERED POLE) (S-5)<br>(S-6-2) (K-7-4) (E-1-2-3) (F-1-3) (OUTOUT BLADES(QTY=3)) (ASSY 1509 (QTY=3))<br>(ASSY-1505 FIG. C | <ul style="list-style-type: none"> <li>Remove and dispose 40' H4 concrete pole and replace with 50'galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace downguy and anchor.</li> <li>Install stand-off bracket assembly.</li> </ul>                                                                                                                                                                                                                                                                              |

|          |                                                                            |                                                                                                |                                                                                                                                                                                                                                                                                                                           |
|----------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19985281 |                                                                            |                                                                                                | <ul style="list-style-type: none"> <li>• Install (3) cutout blades.</li> </ul>                                                                                                                                                                                                                                            |
|          | (40' H4 CONCRETE POLE)<br>(S-6)                                            | (50 FT GALVANIZED ROUND TAPERED POLE) (S-6)<br>(K-5) (3/0<br>TPX(QTY=160FT) (ABS-3-XARM QTY=3) | <ul style="list-style-type: none"> <li>• Remove and dispose 40' H4 concrete pole and replace with galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (XARM) and the framing hardware to support them</li> </ul> |
| 19985275 | (S-3)                                                                      | (S-6) (K-5) (LABOR CUTOUT BLADES(QTY=3)) (ASSY- 1509 (QTY=3)) (ASSY- 1505 FIG. C)              | <ul style="list-style-type: none"> <li>• Remove, dispose and replace primary framing.</li> <li>• Install stand-off bracket assembly.</li> <li>• Remove and dispose exiting transformer.</li> <li>• Install (3) cutout blades.</li> </ul>                                                                                  |
| 19986073 | (ASSY-1509 (QTY=3))                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                        |
| 19986110 | (ASSY-1509 (QTY=2))                                                        | (LABOR TO CLOSE JUMPERS(QTY=2))                                                                | <ul style="list-style-type: none"> <li>• Remove and dispose (2) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                        |
| 19983537 | (ASSY-1509 (QTY=3))                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                        |
| 19985273 | (T-1) LABOR TO REMOVE EXISTING 37.5 KVA, 2.4/4.16 KV, 20/240 V TRANSFORMER | 50 KVA, 2.4/4.16 kV, 120/240 TRANSFORMER                                                       | <ul style="list-style-type: none"> <li>• On Existing Pole: Remove and dispose 37.5 KVA, 2.4/4.16 KV, 120/240 V transformer</li> <li>• Replace with 50 KVA, 2.4/4.16 kV, 120/240 transformer</li> </ul>                                                                                                                    |
| NEW POLE | NONE                                                                       | (50 FT GALVANIZED ROUND TAPERED POLE)<br>(CP-06-XARM)<br>(K-1)<br>(ASSY 1505 FIG C)            | <ul style="list-style-type: none"> <li>• Install new midspan 50 FT galvanized round tapered pole.</li> <li>• Install primary and secondary framing.</li> </ul>                                                                                                                                                            |
| 19983780 | (ASSY-1509 (QTY=3))                                                        | (LABOR TO CLOSE JUMPERS(QTY=3))                                                                | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                               |

|          |  |                                                                |                                                                                             |                                                                                                                                                                                                                                                                                                                                                          |
|----------|--|----------------------------------------------------------------|---------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19984650 |  | (ASSY-1509 (QTY=3))                                            | (LABOR TO CLOSE JUMPERS(QTY=3))                                                             | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                       |
| 19984278 |  | (ASSY-1509 (QTY=3))                                            | (LABOR TO CLOSE JUMPERS(QTY=3))                                                             | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                       |
| 19985282 |  | (40' H4 CONCRETE POLE)<br>(S-1)<br>(S-5)<br>ASSY 1509 (QTY=3)) | (50 FT GALVANIZED ROUND TAPERED POLE)<br>(S-6)<br>(S-5)<br>(ASSY 1505 FIG. C)               | <ul style="list-style-type: none"> <li>• Remove and dispose of 40' H4 concrete pole and replace with 50' galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Remove, dispose and replace (3) Fuse Outouts.</li> </ul>                                                                                     |
| 19988674 |  | (40' C3 WOOD POLE) (CP-C1)<br>(E-1-2-3)<br>(F-1-3)             | (50 FT GALVANIZED ROUND TAPERED POLE)<br>(CP-06-XARM)<br>(ABS-3- XARM) (LABOR, FCI) (QTY=3) | <ul style="list-style-type: none"> <li>• Remove and dispose of 40ft C3 wood pole and replace with 50ft galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove and dispose down guy and anchor.</li> <li>• Install air-break switch.</li> <li>• Install (3) Fault Current Indicators (FCIs).</li> </ul> |

|            |  |     |                      |                                                                                                  |
|------------|--|-----|----------------------|--------------------------------------------------------------------------------------------------|
| 1001640533 |  | n/a | (LABOR, FCI) (QTY=3) | <ul style="list-style-type: none"> <li>• Install (3) Fault Current Indicators (FCIs).</li> </ul> |
|------------|--|-----|----------------------|--------------------------------------------------------------------------------------------------|

#### Feeder 7702-03

| FID        | COORDINATES LAT, LONG | EXISTING (REMOVE)                                                                                                   | 428 REPLACEMENT                                                            | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|-----------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27385668   |                       | (45 FT H4 CONCRETE POLE) (S-6) (E-1-2-3)<br>(F-1-3)                                                                 | (50 FT GALVANIZED ROUND TAPERED POLE) (S-6)<br>(ABS-3-XARM) QTY=3)         | <ul style="list-style-type: none"> <li>• Remove and dispose 45' H4 concrete pole and replace 50' round tapered pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove and dispose down guy and anchor.</li> <li>• Install and connect one (1) set of Air Break Bypass Switch (ABS-3-XARM) and the framing hardware to support them</li> </ul>                                                                    |
| 27386240   |                       | (ASSY-1509 (QTY=3))                                                                                                 | (LABOR TO CLOSE JUMPERS (QTY=3))                                           | <ul style="list-style-type: none"> <li>• Remove and dispose 42" crossarm.</li> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                            |
| 27386429   |                       | (40 FT H6 CONCRETE POLE) (S-6) (E-1-2-3)<br>(F-1-3)                                                                 | (50' ROUND TAPERED POLE) (S-6)                                             | <ul style="list-style-type: none"> <li>• Remove and dispose 40' H6 concrete pole and replace with 50' galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove and dispose down guy and anchor.</li> </ul>                                                                                                                                                                                |
| 27383425   |                       | (ASSY-1509 (QTY=3))                                                                                                 | (LABOR TO CLOSE JUMPERS (QTY=3))                                           | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                        |
| 27387694   |                       | (40 FT H3 CONCRETE POLE) (CP-06-XARM)<br>(K-7-FIG.B) (E-1-2-3 (QTY=3)) (E-1-3 (QTY=3)) (STL-10) (ASSY-1509 (QTY=3)) | (50 FT GALVANIZED ROUND TAPERED POLE) (CP-06-XARM)<br>(K-7-FIG.B) (STL-10) | <ul style="list-style-type: none"> <li>• Remove and dispose 40' H3 concrete pole and replace with a 50' galvanized tapered pole.</li> <li>• Remove, dispose and replace primary and secondary framing.</li> <li>• Remove and dispose down guys and anchors.</li> <li>• Remove, dispose and replace Streetlight (LED Type).</li> <li>• Remove and dispose 42" crossarm</li> <li>• Remove, dispose and replace (3) Fuse Outouts.</li> </ul> |
| NEW POLE   |                       | NONE                                                                                                                | (50 FT GALVANIZED ROUND TAPERED POLE) (CP-06-XARM)                         | <ul style="list-style-type: none"> <li>• Install 50' galvanized round tapered pole.</li> <li>• Install primary framing.</li> </ul>                                                                                                                                                                                                                                                                                                        |
| 27390168   |                       | (ASSY-1509 (QTY=3))                                                                                                 | (LABOR TO CLOSE JUMPERS (QTY=3))                                           | <ul style="list-style-type: none"> <li>• Remove and dispose 72" crossarm</li> <li>• Remove, dispose and replace (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                    |
| 1001628301 |                       | (35 FT C9 WOOD POLE) (K-6) (STL-10)                                                                                 | (50 FT GALVANIZED ROUND TAPERED POLE) (CP-06-XARM) (K-6) (STL-10)          | <ul style="list-style-type: none"> <li>• Remove and dispose 35' wood pole and replace with a 50ft round tapered pole.</li> <li>• Remove, dispose and replace primary and secondary framings.</li> <li>• Remove, dispose and replace</li> </ul>                                                                                                                                                                                            |
|            |                       |                                                                                                                     |                                                                            | streetlight (LED Type).                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 27383625   |                       | (35 FT C7 WOOD POLE) (CP-C1-XARM)<br>(K-5)                                                                          | (45' ROUND TAPERED POLE) (CP-06-XARM) (K-5) (1/0 TPX (QTY=150 FT))         | <ul style="list-style-type: none"> <li>• Remove and dispose 35' C7 wood pole and replace with a 45' galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary and secondary framing.</li> <li>• Remove, dispose and replace open wire with secondary triplex conductor.</li> </ul>                                                                                                                                    |
| 27383616   |                       | (ASSY-1509 (QTY=3))                                                                                                 | (LABOR TO CLOSE JUMPERS (QTY=3))                                           | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Outouts.</li> <li>• Close Jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                               |

|          |  |                                                                                              |                                                                            |                                                                                                                                                                                                                                                                                                                                |
|----------|--|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | NONE                                                                                         | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-B6-XARM)                       | <ul style="list-style-type: none"> <li>Install a new 50ft galvanized round tapered pole.</li> <li>Install framings.</li> </ul>                                                                                                                                                                                                 |
| 27384514 |  | (CP-B2-XARM)                                                                                 | NONE                                                                       | <ul style="list-style-type: none"> <li>Remove and dispose primary framing.</li> <li>Top-off to secondary framing height.</li> </ul>                                                                                                                                                                                            |
| 27384491 |  | (ASSY-1509 (QTY=2))                                                                          | (LABOR TO CLOSE JUMPERS (QTY=2))                                           | <ul style="list-style-type: none"> <li>Remove, dispose and replace (2) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                                                        |
| NEW POLE |  | NONE                                                                                         | ( 50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-C6-XARM)                      | <ul style="list-style-type: none"> <li>Install 50ft galvanized round tapered pole.</li> <li>Install primary framing.</li> </ul>                                                                                                                                                                                                |
| 27385855 |  | (ASSY-1509 (QTY=3))                                                                          | (LABOR TO CLOSE JUMPERS (QTY=3))                                           | <ul style="list-style-type: none"> <li>Remove and dispose (3) of Fuse Outouts.</li> <li>Close Jumpers.</li> <li>Remove and dispose 42" crossarm</li> </ul>                                                                                                                                                                     |
| 27388964 |  | (35 FT C4 WOOD POLE) (CP-C6-XARM) (CP-C5-XARM) (K-7-4) (E-1-2-3) (F-1-3) (ASSY-1509 (QTY=3)) | (50 FT GALVANIZED ROUND TAPERED POLE)<br>(CP-C6-XARM) (CP-C5-XARM) (K-7-4) | <ul style="list-style-type: none"> <li>Remove and dispose 35' C4 wood pole and replace with 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace (2) primary and (1) secondary framings.</li> <li>Remove and dispose downguy and anchor.</li> <li>Remove, dispose and replace (3) Fuse Outouts.</li> </ul> |
| 27389307 |  | (ASSY-1505-FGA) (ASSY-1509 (QTY=3))                                                          | (LABOR TO CLOSE JUMPER (QTY=3))                                            | <ul style="list-style-type: none"> <li>Remove and dispose 42" crossarm</li> <li>Remove and dispose (3) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                                                                        |

|          |  |                         |                         |                                                                                                                                                                                                                                                     |
|----------|--|-------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27386961 |  | LABOR                   | NONE                    | <ul style="list-style-type: none"> <li>Re-adjust clearances of existing primary lines on pole.</li> <li>Relocate transformer Fuse Outout to other side of pole.</li> </ul>                                                                          |
| 27386974 |  | (ASSY-1509 (QTY=2))     | (LABOR TO CLOSE JUMPER) | <ul style="list-style-type: none"> <li>Remove, dispose and replace (2) Fuse Outouts.</li> <li>Close Jumpers.</li> </ul>                                                                                                                             |
| 27387698 |  | LABOR (ASSY-1509 QTY=1) | (ASSY-1509 QTY=1)       | <ul style="list-style-type: none"> <li>Re-adjust clearances of existing primary lines on pole.</li> <li>Remove, dispose and replace (1) Fuse Outouts.</li> </ul>                                                                                    |
| 12137020 |  | NONE                    | (LABOR, FCI(QTY=3))     | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators (FCIs).</li> </ul>                                                                                                                                                      |
| 27386235 |  | NONE                    | (LABOR, FCI(QTY=3))     | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators (FCIs).</li> <li>Remove, dispose and replace a spacer at section FID:33636114.</li> <li>Remove, dispose, replace and reconnect (1) right side bypass switch.</li> </ul> |

#### 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.

## 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).

## SECTION 406 HAZARD MITIGATION PROPOSAL (Refer to DSOW pp. 28-59)

### 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.

- 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 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:

- 750067 FAASt [Region 2 -Arecibo Group A] Low Density (Vegetation)

- 728827 FAASt [Region 2- Arecibo Group A] High Density (Vegetation)

☒ 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.

☒ 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 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 ?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                                 | \$182,554.76                         |     | \$182,554.76          |
| MANAGEMENT                               | \$120,865.23                         |     | \$120,865.23          |
| LPCE Distribution<br>Automation Group 12 | \$2,176,636.93                       |     | \$2,176,636.93        |
| GENERAL CONDITIONS                       | \$112,920.10                         |     | \$112,920.10          |
| COST TOTALS                              | <b>\$2,593,378.22</b>                |     | <b>\$2,593,378.22</b> |
| DEDUCTIONS                               | TOTAL INSURANCE PROCEEDS RECEIVED    |     |                       |
|                                          | DE-OBLIGATION TO FAASt IF APPLICABLE |     |                       |
| FAASt ALLOCATIONS                        | FAASt PROJECT # 745861 - 428         |     | \$2,168,647.62        |
|                                          | FAASt A&E # 335168 - 428             |     | \$196,183.24          |
|                                          | FAASt E&M #673691 - 428              |     | \$228,547.36          |

#### Project Cost Summary, Version 1

Work to be Completed (WTBC): \$2,593,378.22 - \$2,593,378.22 = \$0.00 (See project note #7)

A&E Deduction: - \$196,183.24 + 196,183.24 = \$0.00 (See project note #7)

E&M Deduction: - \$228,547.36 + \$228,547.36 = \$0.00 (See project note #7)

**Total Cost: \$2,168,647.62 - 2,168,647.62 = \$0.00 (See project note #7)**

#### VERSION SUMMARY OF KEY CHANGES:

**V0: \$3,664,210.10 (WTBC, A&E Deduction)**

**V1: \$0.00 (WTBC)**

#### Project Cost Estimate Notes

1. 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.
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 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.
3. Refer to detailed SOW provided in document: 745861- DR4339PR- DSOW Group 12 Revision 006- V1.pdf.
4. Refer to detailed cost estimate in document: 745861-DR4339PR-APPENDIX A- Detailed Cost Estimate Rev 06.xlsx.
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 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 167446- DR4339PR - Email Confirmation Sub-FAASt Transaction Guidance.pdf.'

#### 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     |

## 406 HMP Scope

**Project number:** 745861; FAASt [Automation Program Group 12] (TL/Distribution)

**Damage #1374353; FAASt [Automation Program Group 12: Arecibo Feeders: 7402-01, 7403-02, 7702-02, 7702-03] (Distribution)**

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

**Location:** Arecibo, Puerto Rico

GPS Latitude/Longitude: ( [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 12 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 7402-01, 7403-02, 7702-02 and 7702-03.

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 7402-01, 7403-02, 7702-02 and 7702-03 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 **27ea** poles strengthening (pole class, concrete base, and additional guywire).

#### Pole Description:

- a) 45ft S5.7 12-sided galvanized steel poles = 12ea
- b) 50ft S8.5 12-sided galvanized steel poles = 14ea
- c) 70 ft S10 12-sided galvanized steel poles = 1ea.

## 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 28ea fuse cutouts with 37ea single-phase reclosers and the installation of 11ea 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 18ea fault current indicators (FCIs) by 27ea communicating fault current indicators (cFCIs).

## 4.Stainless Steel Transformer:

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 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 2ea galvanized transformer by 2ea stainless steel transformer (1 ea. 37.5 KVA and 1ea 50KVA).

#### 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 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 11ea radio communication kit.

#### HMP Scope of Work:

##### a) Distribution Feeder 7402-01:

FID 21664670

1. Replace 70ft. round pole with 70ft.12-sided galvanized steel pole.
2. Install (1) Three-Phase Recloser 7402-01A on a radial circuit.
3. Install and commission radio communication kit for three-phase recloser.



4. Install 3/0 (TPX(QTY=400FT)) secondary triplex to feed Three-Phase Recloser from the source side.

FID 1001475449

5. Replace galvanized steel transformer with new stainless-steel transformer (37.5kVA/ 4.16kV, 120/240V).

-

FID 28651889

6. Replace 50ft. round pole with 50ft. S8.5 12-sided galvanized steel pole.
7. Install (1) Three-Phase Recloser 7402-01B on a radial circuit.
8. Install (TPX QT=500ft) of 3/0 triplex secondary line to feed three-phase recloser from the source side.
9. Install and commission radio communication kit for three-phase recloser.

-

FID 28651625

10. Replace 50ft. round pole with 50ft. S8.5 12-sided galvanized steel pole.
11. Install (1) Three-Phase Recloser 7402-01C on radial circuit.
12. Install (TPX QTY=300ft) 3/0 triplex to feed three-phase recloser source side.
13. Install and commission radio communication kit for Three-Phase Recloser.

FID NEW POLE

14. Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.
15. Install (1) Three-Phase recloser 7402-01D on a radial circuit.
16. Install Secondary Framing (K-7-B).
17. Install (TPX QTY=250FT) 3/0 triplex to feed three-phase recloser from source side pole.
18. Install and commission radio communication kit for three-phase recloser.

FID 21663839

19. Install (1) Three-Phase recloser 7402-01E on a radial circuit.
20. Install (TPX QTY=250ft) 3/0 triplex cable to feed three-phase recloser from source side.
21. Install and commission radio communication kit for three-phase recloser.

FID 21664540

22. Replace FCIs and install (3) Communicating Fault Current Indicators (cFCIs).

-

FID 12137275

23. Replace FCIs and install (3) Communicating Fault Current Indicators (cFCIs).

**b) Distribution Feeder 7403-02:**

-

FID 17203195

24. Replace 50ft. round pole with 50ft. S8.5 12-sided galvanized steel pole.
25. Install (1) 1 kVA transformer (2.40/7.62kV-120V) from source side.
26. Install (1) Three-Phase Recloser 7403-02A in radial circuit.
27. Install and commission radio communication kit for three-phase recloser.

FID 17207532

28. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.

-

FID 17203200

29. Replace 50ft. round pole with 50ft. S8.5 12-sided galvanized steel pole.
30. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.

-

FID 33190400 & 33190452

31. Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.
32. Replace (3) Fuse Cutouts on FID: 33190452 with (3) Single-Phase Recloser 200A.

FID 17206664

33. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.
34. Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Recloser 200A.

-

FID 1001568082 & 1001568083

35. Replace 50ft. round pole with 45 ft. S5.7 12-sided galvanized steel pole.
36. Replace (2) Fuse Cutouts on FID: 1001568083 with the installation of (2) Single-Phase Recloser 200A.

-

FID 1001013297

37. Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.
38. Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Reclosers 200A.

-

FID 12137489

39. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

-

FID 17203167

40. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

-

FID 17206720

41. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

-

**c) Distribution Feeder 7702-02:**

-  
FID 19988467

- 42. Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.
- 43. Install (1) Three- Phase Recloser 7702-02A in radial circuit.
- 44. Use existing secondary to feed three-phase recloser from source side.
- 45. Install and commission radio communication kit for Three-Phase Recloser.

-  
FID 19983519

- 46. Replace 50ft. round pole with 50ft. S8.5 12-sided galvanized steel pole.
- 47. Install (1) Three-Phase Recloser 7702-02B in radial circuit.
- 48. Install and commission radio communication kit for Three-Phase Recloser.
- 49. Use Secondary line to Feed Three-Phase Recloser from source side.

-  
FID 19983514

- 50. Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.

-  
FID 19985281

- 51. Replace 50ft. round pole with a 50ft S8.5 12-sided galvanized steel pole.
- 52. Install (1) Three-Phase Recloser 7702-02C in radial configuration.
- 53. Install secondary framing (K-5).
- 54. Install 3/0 triplex (TPX QTY=160FT) to feed three-phase recloser source side.
- 55. Install and commission radio communication kit for Three-Phase Recloser.

-  
FID 19985273

- 56. Replace (1) 50 kVA, 2.4/4.16 kV, 120/240 transformer with a new 50 kVA, 2.4/4.16 kV, 120/240 stainless-steel transformer.

-  
FID NEW POLE & 19983780

- 57. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.
- 58. Replace (3) Fuse Cutouts on FID: 19983780 (3) Single-Phase Reclosers.

-  
FID 19985282

- 59. Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.
- 60. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Reclosers.

-  
FID 19988674

- 61. Replace 50ft. round pole with 45ft. S5.7 12-sided galvanized steel pole.
- 62. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

-  
FID 1001640533

- 63. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

**d) Distribution Feeder 7702-03**

FID 27385668

- 64. Replace 50ft. round pole with a 50ft. S8.5 12-side galvanized steel pole.
- 65. Install (1) Three-Phase Recloser 7702-03A on a radial circuit.
- 66. Install and commission radio communication kit for Three-Phase Recloser.
- 67. Install (1) 1 kVA (2.40/7.62 kV-120V) transformer to feed recloser from source side.

-  
FID 27386429

- 68. Replace 50ft. pole with a 50ft. S8.5 12-sided galvanized steel pole.
- 69. Install (1) Three- Phase Recloser 7702-03B on a radial circuit.
- 70. Install and commission radio communication kit for Three-Phase Recloser.
- 71. Install (1) 1 kVA (2.40/7.62 kV-120V) transformer to feed recloser from source side.

-  
FID 27387694

- 72. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.
- 73. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase reclosers 200A.

FID NEW POLE & 27390168

- 74. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.
- 75. Replace (3) Fuse Cutouts on FID: 27390168 with the installation of (3) Single-Phase Recloser 200A.

-  
FID 1001628301 & 27383616

- 76. Replace 50ft. round pole with a 45ft S5.7 12-sided galvanized steel pole.
- 77. Replace (3) Fuse Cutouts from FID: 27383616 with the installation of (3) Single- Phase Reclosers 200A.

-  
FID 27383625

- 78. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.

FID NEW POLE

- 79. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.

-  
FID 27384491

- 80. Replace (2) Fuse Cutouts from FID: 27384491 with the installation of (2) Single-Phase Recloser 200A.

-  
FID NEW POLE & 27385855

81. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.
82. Replace (3) Fuse Cutouts from FID: 27385855 with the installation of (3) Single-Phase Reclosers 200A.

FID 27388964

83. Replace 50ft. round pole with a 45ft. S5.7 12-sided galvanized steel pole.
84. Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.

-

FID 27386961 & 27386974

85. Replace (2) Fuse Cutouts from FID: 27386974 with the installation of (1) Single-Phase Recloser 200A.

-

FID 27387698

86. Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.

-

FID 12137020

87. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

-

FID 27386235

88. Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).

**(III) Hazard Mitigation Proposal (HMP) Cost**

|                                                            |                        |
|------------------------------------------------------------|------------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =             | \$ 1,097,098.98        |
| + HM (Subrecipient A&E, Management & General Conditions) = | \$ 261,546.00          |
| Hazard Mitigation Total Cost =                             | <b>\$ 1,358,644.98</b> |

-

**(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                      |                        |
|--------------------------------------|------------------------|
| Equipment and Materials (E&M) =      | \$ 557,560.64          |
| Architecture and Engineering (A&E) = | \$ 101,775.43          |
| Construction Cost =                  | \$ 699,308.92          |
| Hazard Mitigation Total Cost =       | <b>\$ 1,358,644.98</b> |

**(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 **\$ 1,358,644.98 (Hazard Mitigation Total Cost)**. The cost of this HMP combined with 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 | \$4,142,163.65 | Uncompleted |
| 3510 | 1        | Lump Sum | (\$477,953.55) | 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             | \$3,664,210.10 |
| Total 406 HMP Cost         | \$1,358,644.98 |
| Total Insurance Reductions | \$0.00         |
| <hr/>                      |                |
| CRC Net Cost               | \$5,022,855.08 |
| Federal Share (90.00%)     | \$4,520,569.58 |
| Non-Federal Share (10.00%) | \$502,285.50   |

## 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

**7/6/2026**

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**

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**4/30/2026**

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 12] (Distribution) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 12] (Distribution) (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.
- Conditions for Puerto Rican Boa applicable to 7402 01, 7403 02, 7702 02, and 7702 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 harm 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).
- Conditions for (Chilabothrus inornatus) 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 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 reinstate 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 reinstate 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 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

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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 have not 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 12] (Distribution) (Cost Only)**.

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 07/31/2026 1:04 PM PDT

#### Review Comments

FEMA will process 428 and 406 HM transactions separately. This does not affect one-time change for HM. Reviewed, found eligible and cost reasonable. CLG 07.31.26

### Recipient Review

**Reviewed By** Mulero, Noel

**Reviewed On** 08/07/2026 8:13 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. FEMA EHP shall review the REC if the DOE Emergency Declaration applies or the Special Conditions required on implementation of Projects . 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



## 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 \$5,022,855.08 for subaward number 107957 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                        | 4339DRPRP01079571  | 20173YOX-06102025  | 6/9/2025      | \$824,447.27    |
| 3/20/2026                        | 4339DRPRP01079571  | 20173YOX-03042026  | 3/3/2026      | (\$824,447.27)  |

### Obligation History

| Version # | Date Obligated | Obligated Cost | Cost Share | IFMIS Status | IFMIS Obligation # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 1         | 8/27/2026      | \$1,222,780.49 | 90%        | Accepted     | 4339DRPRP01079571  |
| 0         | 2/6/2025       | \$3,297,789.09 | 90%        | Accepted     | 4339DRPRP01079571  |

**Department of Homeland Security  
Federal Emergency Management Agency**

v0

## General Info

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 752808                                                         | <b>P/W #</b>               | 108000                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 19] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## 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. 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 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/alerts 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 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 ID  | COORDINATES LAT, LONG | Existing                              | Install                                                                          | SCOPE OF WORK                                                                                                                                                                                                                                                                |
|----------|-----------------------|---------------------------------------|----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New Pole | [REDACTED]            | N/A                                   | (50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM)<br><br>(REC-2)<br><br>(K-5) | <ul style="list-style-type: none"> <li>Install 50' S8 12-Sided Galvanized steel pole.</li> <li>Install primary framing.</li> <li>Install secondary framing due to three-phase recloser 8801-01A installation.</li> <li>Install (1) three-phase Recloser 8801-01A.</li> </ul> |
| 19600900 | [REDACTED]            | N/A                                   | (K-5)<br><br>(3/0 TPX (QTY= 85 '))                                               | <ul style="list-style-type: none"> <li>Install load side secondary framing due to three phase recloser 8801-01A</li> </ul>                                                                                                                                                   |
| 19600737 | [REDACTED]            | (ASSY-1509 (QTY=3))<br>(42" CROSSARM) | (LABOR TO CLOSE JUMPERS(QTY=3))                                                  | <ul style="list-style-type: none"> <li>Remove and dispose of a crossarm.</li> <li>Remove and Dispose fuse fid: 33782260 (qty=3 and close jumpers due to three-phase recloser 8801-01A installation</li> </ul>                                                                |

|          |                |                                                                                                                                |                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|----------------|--------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19601641 | ■■■■■<br>■■■■■ | (40' H3 CONCRETE POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(E-1-2-3(QTY=2))<br>(F-1-3(QTY=2)) (ASSY-1509<br>(QTY=3)) (42" CROSSARM) | (50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM)<br><br>(STL-10)<br><br>(REC-2-1)        | <ul style="list-style-type: none"> <li>Remove and dispose of 40' H3 Concrete Pole.</li> <li>Replace with 50' S8 12-sided galvanized steel p</li> <li>Replace primary framing.</li> </ul> <ul style="list-style-type: none"> <li>Replace streetlight.</li> </ul> <ul style="list-style-type: none"> <li>Remove and dispose of a crossarm.</li> <li>Install (1) three-phase Recloser</li> </ul> <p><b>8801-01B.</b></p> <ul style="list-style-type: none"> <li>Remove dispose fuses fid: 33781811 (qty=3) du three- phase Recloser 8801-01B installation.</li> <li>Install 1 kva transformer (8.32- 4.80kv/120v) from source side.</li> <li>Remove and Dispose a of 45' H6 Concrete Pole</li> <li>Replace with 45' S5.7 12-sided galvanized steel</li> <li>Replace primary framings.</li> </ul> |
| 19602031 | ■■■■■<br>■■■■■ | (45' H6 CONCRETE POLE)<br>(CP-C5-XARM)<br>(CP-B5-XARM)<br>(CP-A5)                                                              | (45' S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C5-XARM)<br><br>(CP-B5-XARM)<br><br>(CP-A5) | <ul style="list-style-type: none"> <li>Remove and Dispose a of 45' H6 Concrete Pole</li> <li>Replace with 45' S5.7 12-sided galvanized steel</li> <li>Replace primary framings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

| POLE ID    | COORDINATES LAT, LONG | Existing                                                           | Install                                                                                   | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                        |
|------------|-----------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                       |                                                                    | (REC-3-A)                                                                                 | <ul style="list-style-type: none"> <li>Install (1) Single-Phase recloser 200A</li> </ul>                                                                                                                                                                                                                                                                                                             |
| 19602112   |                       | (ASSY-1509 (QTY=1))                                                | (LABOR TO CLOSE JUMPERS (QTY=1))                                                          | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33781521 (qty=1 due to (1) Single-phase recloser 200a installation</li> </ul>                                                                                                                                                                                                                                                    |
| 1000042602 |                       | (ASSY-1509 (QTY=3))                                                | (REC-3-C)                                                                                 | <ul style="list-style-type: none"> <li>Remove and Dispose fuses fid: 33711560 (qty= due to three Single-phase recloser 200A installation</li> <li>Install (3) single-phase recloser 200a in existing S8 steel pole.</li> </ul>                                                                                                                                                                       |
| 1000042601 |                       | (ASSY-1509 (QTY=3))                                                | (LABOR TO CLOSE JUMPERS (QTY=3))                                                          | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 1001733410 (qty due to three (3) Single-Phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                             |
| 19590943   |                       | (ASSY-1509 (QTY=3))                                                | (LABOR TO CLOSE JUMPERS (QTY=3))                                                          | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33710257 (qty=3 due to three (3) single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                             |
| 27365725   |                       | (35' C5 WOOD POLE)<br>(CP-C6-XARM)<br>(CP-A5) (E-1-2-3)<br>(F-1-3) | (45' S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br><br>(CP-A5)<br><br>(REC-3-A) | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C5 Wood pole.</li> <li>Replace with 45' S5.7 12-Sided Galvanized steel</li> <li>Replace primary Framings.</li> </ul> <ul style="list-style-type: none"> <li>Remove and dispose downguy.</li> </ul> <ul style="list-style-type: none"> <li>Remove and dispose an anchor.</li> <li>Install (1) Single-phase recloser 200A.</li> </ul> |
| 27366707   |                       | (ASSY-1509 (QTY=1))                                                | (LABOR TO CLOSE JUMPERS (QTY=1))                                                          | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33712201 (qty=1 due to (1) single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                                   |

|          |                |                                                  |                                     |                                                                                                                                                                                                                                                                                                                      |
|----------|----------------|--------------------------------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27365767 | ■■■■■<br>■■■■■ | (CP-C7) (ASSY-1509<br>(QTY=3))<br>(42" CROSSARM) | CP-C7 (REC-3-C)                     | <ul style="list-style-type: none"> <li>Replace primary framing.</li> <li>Remove and Dispose 42" crossarm.</li> <li>Remove and Dispose fuse fid: 33712115 (qty=3 to three Single-Phase recloser 200A installation.</li> <li>Install (3) Single-Phase Recloser 200A in existir 45'</li> </ul> <p>H6 concrete pole.</p> |
| 27366370 | ■■■■■          | (ASSY-1509 (QTY=1))                              | (LABOR TO CLOSE JUMPERS<br>(QTY=1)) | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33714437 (qty=1 due to (1) Single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                   |
| 27365874 | ■■■■■          | (ASSY-1509 (QTY=1))                              | (LABOR TO CLOSE JUMPERS<br>(QTY=3)) | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33712146 (qty=3 to three</li> </ul>                                                                                                                                                                                                              |

| POLE ID  | COORDINATES LAT, LONG | Existing            | Install                             | SCOPE OF WORK                                                                                                                                                                                   |
|----------|-----------------------|---------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | ■■■■■                 |                     |                                     | (3) single-phase recloser 200a installation.                                                                                                                                                    |
| 27367514 | ■■■■■                 | (ASSY-1509 (QTY=1)) | (REC-3-A)                           | <ul style="list-style-type: none"> <li>Remove and Dispose to (1) single-phase recloser 200A installation.</li> <li>Install (3) single-phase recloser 200A in existing S3 steel pole.</li> </ul> |
| 27367618 | ■■■■■                 | (ASSY-1509 (QTY=1)) | (LABOR TO CLOSE JUMPERS<br>(QTY=1)) | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33712250 (qty=1 due to (1) single-phase recloser 200A installation.</li> </ul>                                              |
| 22103272 | ■■■■■                 | N/A                 | (LABOR, cFCI(QTY=3))                | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator.</li> </ul>                                                                                       |

#### FEEDER 8801-02

| POLE ID   | COORDINATES LAT, LONG | Existing                                                                      | Install                                                               | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------|-----------------------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 100135937 | ■■■■■<br>■■■■■        | (45' H4 CONCRETE<br>POLE) (S-6)<br>(E-1-2-3<br>(QTY=2))<br>(F-1-3<br>(QTY=2)) | (50' S8 12- SIDED<br>GALVANIZED STEEL<br>POLE) (S-6)<br><br>(REC-2-1) | <ul style="list-style-type: none"> <li>Remove and dispose of 45' H4 Concrete Pole.</li> <li>Replace with 50' S8 12-sided galvanized steel pole.</li> <li>Replace primary framing.</li> <li>Remove and dispose downguys.</li> <li>Remove and Dispose anchors.</li> <li>Install 1 kva transformer (4.8/7.62kv-120v) from source</li> <li>Install (1) three-phase recloser 8801-02A on radial circuit.</li> </ul> |

|            |  |                     |                                                                         |                                                                                                                                                                                                                                                                                                          |
|------------|--|---------------------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001715694 |  | (ASSY-1509 (QTY=2)) | (ASSY-1509 (QTY=2))<br>(ASSY 1505 FIG. B)<br>(CUTOUT BLADES(QTY=2<br>)) | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 1001715713 (qty=2) Due to three phase recloser <b>8801-02a</b> installation.</li> <li>Install stand-off bracket assembly.</li> <li>Install cutout blades (qty=2) due to three phase reclose <b>8801-02a</b> installation.</li> </ul> |
| 1001715793 |  | (ASSY-1509 (QTY=2)) | (ASSY-1509 (QTY=2))<br>(ASSY 1505 FIG. B)<br>(CUTOUT BLADES(QTY=2<br>)) | <ul style="list-style-type: none"> <li>Remove and dispose a fid: 1001715791 (qty=2) due to three phase recloser <b>8801-02a</b> installation.</li> <li>Install stand-off bracket assembly. Install cutout blades (qty=2) due to three phase recloser <b>8801-02a</b> installation.</li> </ul>            |
| 1001715829 |  | (ASSY-1509 (QTY=2)) | (ASSY-1509 (QTY=2))<br>(ASSY 1505 FIG. B)                               | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 1001715827 (qty=2) due to three phase recloser <b>8801-02a</b> installation.</li> </ul>                                                                                                                                              |

| POLE ID    | COORDINATE S<br>LAT, LONG | Existing                                                                                                                      | Install                                                                                                                                                                                                           | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                           |                                                                                                                               | (CUTOUT BLADES(QTY=2<br>))                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Install stand-off bracket assembly.</li> <li>Install cutout blades (qty=2) due to three phase reclose <b>8801-02a</b> installation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1000269597 |                           | (ASSY-1509 (QTY=6))<br>(42" CROSSARM)                                                                                         | (LABOR TO CLOSE<br>JUMPERS(QTY= 6))                                                                                                                                                                               | <ul style="list-style-type: none"> <li>Remove and dispose crossarm.</li> <li>Remove and Dispose fuse fid: 33600810 (qty=3) and cutout jumpers due to three phase recloser <b>8801-02a</b> installation.</li> <li>Remove and Dispose fuse fid: 1001537978 (qty=3) and cutout jumpers due to three phase recloser <b>8801-02a</b> installation.</li> </ul>                                                                                                                                                                                                                                              |
| 1000462787 |                           | (45' H4 CONCRETE<br>POLE)<br>(CP-A6)<br>(CP-B1)                                                                               | (50' S8 12- SIDED<br>GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br><br>(REC-2-1)                                                                                                                                      | <ul style="list-style-type: none"> <li>Remove and dispose 45 H4 Concrete pole.</li> <li>Replace with 50' S8 12-SIDED GALVANIZED steel pole</li> <li>Replace primary framing.</li> <li>Install 1 kva transformer (4.8/7.62kv-120v) from source</li> <li>Install (1) three-phase recloser 8801-02B on radial circuit.</li> </ul>                                                                                                                                                                                                                                                                        |
| 27371666   |                           | (40' C3 WOOD POLE)<br>(CP-C3- XARM)<br>(K-6)<br>(E-1-2-3<br>(QTY=3))<br>(F-1-3<br>(QTY=3))<br>(STL-10) (ASSY-1509<br>(QTY=3)) | (45' S5.7 12- SIDED<br>GALVANIZED STEEL POLE)<br>(CP-C3-XARM)<br><br>(K-6)<br><br>(E-1-2-3<br>(QTY=2))<br><br>(F-1-3 (QTY=2)) (STL-10)<br>(ASSY-1509 (QTY=3))<br>(ASSY 1505 FIG. C)<br>(CUTOUT BLADES(QTY=3<br>)) | <ul style="list-style-type: none"> <li>Remove and dispose of 40' C3 wood pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel pole</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Remove and dispose downguys.</li> <li>Remove and Dispose anchors.</li> <li>Replace streetlight.</li> <li>Remove and Dispose fuse fid: 33600923 (qty=3) due to three- phase recloser <b>8801-02b</b> installation.</li> <li>Install stand-off bracket assembly.</li> <li>Install cutout blades (qty=3) due to three phase reclose <b>8801-02B</b> installation.</li> </ul> |



|          |                |                                                                                                       |                                                                                               |                                                                                                                                                                                                                                                                                                                                                  |
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| 27371093 | ■■■■■<br>■■■■■ | (35' C4 WOOD POLE)<br>(CP-C6- XARM) (CP-<br>C5- XARM) (<br>ASSY-1509 (QTY=1))<br>(E-1-2-3)<br>(F-1-3) | (45' S5.7 12- SIDED<br>GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br><br>(CP-A5)<br><br>(REC-3-A) | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C4 wood pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel po</li> <li>Replace primary framings.</li> <li>Remove and Dispose fuse fid: 33600960 (qty=1) due to single- phase recloser 200a installation.</li> <li>Install (1) single-phase recloser 200A</li> </ul> |
| 27371222 | ■■■■■<br>■■■■■ | (45' S3 STEEL POLE)                                                                                   | (45' S5.7 12- SIDED                                                                           | <ul style="list-style-type: none"> <li>Remove and dispose of 45' S3 steel pole.</li> </ul>                                                                                                                                                                                                                                                       |

| POLE ID    | COORDINATE S<br>LAT, LONG | SCOPE OF WORK                                                             |                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------|---------------------------|---------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                           | Existing                                                                  | Install                                                                                                        | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|            |                           | (CP-C6- XARM) (K-<br>7-4)<br>(STL-10)<br>(T-12) (ASSY-1509<br>(QTY=3))    | GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br><br>(K-7-4)<br><br>(STL-10)<br><br>(REC-3-C)                         | <ul style="list-style-type: none"> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel po</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Replace streetlight.</li> <li>Remove and Dispose capacitor bank.</li> <li>Remove and Dispose fuse fid: 33601082 (qty=3) due to single- phase recloser 200a installation.</li> <li>Install (3) single-phase recloser 200A</li> </ul>                                       |
| 27371623   | ■■■■■<br>■■■■■            | (40' C5 WOOD POLE)<br>(CP-A6)<br>(K-7-B)<br>(STL-10)<br>(T-1) (ASSY-1509) | (45' S5.7 12- SIDED<br>GALVANIZED STEEL<br>POLE) (CP-A6)<br>(K-7-B) STL-10) (T-1)<br><br>(REC-3-A)             | <ul style="list-style-type: none"> <li>Remove and Dispose a of 40' C5 Wood pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel po</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Replace streetlight.</li> <li>Transfer transformer.</li> <li>Remove and Dispose fuse fid: 33600901 (qty=1) due to single- phase recloser 200a installation.</li> <li>Install (1) single-phase recloser 200A</li> </ul> |
| 27373845   | ■■■■■<br>■■■■■            | (40' H4 CONCRETE<br>POLE) (CP- B6)<br>(ASSY-1509 (QTY=2))                 | (45' S5.7 12- SIDED<br>GALVANIZED STEEL POLE)<br>(CP-B6-XARM)<br><br>(E-1-2-3)<br><br>(F-1-3)<br><br>(REC-3-B) | <ul style="list-style-type: none"> <li>Remove and dispose of 40' H4 concrete pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel po</li> <li>Replace primary framing.</li> <li>Remove and Dispose fuse fid: 1001715633 (qty=2) due to two (2) single-phase recloser 200a installation.</li> <li>Install (2) single-phase recloser 200A</li> </ul>                                                                                       |
| 1001715916 | ■■■■■                     | (ASSY-1509 (QTY=2))                                                       | (LABOR TO CLOSE<br>JUMPERS(QTY= 2)                                                                             | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 1001715903 (qty=2) and close jumpers due to two (2) single-phase recloser 200a installation.</li> </ul>                                                                                                                                                                                                                                                                        |
| 1001715914 | ■■■■■                     | n/a                                                                       | (REC-3-A)                                                                                                      | <ul style="list-style-type: none"> <li>Install (1) single-phase recloser 200A</li> </ul>                                                                                                                                                                                                                                                                                                                                                           |
| 1001715910 | ■■■■■<br>■■■■■            | (40' C4 WOOD POLE)<br>(CP-A6) (ASSY-1509) (E-<br>1-2-3)<br>(F-1-3)        | (45' S5.7 12- SIDED<br>GALVANIZED STEEL<br>POLE) (CP-A6)<br><br>(REC-3-A)                                      | <ul style="list-style-type: none"> <li>Remove and dispose of 40' C4 Wood pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel po</li> <li>Replace primary framing.</li> <li>Remove and dispose downguy.</li> <li>Remove and Dispose anchor.</li> <li>Remove and Dispose fuse fid: 1001715908 (qty=1) due to (1)</li> </ul>                                                                                                               |

| POLE ID  | COORDINATES<br>LAT, LONG |  | Existing                                                                                             | Install                                                                                                                                                 | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|--------------------------|--|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                          |  |                                                                                                      |                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|          |                          |  |                                                                                                      |                                                                                                                                                         | single-phase recloser 200a installation.<br>• Install (1) single-phase recloser 200A                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 27368823 |                          |  | (45' C3 WOOD POLE)<br>(CP-A6)<br>(K-7) (E-1-2-3)<br><br>(F-1-3)<br><br>(STL-10)<br>(T-1) (ASSY-1509) | (45' S5.7 12- SIDED<br>GALVANIZED STEEL<br>POLE) (CP-A6)<br><br>(K-7)<br><br>(STL-10)<br><br>(T-1) (ASSY-1509)<br>(ASSY 1505 FIG. A)<br>(CUTOUT BLADES) | • Remove and dispose of 45' C3 wood pole.<br>• Replace with 45' S5.7 12-SIDED GALVANIZED steel pole.<br>• Replace primary framing.<br><br>• Replace secondary framing.<br><br>• Remove and dispose downguy.<br><br>• Remove and Dispose anchor.<br><br>• Replace streetlight.<br><br>• Transfer transformer.<br><br>• Remove and Dispose fuse fid: 3364913 (qty=1) due to single-phase recloser 200a installation.<br>• Install stand-off bracket assembly.<br>• Install cutout blade due to (1) single-phase recloser 200a installation. |
| 27368312 |                          |  | (ASSY-1509 (QTY=1))                                                                                  | (LABOR TO CLOSE JUMPERS(QTY= 1))                                                                                                                        | • Remove and Dispose fuse fid: 1001276694 (qty=1) and close jumpers due to (1) single-phase recloser 200a installation.                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 27369149 |                          |  | (35' C4 WOOD POLE)<br>(CP-A6)<br>(K-7-4)<br>(STL-10) (ASSY-1509<br>(QTY=1))                          | (45' S5.7 12- SIDED<br>GALVANIZED STEEL<br>POLE) (CP-A6)<br><br>(K-7-4)<br><br>(STL-10)<br><br>(REC-3-A)                                                | • Remove and dispose of 35' C4 wood pole.<br>• Replace with 45' S5.7 12-SIDED GALVANIZED steel pole.<br>• Replace primary framing.<br><br>• Replace secondary framing.<br><br>• Replace streetlight.<br><br>• Remove and Dispose fuse fid: 33604639 (qty=1) due to single-phase recloser 200a installation.<br>• Install (1) single-phase recloser 200A                                                                                                                                                                                   |
| 22103254 |                          |  | N/A                                                                                                  | (LABOR, cFCI(QTY=3))                                                                                                                                    | • Labor to install communicating Fault Current Indicator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 27371119 |                          |  | N/A                                                                                                  | (LABOR, cFCI(QTY=3))<br>(ASSY 1509 (QTY=3))<br>(ASSY 1505 FIG. C)<br>(CUTOUT BLADES(QTY=3<br>))                                                         | • Labor to install communicating Fault Current Indicator.<br>• Install standoff bracket assembly.<br>• Install cutout blades in cutout fuse assembly.                                                                                                                                                                                                                                                                                                                                                                                     |

## FEEDER 8801-03

| POLE ID  | COORDINATES LAT, LONG | Existing                                                                                                       | Install                                                                                                                                     | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|-----------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New Pole |                       | NA                                                                                                             | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br>(REC-2-1)                                                                        | <ul style="list-style-type: none"> <li>Install a new 50' S8 12-sided galvanized steel pole.</li> <li>Install primary framing.</li> <li>Install 1 kva transformer (8.32- 4.8kv/120v) from source side.</li> <li>Install (1) Three-Phase Recloser 8801-03A.</li> </ul>                                                                                                                                                                                                                                   |
| 19593191 |                       | (ASSY-1509 (QTY=3))                                                                                            | (LABOR TO CLOSE JUMPERS (QTY=3))                                                                                                            | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 1000479677 (qty=3) and close jumpers due to three-phase recloser</li> </ul> <b>8801-03A</b> installation.                                                                                                                                                                                                                                                                                                                          |
| 19595275 |                       | (40' H3 CONCRETE POLE)<br>(CP-C6- XARM) (42" CROSSARM) (STL-10)<br>(ASSY 1509 (QTY=3))<br>(E-1-2-3)<br>(F-1-3) | (45' S5.712-SIDED GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(REC-3-C)                                                           | <ul style="list-style-type: none"> <li>Remove and Dispose 40' H3 concrete pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel pole.</li> <li>Replace primary framing.</li> <li>Remove and dispose down guys.</li> <li>Remove and Dispose anchors.</li> <li>Replace streetlight.</li> <li>Remove and Dispose 42" crossarm</li> <li>Install (3) single-phase recloser 200A.</li> <li>Remove and Dispose fuse fid: 33712978 (qty=3) due to single-phase recloser 200a installation.</li> </ul> |
| 19595971 |                       | (35' C4 WOOD POLE) (CP-C6- XARM)<br>(42" CROSSARM) (STL-10) (ASSY 1509 (QTY=3))<br>(E-1-2-3)<br>(F-1-3)        | (45' S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(REC-3-C)                                                          | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C4 Wood pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel pole.</li> <li>Replace primary framing.</li> <li>Remove and Dispose down guys.</li> <li>Remove and Dispose anchors.</li> <li>Replace streetlight.</li> <li>Remove and Dispose 42" crossarm</li> <li>Install (3) single-phase recloser 200A.</li> <li>Remove and Dispose fuse fid: 33713402 (qty=3) due to single phase recloser 200A installation.</li> </ul>  |
| 12239114 |                       | (45' H4 CONCRETE POLE)<br>(CP-C6- XARM) (K-6)<br><br>(E-1-2-3)<br><br>(QTY=2)<br>(F-1-3<br>(QTY=2))            | (50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-C6-XARM)<br><br>(K-6)<br><br>(STL-10)<br><br>(E-1-2-3 (QTY=2))<br><br>(F-1-3 (QTY=2)) (REC-3-C) | <ul style="list-style-type: none"> <li>Remove and Dispose 45' H4 concrete pole.</li> <li>Replace with 50' S8 12-SIDED GALVANIZED steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Replace down guys.</li> <li>Replace streetlight.</li> <li>Install (3) single-phase recloser 200A.</li> </ul>                                                                                                                                                               |
| 12239425 |                       | (ASSY-1509 (QTY=3))<br>(42" CROSSARM)                                                                          | (LABOR TO CLOSE JUMPERS (QTY=3))                                                                                                            | <ul style="list-style-type: none"> <li>Remove and dispose of a 42" crossarm</li> <li>Remove and Dispose fuse fid: 33781055 (qty=3) and close due to three (3) single-phase recloser 200A installation.</li> </ul>                                                                                                                                                                                                                                                                                      |
| 19593950 |                       | (60' H6 CONCRETE POLE)<br>(CP-C6- XARM)<br>(CP-C5- XARM)                                                       | (60' S8.5 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C6-XARM)<br>(CP-C5-XARM)<br>(REC-3-C)                                                      | <ul style="list-style-type: none"> <li>Remove and Dispose 60' H6 concrete pole.</li> <li>Replace with 60' S8.5 12-SIDED GALVANIZED steel pole.</li> <li>Replace primary framings.</li> <li>Remove and Dispose 42" crossarm</li> </ul>                                                                                                                                                                                                                                                                  |

| POLE ID  | COORDINATES LAT, LONG | Existing                                              | Install                                                                                                  | SCOPE OF WORK                                                                                                                                                                                                                                                                                                            |
|----------|-----------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       | (ASSY-1509 (QTY=3))<br>(CROSSARM 42")                 |                                                                                                          | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33712771 (qty=3) due to single phase recloser 200A installation.</li> <li>Install (3) single-phase recloser 200A.</li> </ul>                                                                                                                         |
| 19594032 |                       | (ASSY-1509 (QTY=3))<br>(42" CROSSARM)                 | (CUTOUT BLADES (QTY=3)) (ASSY-1509 (QTY=3))<br><br>(ASSY-1505 FIG. C)                                    | <ul style="list-style-type: none"> <li>Remove and Dispose 42" crossarm</li> <li>Install cutout blades (qty=3) on existing 45' H4 concrete pole to three (3) single-phase recloser 200A installation.</li> <li>Remove and Dispose fuse fid: 1001467251 (qty=3) due to single-phase recloser 200A installation.</li> </ul> |
| 19596535 |                       | (35' CONCRETE POLE)<br>(CP-A1)<br>(K-7-4)<br>(STL-10) | (45' S5.7 12-SIDED GALVANIZED STEEL POLE)<br><br>(CP-A6)<br><br>(K-7-4)<br><br>(STL-10)<br><br>(REC-3-A) | <ul style="list-style-type: none"> <li>Remove and Dispose of 35' concrete pole.</li> <li>Replace with 45' S5.7 12-SIDED GALVANIZED steel pole.</li> <li>Replace primary framing.</li> <li>Replace secondary framing.</li> <li>Install (1) single-phase recloser 200A.</li> </ul>                                         |
| 19595269 |                       | (ASSY-1509 (QTY=3))                                   | (LABOR TO CLOSE JUMPERS (QTY=3))                                                                         | <ul style="list-style-type: none"> <li>Remove and Dispose fuse fid: 33713687 (qty=1) and close jumpers due to single-phase recloser 200A installation.</li> </ul>                                                                                                                                                        |
| 22103246 |                       | n/a                                                   | (LABOR cFCI (QTY=3))                                                                                     | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator.</li> </ul>                                                                                                                                                                                                                |
| 19593241 |                       | n/a                                                   | (LABOR cFCI (QTY=3))                                                                                     | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator.</li> </ul>                                                                                                                                                                                                                |

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

- 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.
- 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.
- Adjacent poles will be installed, in locations noted in table above, in conformance with LUMA and industry standards.
- 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.
- The brushing of vegetation will be limited to a 10' 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 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 18.32922, - 65.64667. 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

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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

7/2/2026

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 19] (Distribution) (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.
- 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 reinstate 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 reinstate 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 Jos&eacute; 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 prickly 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'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 Jos&eacute; 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) (Cost Only)**.

## 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

## General Info

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 752808                                                         | <b>P/W #</b>               | 108000                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 19] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## 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 describes 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 752808 Automation Program Group 19 (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 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 752808 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 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 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 26 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/alerts 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]<br>[REDACTED] | [REDACTED]<br>[REDACTED] |
| Arecibo | 8801-02       | [REDACTED]<br>[REDACTED] | [REDACTED]<br>[REDACTED] |
| Arecibo | 8801-03       | [REDACTED]<br>[REDACTED] | [REDACTED]<br>[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 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 five (5) Three Phase Reclosers.
- Install thirty-four (34) Single Phase Reclosers, remove fuses and close jumpers.
- Install four (4) 1 kVA transformers.
- Install fifteen (15) communicating fault indicators.

LUMA requests the alignment the scope and cost of Project 752808 with the approved 406 mitigation proposal from Project 746309 FAAS [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:
  - o 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.

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 | ██████, ██████        | N/A               | (50' ROUND TAPERED POLE)<br>(CP-C6-XARM) | <ul style="list-style-type: none"><li>· Install a new 50 ft. high galvanized steel round tapered pole.</li><li>· Install primary framing.</li></ul> |

| POLE FID | COORDINATES<br>LAT, LONG | Existing<br>(REMOVE) | 428 REPLACEMENT | SCOPE OF WORK |
|----------|--------------------------|----------------------|-----------------|---------------|
|----------|--------------------------|----------------------|-----------------|---------------|

|            |  |                                                                                                                             |                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------|--|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |  |                                                                                                                             | (K-5)<br>(ABS-3-XARM QTY=3)                                                   | <ul style="list-style-type: none"> <li>· Install secondary framing</li> <li>· Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                   |
| 19600870   |  | N/A                                                                                                                         | (K-5)<br>(3/0 TPX (QTY= 85 '))                                                | <ul style="list-style-type: none"> <li>· Install load side secondary framing.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 19600737   |  | (ASSY-1509 (QTY=3)) (CROSSARM)                                                                                              | (LABOR TO CLOSE JUMPERS(QTY=3))                                               | <ul style="list-style-type: none"> <li>· Remove and dispose crossarm.</li> <li>· Remove and dispose (3) Fuse Cutouts.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                               |
| 19601641   |  | (40' H3 CONCRETE POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(E-1-2-3(QTY=2))<br>(F-1-3(QTY=2)) (ASSY-1509 (QTY=3)) (42''CROSSARM) | (50' S8 ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(ABS-3-XARM QTY=3) | <ul style="list-style-type: none"> <li>· Remove and dispose of 40' H3 concrete pole and replace with 50' galvanized steel round tapered pole.</li> <li>· Remove, dispose and replace primary framing</li> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Remove and dispose (2) anchors and (2) downguys.</li> <li>· Remove and dispose crossarm.</li> <li>· Remove and dispose (3) Fuse Cutouts.</li> <li>· Install and connect one (1) set of Air Break Bypass Switches (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
| 19602031   |  | (45' H6 CONCRETE POLE)<br>(CP-C5-XARM)<br>(CP-B5-XARM)<br>(CP-A5)                                                           | (45' ROUND TAPERED POLE)<br>(CP-C5-XARM) (CP-B5- XARM) (CP-A5)                | <ul style="list-style-type: none"> <li>· Remove and dispose 45' H6 concrete pole and replace with 45' galvanized round tapered pole.</li> <li>· Remove, dispose and replace (3) primary framings.</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |
| 19602112   |  | (ASSY-1509 (QTY=1))                                                                                                         | (ASSY-1509 (QTY=1)) CLOSE JUMPERS                                             | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1000042602 |  | (ASSY-1509 (QTY=3))                                                                                                         | (ASSY-1509 (QTY=3))                                                           | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1000042601 |  | (ASSY-1509<br>(QTY=3))                                                                                                      | (LABOR TO CLOSE<br>JUMPERS(QTY=3))                                            | <ul style="list-style-type: none"> <li>· Remove and dispose (3) Fuse Cutouts.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                       |

| POLE FID | COORDINATES<br>LAT, LONG | Existing<br>(REMOVE)                                               | 428 REPLACEMENT                                     | SCOPE OF WORK                                                                                                                                                                                                                                                                        |
|----------|--------------------------|--------------------------------------------------------------------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19590943 |                          | (ASSY-1509<br>(QTY=3))                                             | (LABOR TO CLOSE<br>JUMPERS(QTY=3))                  | <ul style="list-style-type: none"> <li>· Remove and dispose (3) Fuse Cutouts.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                          |
| 27365725 |                          | (35' C5 WOOD POLE)<br>(CP-C6-XARM)<br>(CP-A5) (E-1-2-3)<br>(F-1-3) | (45' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(CP-A5) | <ul style="list-style-type: none"> <li>· Remove and dispose of 35' C5 wood pole and replace with 45' galvanized round tapered pole.</li> <li>· Remove, dispose and replace primary framings.</li> <li>· Remove and dispose downguy.</li> <li>· Remove and dispose anchor.</li> </ul> |
| 27366707 |                          | (ASSY-1509 (QTY=1))                                                | (LABOR TO CLOSE JUMPERS (QTY=1))                    | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                  |



|          |  |                                                  |                                     |                                                                                                                                                                                                                                      |
|----------|--|--------------------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27365767 |  | (CP-C7) (ASSY-1509<br>(QTY=3))<br>(42" CROSSARM) | (CP-C7) (E-1-2-3)<br>(F-1-3)        | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Remove and dispose 42" crossarm.</li> <li>Install downguy and anchor.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> </ul> |
| 27366370 |  | (ASSY-1509<br>(QTY=1))                           | (LABOR TO CLOSE<br>JUMPERS(QTY=1))  | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse Cutout.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                               |
| 27365874 |  | (ASSY-1509<br>(QTY=1))                           | (LABOR TO CLOSE<br>JUMPERS(QTY=3))  | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                              |
| 27367514 |  | (ASSY-1509 (QTY=1))                              | (ASSY-1509 (QTY=1))                 | <ul style="list-style-type: none"> <li>Remove, dispose and replace (1) Fuse Cutout.</li> <li>Labor to lower neutral and raise transformer.</li> </ul>                                                                                |
| 27367618 |  | (ASSY-1509 (QTY=1))                              | (LABOR TO CLOSE JUMPERS<br>(QTY=1)) | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse Cutout.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                               |
| 22103272 |  | N/A                                              | (LABOR, FCI(QTY=3))                 | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators (FCIs)</li> </ul>                                                                                                                                        |

#### Feeder 8801-02

| POLE FID   | COORDINATES<br>LAT, LONG | EXISTING<br>(REMOVE)                                                 | 428 REPLACEMENT                                                     | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                       |
|------------|--------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001353937 |                          | (45' H4 CONCRETE POLE) (S-6)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) | (50' ROUND TAPERED POLE)<br>(S-6)<br>(ABS-3-XARM QTY=3)             | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and 50' galvanized steel round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove and dispose (2) downguys.</li> <li>Remove and dispose (2) anchors.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
| 1001715694 |                          | (ASSY-1509 (QTY=2))                                                  | (ASSY-1509 (QTY=2)) (ASSY 1505 FIG B)<br>(CUT OUT<br>BLADES(QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose (2) Fuse Cutouts.</li> <li>Install stand-off bracket assembly.</li> <li>Install (2) cutout blades.</li> </ul>                                                                                                                                                                                                                             |
| 1001715793 |                          | (ASSY-1509 (QTY=2))                                                  | (ASSY-1509 (QTY=2)) (ASSY 1505 FIG B)<br>(CUT OUT<br>BLADES(QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose (2) Fuse Cutouts.</li> <li>Install stand-off bracket assembly.</li> <li>Install (2) cutout blades.</li> </ul>                                                                                                                                                                                                                             |
| 1001715829 |                          | (ASSY-1509 (QTY=2))                                                  | (ASSY-1509 (QTY=2)) (ASSY 1505 FIG B)<br>(CUT OUT<br>BLADES(QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose (2) Fuse Cutouts.</li> <li>Install stand-off bracket assembly.</li> <li>Install (2) cutout blades.</li> </ul>                                                                                                                                                                                                                             |

|            |  |  |                                              |                                                              |                                                                                                                                                                                                                                                                                                                           |
|------------|--|--|----------------------------------------------|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000269597 |  |  | (ASSY-1509 (QTY=6))<br>(42" CROSSARM)        | (LABOR TO CLOSE JUMPERS<br>(QTY=6))                          | <ul style="list-style-type: none"> <li>Remove and dispose crossarm.</li> <li>Remove and Dispose (6) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                             |
| 1000462787 |  |  | (45' H4 CONCRETE POLE)<br>(CP-A6)<br>(CP-B1) | (50' ROUND TAPERED POLE)<br>(CP-C6-XARM) (ABS-3-XARM QTY=3)  | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and 50' galvanized steel round tapered pole.</li> <li>Remove, dispose and replace primary framing</li> <li>Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.</li> </ul> |
| 27371666   |  |  | (40' C3 WOOD POLE)<br>(CP-C3-XARM)<br>(K-6)  | (45' S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(CP-C3-XARM) | <ul style="list-style-type: none"> <li>Remove and dispose of 40' C3 wood pole and replace with 45' galvanized round tapered pole.</li> </ul>                                                                                                                                                                              |

| POLE FID | COORDINATES<br>LAT, LONG | EXISTING<br>(REMOVE)                                                                                | 428 REPLACEMENT                                                                                                             | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------|--------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                          | (E-1-2-3 (QTY=3))<br><br>(F-1-3 (QTY=3)) (STL-10)<br>(ASSY-1509 (QTY=3))                            | (K-6)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) (STL-10)<br>(ASSY-1509 (QTY=3)) (ASSY 1505 FIG C)<br>(CUT OUT BLADES (QTY=3)) | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary and secondary framing</li> <li>Remove and dispose three (3) anchors and (3) downguys.</li> <li>Install (2) anchors and (2) downguys.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Install stand-off bracket assembly.</li> <li>Install (3) cutout blades.</li> </ul> |
| 27371093 |                          | (35' C4 WOOD POLE)<br>(CP-C6-XARM)<br>(CP-C5-XARM) ASSY-1509<br>(QTY=1)<br>(E-1-2-3)<br>(F-1-3)     | (45' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(CP-A5)<br>ASSY-1509 (QTY=1)                                                    | <ul style="list-style-type: none"> <li>Remove and dispose 35' C4 wood pole and replace with galvanized round tapered pole.</li> <li>Remove, dispose and replace (2) primary framings.</li> <li>Remove, dispose and replace (1) Fuse Cutout.</li> </ul>                                                                                                                                                                          |
| 27371222 |                          | (45' S3 STEEL POLE)<br>(CP-C6-XARM)<br><br>(K-7-4)<br><br>(STL-10)<br>(T-12) (ASSY-1509<br>(QTY=3)) | (45' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(K-7-4)<br>(STL-10) ASSY-1509 (QTY=3)                                           | <ul style="list-style-type: none"> <li>Remove and dispose of 45' S3 steel pole and replace with 45' galvanized round tapered pole.</li> <li>Remove, dispose and replace (2) primary framing secondary framing</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove and dispose capacitor bank.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                        |

|          |                |                                                                                   |                                                                                                                    |                                                                                                                                                                                                    |
|----------|----------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27371623 | ■■■■■<br>■■■■■ | (40' C5 WOOD POLE)<br>(CP-A6)<br><br>(K-7-B)<br><br>(STL-10)<br>(T-1) (ASSY-1509) | (45' S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(CP-A6)<br>(K-7-B) STL-10) (T-1)<br>(REC-3-A)<br>ASSY-1509 (QTY=1) | ·Remove and dispose 40' C5 wood pole and replace<br>galvanized round tapered pole.<br>·Remove, dispose and replace primary framing and<br>framing. Remove, dispose and replace streetlight (L<br>— |
|----------|----------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| POLE FID   | COORDINATES<br>LAT, LONG | EXISTING<br>(REMOVE)                                                                                 | 428 REPLACEMENT                                                                                                       | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------|--------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                          |                                                                                                      |                                                                                                                       | ·Relocate existing transformer to the new pole. Re<br>dispose and replace<br><br>(1) Fuse Cutout.                                                                                                                                                                                                                                                                                                             |
| 27373845   | ■■■■■<br>■■■■■           | (40' H4 CONCRETE POLE)<br>(CP-B6) (ASSY-1509 (QTY=2))                                                | (45' ROUND TAPERED POLE)<br>(CP-B6-XARM)<br>(E-1-2-3)<br>(F-1-3)<br>ASSY-1509 (QTY=2)                                 | ·Remove and dispose of 40' H4 concrete pole and<br>45' galvanized round tapered pole.<br>·Remove, dispose and replace primary framing<br>·Remove, dispose and replace (2) Fuse Cutouts.<br>· Install (1) anchor and (1) downguy.                                                                                                                                                                              |
| 1001715916 | ■■■■■                    | (ASSY-1509 (QTY=2))                                                                                  | (LABOR TO CLOSE<br>JUMPERS(QTY=2)<br><br>ASSY-1509 (QTY=2)                                                            | ·Remove, dispose and replace (2) Fuse Cutouts.<br><br>· Labor to close jumpers.                                                                                                                                                                                                                                                                                                                               |
| 1001715910 | ■■■■■<br>■■■■■           | (40' C4 WOOD POLE)<br>(CP-A6) (ASSY-1509) (E-<br>1-2-3)<br>(F-1-3)                                   | (45' ROUND TAPERED POLE)<br>(CP-A6)<br>ASSY-1509 (QTY=1)                                                              | ·Remove and dispose 40' C4 wood pole and replace<br>galvanized round tapered pole.<br>·Remove, dispose and replace primary framing<br><br>· Remove and dispose downguy.<br><br>· Remove and dispose anchor.<br><br>· Remove, dispose and replace (1) Fuse<br>Cutout.                                                                                                                                          |
| 27368823   | ■■■■■                    | (45' C3 WOOD POLE)<br>(CP-A6)<br>(K-7) (E-1-2-3)<br><br>(F-1-3)<br><br>(STL-10)<br>(T-1) (ASSY-1509) | (45' ROUND TAPERED POLE)<br>(CP-A6)<br>(K-7)<br>(STL-10)<br>(T-1) (ASSY-1509)<br>(ASSY 1505 FIG A) (CUTOUT<br>BLADES) | · Remove and dispose of 45'. C3 wood pole<br>with 45' galvanized round pole.<br>· Remove, dispose and replace primary framing<br>secondary framing<br>· Remove and dispose downguy and anchor.<br>· Remove, dispose and replace streetlight (LED<br>Type).<br>· Relocate existing transformer to the new pole.<br>· Remove, dispose and replace (1) Fuse Cutout.<br><br>· Install stand-off bracket assembly. |

| POLE FID | COORDINATES<br>LAT, LONG | EXISTING<br>(REMOVE) | 428 REPLACEMENT | SCOPE OF WORK |
|----------|--------------------------|----------------------|-----------------|---------------|
|----------|--------------------------|----------------------|-----------------|---------------|

|          |  |                                                                             |                                                                                            |                                                                                                                                                                                                                                                           |
|----------|--|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |  |                                                                             |                                                                                            | · Install cutout blade.                                                                                                                                                                                                                                   |
| 27368312 |  | (ASSY-1509<br>(QTY=1))                                                      | (LABOR TO CLOSE<br>JUMPERS(QTY=1))                                                         | · Remove and Dispose (1) Fuse Cutout.<br>· Labor to close jumpers.                                                                                                                                                                                        |
| 27369149 |  | (35' C4 WOOD POLE)<br>(CP-A6)<br>(K-7-4)<br>(STL-10) (ASSY-1509<br>(QTY=1)) | (45' ROUND TAPERED POLE)<br>(CP-A6)<br>(K-7-4)<br>(STL-10)                                 | · Remove and dispose 35' C4 wood pole and replace<br>galvanized round tapered pole.<br>· Remove, dispose and replace<br>primary framing and secondary fra<br>· Remove, dispose and replace streetlight (LED Type<br>· Remove and Dispose (1) Fuse Cutout. |
| 22103254 |  | N/A                                                                         | (LABOR, FCI(QTY=3))                                                                        | · Install (3) Fault Current Indicators<br>(FCIs).                                                                                                                                                                                                         |
| 27371119 |  | N/A                                                                         | (LABOR, FCI(QTY=3)) (ASSY 1509<br>(QTY=3)) (ASSY 1505 FIG. C)<br>(CUTOUT<br>BLADES(QTY=3)) | · Install (3) Fault Current Indicators (FCIs).<br>· Install standoff bracket assembly.<br>· Install (3) cutout blades in cutout fuse<br>assembly.                                                                                                         |

#### Feeder 8801-03

| POLE FID | COORDINATES LAT, LONG | EXISTING (REMOVE)                                                   | INSTALL                                                                  | SCOPE OF WORK                                                                                                                                                                                          |
|----------|-----------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New Pole |                       | N/A                                                                 | (50' TAPERED POLE) (CP-C6-<br>XARM)<br><br>(ABS-3-XARM QTY=3)            | · Install a new 50' galvanized round tapered steel pole<br>· Install primary framing<br>· Install and connect one (1) set of Air Break Bypass<br>Switches and the<br>framing hardware to support them. |
| 19593191 |                       | (ASSY-1509<br>(QTY=3))                                              | (LABOR TO CLOSE<br>JUMPERS(QTY=3))                                       | · Remove and dispose (3) Fuse Cutouts.<br>· Labor to close jumpers.                                                                                                                                    |
| 19595275 |                       | (40' H3 CONCRETE POLE)<br>(CP-C6-XARM)<br>(42" CROSARM)<br>(STL-10) | (45' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(STL-10)<br>(ASSY1509 QTY=3) | · Remove and dispose 40' H3 concrete pole and replace<br>a 45' galvanized round tapered steel pole.<br>· Remove, dispose and replace primary<br>framing.                                               |

| POLE FID | COORDINATES<br>LAT, LONG | EXISTING<br>(REMOVE) | INSTALL | SCOPE OF WORK |
|----------|--------------------------|----------------------|---------|---------------|
|----------|--------------------------|----------------------|---------|---------------|

|          |                |                                                                                                          |                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|----------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                | (ASSY 1509 (QTY=3)) (E-1-2-3)<br>(F-1-3)                                                                 |                                                                                                    | <ul style="list-style-type: none"> <li>Remove and dispose downguy and anchor.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove and dispose 42" crossarm.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                               |
| 19595971 | ■■■■■<br>■■■■■ | (35' C4 WOOD POLE)<br>(CP-C6-XARM)<br>(42" CROSARM)<br>(STL-10) (ASSY 1509 (QTY=3)) (E-1-2-3)<br>(F-1-3) | (45' S5.7 ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(STL-10) (ASSY1509 QTY=3)                         | <ul style="list-style-type: none"> <li>Remove and dispose 35' C4 wood pole and replace with 45' galvanized round tapered steel pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove and dispose down guy and anchor.</li> <li>Remove, dispose and replace streetlight (LED type).</li> <li>Remove and dispose 42" crossarm.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> </ul> |
| 12239114 | ■■■■■<br>■■■■■ | (45' H4 CONCRETE POLE)<br>(CP-C6-XARM)<br>(K-6)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2))                  | (50' ROUND TAPERED POLE)<br>(CP-C6-XARM) (K-6)<br>(STL-10)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 concrete pole and replace with 50' round tapered steel pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace (2) anchors and (2) downguys.</li> <li>Remove, dispose and replace streetlight (LED type).</li> </ul>                                                                         |
| 12239425 | ■■■■■          | (ASSY-1509 (QTY=3))<br>(42" CROSARM)                                                                     | (LABOR TO CLOSE JUMPERS (QTY=3)) (ASSY1509 QTY=3)                                                  | <ul style="list-style-type: none"> <li>Remove and dispose 42" crossarm.</li> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                           |
| 19593950 | ■■■■■<br>■■■■■ | (60' H6 CONCRETE POLE)<br>(CP-C6-XARM)<br>(CP-C5-XARM) (ASSY-1509 (QTY=3))                               | (60' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(CP-C5-XARM) (ASSY1509 QTY=3)                          | <ul style="list-style-type: none"> <li>Remove and dispose 60' H6 concrete pole and replace with 60' round tapered steel pole.</li> <li>Remove, dispose and replace (2) primary framing.</li> <li>Remove and dispose 42" crossarm.</li> </ul>                                                                                                                                                                         |

| POLE FID | COORDINATES<br>LAT, LONG | EXISTING<br>(REMOVE)                 | INSTALL                                                          | SCOPE OF WORK                                                                                                                                                                         |
|----------|--------------------------|--------------------------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                          | (CROSSARM 42")                       |                                                                  | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                       |
| 19594032 | ■■■■■                    | (ASSY-1509 (QTY=3))<br>(42" CROSARM) | (CUTOUT BLADES (QTY=3)) (ASSY-1509 (QTY=3))<br>(ASSY-1505 FIG C) | <ul style="list-style-type: none"> <li>Remove and dispose 42" crossarm.</li> <li>Install (3) cutout blades on existing pole.</li> <li>Remove and dispose (3) Fuse Cutouts.</li> </ul> |

|          |                |                                                               |                                                            |                                                                                                                                                                                                                                                                                         |
|----------|----------------|---------------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19596535 | ■■■■■<br>■■■■■ | (35' CONCRETE POLE)<br>(CP-A1)<br><br>(K-7-4)<br><br>(STL-10) | (45' ROUND TAPERED POLE)<br>(CP-A6)<br>(K-7-4)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose 35' concrete pole and replace with 45' round tapered steel pole.</li> <li>Remove, dispose and replace primary framing and secondary framing.</li> <li>Remove, dispose and replace streetlight (LED Type. (STL-10).</li> </ul> |
| 19595269 | ■■■■■          | ASSY                                                          | (LABOR TO CLOSE JUMPERS<br>(QTY=3))<br>(ASSY1509 QTY=3)    | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                        |
| 22103246 | ■■■■■<br>■■■■■ | NONE                                                          | (LABOR, FCI (QTY=3))                                       | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators (FCIs).</li> </ul>                                                                                                                                                                                          |
| 19593241 | ■■■■■<br>■■■■■ | NONE                                                          | (LABOR, FCI (QTY=3))                                       | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators (FCIs).</li> </ul>                                                                                                                                                                                          |

### 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.

### 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).

### 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."<sup>1</sup> 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."<sup>2</sup> The Guide emphasizes the importance of mitigation measures "to improve resilience of disaster-damaged facilities from future, similar damage to the facilities."<sup>3</sup> 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."<sup>4</sup> 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<br>Item                 | Quantity | FID        | Coordinates<br>Lat, Lon                                                                                                                                                        |
|---------|-------------------------------------------------|----------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8801-01 | Three-Phase Recloser<br>Radio Communication Kit | 1        | New Pole   | <br>     |
| 8801-01 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 19601641   | <br>     |
| 8801-01 | Single-Phase Recloser                           | 1        | 19602031   | <br>     |
| 8801-01 | Single-Phase Recloser                           | 3        | 1000042602 | <br>     |
| 8801-01 | Single-Phase Recloser                           | 1        | 27365725   | <br>     |
| 8801-01 | Single-Phase Recloser                           | 3        | 27365767   | <br>  |
| 8801-01 | Single-Phase Recloser                           | 1        | 27367514   | <br> |
| 8801-02 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 100135937  | <br> |
| 8801-02 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 1000462787 | <br> |
| 8801-02 | Single-Phase Recloser                           | 1        | 27371093   | <br> |
| 8801-02 | Single-Phase Recloser                           | 3        | 27371222   | <br> |
| 8801-02 | Single-Phase Recloser                           | 1        | 27371623   | <br> |

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 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 these specific 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 8801-01

| § 406 Hazard Mitigation Item             | Quantity | FID      | Coordinates<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
| 50ft S8.5 12-sided galvanized steel pole | 1        | New Pole | <div></div> <div></div>  |
| 50ft S8.5 12-sided galvanized steel pole | 1        | 19601641 | <div></div> <div></div>  |



|                                          |   |          |                          |
|------------------------------------------|---|----------|--------------------------|
| 45ft S5.7 12-sided galvanized steel pole | 1 | 19602031 | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1 | 27365725 | ██████████<br>██████████ |

Feeder 8801-02

| § 406 Hazard Mitigation Item             | Quantity | FID        | Coordinates<br>Lat, Long |
|------------------------------------------|----------|------------|--------------------------|
| 50ft S8.5 12-sided galvanized steel pole | 1        | 1001353937 | ██████████<br>██████████ |
| 50ft S8.5 12-sided galvanized steel pole | 1        | 1000462787 | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27371666   | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27371093   | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27371222   | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27371623   | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27373845   | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 1001715910 | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27368823   | ██████████               |

| § 406 Hazard Mitigation Item             | Quantity | FID      | Coordinates<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
|                                          |          |          | ██████████               |
| 45ft S5.7 12-sided galvanized steel pole | 1        | 27369149 | ██████████<br>██████████ |

Feeder 8801-03

| § 406 Hazard Mitigation Item              | Quantity | FID      | Coordinates      |
|-------------------------------------------|----------|----------|------------------|
|                                           |          |          | Lat, Long        |
| 50ft S8.5 12-sided galvanized steel pole  | 1        | New Pole | ██████<br>██████ |
| 45ft S5.7 12-sided galvanized steel pole  | 1        | 19595275 | ██████<br>██████ |
| 45ft S5.7 12-sided galvanized steel pole  | 1        | 19595971 | ██████<br>██████ |
| 50ft S8.5 12-sided galvanized steel pole  | 1        | 12239114 | ██████<br>██████ |
| 60ft. S8.5 12-sided galvanized steel pole | 1        | 19593950 | ██████<br>██████ |
| 45ft S5.7 12-sided galvanized steel pole  | 1        | 19596535 | ██████<br>██████ |

**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 identified 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, Long        |
| 8801-01 | cFCIs                        | 3        | 22103272 | ██████<br>██████ |
| 8801-02 | cFCIs                        | 3        | 22103254 | ██████<br>██████ |

|         |       |   |          |                  |
|---------|-------|---|----------|------------------|
| 8801-02 | cFCIs | 3 | 27371119 | ██████<br>██████ |
| 8801-03 | cFCIs | 3 | 22103246 | ██████<br>██████ |
| 8801-03 | cFCIs | 3 | 19593241 | ██████<br>██████ |

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.<sup>5</sup>

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 cFCI 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       | Coordinates<br>Lat, Long |
|---------|---------------------------------------------------------|----------|-----------|--------------------------|
| 8801-01 | 1 Kva Stainless-Steel Transformer<br>(8.32-4.80kv/120v) | 1        | 19601641  | ██████, ██████           |
| 8801-02 | 1 Kva Stainless-Steel Transformer (4.8/7.62kv-120v)     | 1        | 100135937 | ██████, ██████           |

| Feeder  | § 406 Hazard Mitigation Item                         | Quantity | FID        | Coordinates<br>Lat, Long |
|---------|------------------------------------------------------|----------|------------|--------------------------|
| 8801-02 | 1 Kva Stainless-Steel Transformer (4.8/7.62kv-120v)  | 1        | 1000462787 | ██████, ██████           |
| 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 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 FAAS 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<br>Lat. Long | Scope of Work                                                                                                                                                                                                                                                                                                                                   | FID        | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                        |
| New Pole    | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Install a new 50 ft. high galvanized steel round tapered pole.</li> <li>· Install primary framing.</li> <li>· Install secondary framing.</li> <li>· Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.</li> </ul>                                  | New Pole   | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Replace 50ft. round pole with a 50ft. S8.5 12-sided galvanized steel pole.</li> <li>· Install (1) Three-Phase Recloser 8801-01A on radial circuit.</li> <li>· Install and commission the radio communication kit for three-phase recloser.</li> </ul>                                                                                       |
| 19601641    | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Remove and dispose of 40ft. H3 concrete pole and replace with 50ft. galvanized steel round tapered pole.</li> <li>· Remove, dispose and replace primary framing.</li> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Remove and dispose (2) anchors and (2) downguys.</li> </ul> | 19601641   | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Replace 50ft. round pole with 50ft. S8 12-sided galvanized steel pole.</li> <li>· Install (1) Three-Phase Recloser 8801-01B On radial circuit.</li> <li>· Install and commission radio communication kit for three-phase recloser.</li> <li>· Install (1) 1 kVA stainless-steel transformer (8.32-4.80kV/120V) from source side.</li> </ul> |
| 428 Section |                          |                                                                                                                                                                                                                                                                                                                                                 | 406 HM     |                          |                                                                                                                                                                                                                                                                                                                                                                                      |
| Pole FID    | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                                                                                                                                                                                                                   | FID        | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                        |
|             |                          | <ul style="list-style-type: none"> <li>· Remove and dispose crossarm.</li> <li>· Remove and dispose (3) Fuse Cutouts.</li> <li>· Install and connect three (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.</li> </ul>                                                                              |            |                          |                                                                                                                                                                                                                                                                                                                                                                                      |
| 19602031    | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Remove and dispose 45ft. H6 concrete type pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace (3) primary framings.</li> </ul>                                                                                                                           | 19602031   | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (1) Fuse Cutouts on FID 19602112 with the installation of (1) Single-Phase Recloser 200A.</li> </ul>                                                                                                                                                     |
| 19602112    | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                                                                             |            |                          |                                                                                                                                                                                                                                                                                                                                                                                      |
| 1000042602  | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                               | 1000042602 | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>· Replace (3) Fuse Cutouts with the installation of (3) Single-Phase recloser 200A on existing pole.</li> </ul>                                                                                                                                                                                                                               |

|          |                |                                                                                                                                                                                                                                                                               |          |                |                                                                                                                                                                                                                       |
|----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27365725 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Remove and dispose 35ft. C5 wood pole and replace with 45ft. galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framings.</li> <li>Remove and dispose downguy.</li> <li>Remove and dispose anchor.</li> </ul> | 27365725 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Replace round pole with 45ft. S5.7 galvanized steel pole.</li> <li>Replace (1) Fuse Cutout on FID 27666707 with the installation of (1) Single-phase Recloser 200A.</li> </ul> |
| 27366707 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Remove, dispose and replace (1) Fuse Cutout.</li> <li>Labor to close Jumpers.</li> </ul>                                                                                                                                               |          |                |                                                                                                                                                                                                                       |
| 27365767 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Remove and dispose 42-inch crossarm.</li> <li>Install downguy and anchor.</li> </ul>                                                                                             | 27365767 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Replace (3) Fuse Cutouts with the installations (3) Single-Phase Recloser 200A in existing pole.</li> </ul>                                                                    |

| 428 Section |                          |                                                                                                                                                       |          |                          |                                                                                                                                                  | 406 HM |  |
|-------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Pole FID    | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                         | FID      | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                    |        |  |
|             |                          | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                       |          |                          |                                                                                                                                                  |        |  |
| 27367514    | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>Remove, dispose and replace (1) Fuse Cutout.</li> <li>Labor to lower neutral and raise transformer.</li> </ul> | 27367514 | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A in existing pole.</li> </ul> |        |  |
| 22103272    | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators (FCIs)</li> </ul>                                                         | 22103272 | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>Replace FCIs and install (3) Communicating Fault Current Indicators (cFCIs).</li> </ul>                   |        |  |

#### Feeder 8801-02

| 428 Section |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                |            |                          |                                                                                                                                                                                                                                                                                                                                                                                        | 406 HM |  |
|-------------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Pole FID    | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                                  | FID        | Coordinates<br>Lat. Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                          |        |  |
| 1001353937  | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>Remove and dispose 45ft. H4 concrete pole and replace with 50ft. galvanized steel round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove and dispose (2) downguys.</li> <li>Remove and dispose (2) anchors.</li> <li>Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.</li> </ul> | 1001353937 | ■■■■■<br>■■■■■           | <ul style="list-style-type: none"> <li>Replace 50ft. round pole with 50ft. S8.5 12- sided galvanized steel pole.</li> <li>Install one (1) 1 kVA stainless-steel transformer (4.8/7.62kv-120v) from source side.</li> <li>Install (1) Three-Phase Recloser 8801-02A on radial circuit.</li> <li>Install and commission radio communication kit for the Three-Phase Recloser.</li> </ul> |        |  |

|            |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            |                |                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000462787 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. galvanized steel round tapered pole.</li> <li>· Remove, dispose and replace primary framing</li> <li>· Install and connect one (1) set of Air Break Bypass Switches (ABS-3- XARM) and the framing hardware to support them.</li> </ul>                                                                                                                                                                                                        | 1000462787 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 50ft. round pole with 50ft. S8.5 12- sided galvanized steel pole.</li> <li>· Install one (1) 1kVA stainless-steel transformer (4.8/7.62kV- 120V) from source side.</li> <li>· Install (1) Three-Phase Recloser 8801-02B on radial circuit.</li> <li>· Install and commission radio communicating kit for the Three-Phase Recloser.</li> </ul> |
| 27371666   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose of 40ft. C3 wood pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace primary and secondary framing</li> <li>· Remove and dispose three (3) anchors and (3) downguys.</li> <li>· Install (2) anchors and (2) downguys.</li> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> <li>· Install stand-off bracket assembly.</li> <li>· Install (3) cutout blades.</li> </ul> | 27371666   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole.</li> </ul>                                                                                                                                                                                                                                                                          |

| 428 Section |                |                                                                                                                                                                                                                                                                                                                                                                                                                |          |                |                                                                                                                                                                                                                 | 406 HM |  |
|-------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Pole FID    | Coordinates    | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                  | FID      | Coordinates    | Scope of Work                                                                                                                                                                                                   |        |  |
|             | Lat. Long      |                                                                                                                                                                                                                                                                                                                                                                                                                |          | Lat. Long      |                                                                                                                                                                                                                 |        |  |
| 27371093    | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose 35ft. C4 wood pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace (2) primary framings.</li> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> </ul>                                                                                                                                           | 27371093 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A.</li> </ul>    |        |  |
| 27371222    | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose of 45ft. S3 steel pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace (2) primary framing and (1) secondary framing</li> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Remove and dispose capacitor bank.</li> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> </ul> | 27371222 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (3) Fuse Cutouts with the installation (3) Single-Phase Recloser 200A.</li> </ul> |        |  |
| 27371623    | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose 40ft. C5 wood pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace primary framing and secondary framing</li> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Relocate existing transformer to the new pole.</li> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> </ul>  | 27371623 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace round pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.</li> </ul>       |        |  |

|          |                |                                                                                                                                                                                                                                                                         |          |                |                                                                                                                                                                                                            |
|----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 27373845 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose of 40ft. H4 concrete pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace primary framing.</li> <li>· Remove, dispose and replace (2) Fuse Cutouts.</li> </ul> | 27373845 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace round pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Recloser 200A.</li> </ul> |
|----------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| 428 Section |                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                |                                                                                                                                                                                                                        | 406 HM |  |
|-------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Pole FID    | Coordinates    | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FID        | Coordinates    | Scope of Work                                                                                                                                                                                                          |        |  |
|             | Lat. Long      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            | Lat. Long      |                                                                                                                                                                                                                        |        |  |
|             |                | <ul style="list-style-type: none"> <li>· Install (1) anchor and (1) downguy.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            |                |                                                                                                                                                                                                                        |        |  |
| 1001715916  | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (2) Fuse Cutouts.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                         | 1001715914 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace (2) Fuse Cutouts on FID 1001715916 with the installation of (1) Single-Phase Recloser 200A.</li> </ul>                                                                |        |  |
| 1001715910  | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose 40ft. C4 wood pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace primary framing.</li> <li>· Remove and dispose downguy. and anchor.</li> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> </ul>                                                                                                                                                                                                                           | 1001715910 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (1) Fuse Cutout with the installation of (1) Single-Phase Recloser 200A.</li> </ul>        |        |  |
| 27368823    | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose of 45ft.. C3 wood pole and replace with 45ft. galvanized round pole.</li> <li>· Remove, dispose and replace primary framing and secondary framing.</li> <li>· Remove and dispose downguy and anchor.</li> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Relocate existing transformer to the new pole.</li> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> <li>· Install stand-off bracket assembly.</li> <li>· Install cutout blade.</li> </ul> | 27368823   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 45ft. round pole with 45ft. S5.7 galvanized steel pole.</li> </ul>                                                                                                    |        |  |
| 27369149    | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Remove and dispose of 35ft. C4 wood pole and replace with 45ft. galvanized round tapered pole.</li> <li>· Remove, dispose and replace primary framing and secondary framing.</li> </ul>                                                                                                                                                                                                                                                                                                             | 27369149   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>· Replace 45ft. rounded tapered pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (1) Fuse Cutout with the installation (1) Single-Phase Recloser 200A.</li> </ul> |        |  |

| 428 Section |             |               | 406 HM |             |               |
|-------------|-------------|---------------|--------|-------------|---------------|
| Pole FID    | Coordinates | Scope of Work | FID    | Coordinates | Scope of Work |
|             | Lat. Long   |               |        | Lat. Long   |               |



|          |                         |                                                                                                                                                                                                              |          |             |                                                                                                                                        |
|----------|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|----------------------------------------------------------------------------------------------------------------------------------------|
|          |                         | <ul style="list-style-type: none"> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Remove, dispose and replace (1) Fuse Cutout.</li> </ul>                                              |          |             |                                                                                                                                        |
| 22103254 | <div></div> <div></div> | <ul style="list-style-type: none"> <li>· Install (3) Fault Current Indicators (FCIs).</li> </ul>                                                                                                             | 22102538 | <div></div> | <ul style="list-style-type: none"> <li>· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).</li> </ul> |
| 27371119 | <div></div> <div></div> | <ul style="list-style-type: none"> <li>· Install (3) Fault Current Indicators (FCIs).</li> <li>· Install standoff bracket assembly.</li> <li>· Install (3) cutout blades in cutout fuse assembly.</li> </ul> | 33166532 | <div></div> | <ul style="list-style-type: none"> <li>· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).</li> </ul> |

#### Feeder 8801-03

| 428 Section |                         |                                                                                                                                                                                                                                                                               |          |                         |                                                                                                                                                                                                                                                                                                                                                                | 406 HM |  |
|-------------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Pole FID    | Coordinates             | Scope of Work                                                                                                                                                                                                                                                                 | FID      | Coordinates             | Scope of Work                                                                                                                                                                                                                                                                                                                                                  |        |  |
|             | Lat. Long               |                                                                                                                                                                                                                                                                               |          | Lat. Long               |                                                                                                                                                                                                                                                                                                                                                                |        |  |
| New Pole    | <div></div> <div></div> | <ul style="list-style-type: none"> <li>· Install a new 50ft. galvanized round tapered steel pole.</li> <li>· Install primary framing.</li> <li>· Install and connect one (1) set of Air Break Bypass Switches and the framing hardware to support them.</li> </ul>            | New Pole | <div></div> <div></div> | <ul style="list-style-type: none"> <li>· Replace 50ft. round pole with 50ft. S8.5 galvanized steel pole.</li> <li>· Install (1) 1 kVA stainless-steel transformer (8.32-4.8kV/120V) from source side.</li> <li>· Install (1) Three-Phase Recloser 8801-03A.</li> <li>· Install and commission radio communication kit for the Three-Phase Recloser.</li> </ul> |        |  |
| 19595275    | <div></div> <div></div> | <ul style="list-style-type: none"> <li>· Remove and dispose 40ft. H3 concrete pole and replace with a 45ft. galvanized round tapered steel pole.</li> <li>· Remove, dispose and replace primary framing.</li> <li>· Remove and dispose (1) downguy and (1) anchor.</li> </ul> | 19595275 | <div></div> <div></div> | <ul style="list-style-type: none"> <li>· Replace 45ft. rounded pole with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.</li> </ul>                                                                                                                                             |        |  |

| 428 Section |             |                                                                                                                                                                                                                 | 406 HM |             |               |
|-------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------------|---------------|
| Pole FID    | Coordinates | Scope of Work                                                                                                                                                                                                   | FID    | Coordinates | Scope of Work |
|             | Lat. Long   |                                                                                                                                                                                                                 |        | Lat. Long   |               |
|             |             | <ul style="list-style-type: none"> <li>· Remove, dispose and replace streetlight (LED Type).</li> <li>· Remove and dispose 42-inch crossarm.</li> <li>· Remove, dispose and replace (3) Fuse Cutout.</li> </ul> |        |             |               |

|          |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                            |          |                          |                                                                                                                                                                                                                                      |
|----------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19595971 | 18.33947,<br>[REDACTED]  | <ul style="list-style-type: none"> <li>· Remove and dispose 35ft. C4 wood pole and replace with a 45ft. galvanized round tapered steel pole.</li> <li>· Remove, dispose and replace primary framing.</li> <li>· Remove and dispose down guy and anchor.</li> <li>· Remove, dispose and replace streetlight (LED type).</li> <li>· Remove and dispose 42-inch crossarm.</li> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> </ul> | 19595971 | 18.33947,<br>[REDACTED]  | <ul style="list-style-type: none"> <li>· Replace 45ft. rounded pole with a 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.</li> </ul>                 |
| 12239114 | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Remove and dispose 45ft. H4 concrete pole and replace with 50ft. round tapered steel pole.</li> <li>· Remove, dispose and replace primary framing and secondary framing.</li> <li>· Remove, dispose and replace (2) anchors and (2) downguys.</li> <li>· Remove, dispose and replace streetlight (LED type).</li> </ul>                                                                           | 12239114 | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Replace 50ft. round pole with a 50ft., S8.5 galvanized steel pole.</li> <li>· Replace (3) Fuse Cutouts on FID 12239425 with the installation of (3) Single-Phase Reclosers 200A.</li> </ul> |
| 12239425 | 18.317189,<br>-66.407051 | <ul style="list-style-type: none"> <li>· Remove and dispose 42-inch crossarm.</li> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                       |          |                          |                                                                                                                                                                                                                                      |
| 19593950 | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Remove and dispose 60ft. H6 concrete pole and replace with 60ft. round tapered steel pole.</li> <li>· Remove, dispose and replace (2) primary framings.</li> </ul>                                                                                                                                                                                                                                | 19593950 | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Replace 60ft. round pole with 60ft. S8.5 12-sided galvanized steel pole.</li> <li>· Replace (3) Fuse Cutouts with the installation of (3) Single-Phase Recloser 200A.</li> </ul>            |

| 428 Section |                          |                                                                                                                                                                                                                                                                                                   |          |                          |                                                                                                                                                                                                                                   | 406 HM |  |
|-------------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--|
| Pole FID    | Coordinates              | Scope of Work                                                                                                                                                                                                                                                                                     | FID      | Coordinates              | Scope of Work                                                                                                                                                                                                                     |        |  |
|             | Lat. Long                |                                                                                                                                                                                                                                                                                                   |          | Lat. Long                |                                                                                                                                                                                                                                   |        |  |
|             |                          | <ul style="list-style-type: none"> <li>· Remove and dispose 42-inch crossarm.</li> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                 |          |                          |                                                                                                                                                                                                                                   |        |  |
| 19596535    | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Remove and dispose 35ft. concrete pole and replace with 45ft. round tapered steel pole.</li> <li>· Remove, dispose and replace primary framing and secondary framing.</li> <li>· Remove, dispose and replace streetlight (LED Type. (STL-10).</li> </ul> | 19596535 | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Replace 45ft. round pole. with 45ft. S5.7 galvanized steel pole.</li> <li>· Replace (3) Fuse Cutouts in FID 19595269 with the installation of (1) Single-Phase Recloser 200A.</li> </ul> |        |  |
| 19595269    | [REDACTED]               | <ul style="list-style-type: none"> <li>· Remove, dispose and replace (3) Fuse Cutouts.</li> <li>· Labor to close jumpers.</li> </ul>                                                                                                                                                              |          |                          |                                                                                                                                                                                                                                   |        |  |
| 22103246    | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Install (3) Fault Current Indicators (FCIs).</li> </ul>                                                                                                                                                                                                  | 22103246 | [REDACTED]<br>[REDACTED] | <ul style="list-style-type: none"> <li>· Replace FCIs and install three (3) Communicating Fault Current Indicators (cFCIs).</li> </ul>                                                                                            |        |  |

|          |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                      |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19593241 | <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> | <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> | <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> <div> <div> <div></div> <div></div> </div> <div> <div></div> <div></div> </div> </div> |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 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.

- 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 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 | 728827 | FAAST [Region 2 -Arecibo Group A] |
| 8801-03 |        | High Density (Vegetation)         |
| 8801-02 | 750067 | FAAST [Region 2 -Arecibo Group A] |
|         |        | Low Density (Vegetation)          |

☒ **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.

☒ **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.

☒ **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 FAASSt 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 FAASSt 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 FAASSt projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASSt 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 FAASSt 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-FAASSt transactions; non-FAASSt transactions remain unchanged. See document file: 'SP 752808- DR4339PR - Email Confirmation Sub-FAASSt Transaction Guidance.pdf.'"

#### **406 HMP Scope**

\*\*\*\*\*Version 1\*\*\*\*\*

**Project number:** [752808] FAASSt [Automation Program Group 19] (Distribution)

**Damage #:** 1310158; FAASSt [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 two (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) = | <u>\$146,122.01</u> |
| Hazard Mitigation Total Cost =                             | <b>\$723,597.72</b> |

#### **Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                      |                     |
|--------------------------------------|---------------------|
| Equipment and Materials (E&M) =      | \$320,428.90        |
| Architecture and Engineering (A&E) = | \$ 52,375.13        |
| Construction Cost =                  | <u>\$350,793.69</u> |
| Hazard Mitigation Total Cost =       | <b>\$723,597.72</b> |

#### **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 with 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

7/2/2026

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST [Automation Program Group 19] (Distribution) (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.
- 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 reinstate 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 reinstate 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 Jos&eacute; 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 prickly 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](mailto: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's Caribbean Ecological Service Field Office at [caribbean\\_es@fws.gov](mailto:caribbean_es@fws.gov). j. For questions regarding the Puerto Rican harlequin butterfly, the Point of Contacts are:
  - o Jose 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](mailto: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](mailto: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 work 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) (Cost Only)**.

## 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

## 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 \$3,477,224.96 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 1         | 8/27/2026      | \$651,237.95   | 90%        | Accepted     | 4339DRPRP01080001  |
| 0         | 2/6/2025       | \$2,478,264.52 | 90%        | Accepted     | 4339DRPRP01080001  |

**Department of Homeland Security  
Federal Emergency Management Agency**

v0

## General Info

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 752810                                                         | <b>P/W #</b>               | 108001                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 20] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

**Damage #1313024; FAASt [Automation Program Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02] (Distribution)**

### General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 20: Caguas
- **Facility Description:** Automation Program Underground Transmission Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02 (Distribution)
- **Approx. Year Built:** 1970
- **GPS Latitude/Longitude:** [REDACTED]

## Final Scope

1313024

**FAASt [Automation Program Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02] (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 an 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 that will 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 752810 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 Feeders 2601-01, 2602-02, 2601-03, and 2702-01.

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 impose additional load on poles due to the weight and operational components of the devices and it also increase the wind area exposed to extreme weather conditions, such as hurricanes, thereby augmenting the structural load these poles must withstand. Pole loading analysis will 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 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 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. 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 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.

Implementing 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. 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.

In a meeting between LUMA and FEMA, held in July 2024, FEMA asked how LUMA will provide full automation capabilities to the components in this project if fiber optic cable is not used, like LUMA proposed for the Vieques and Culebra Microgrids. 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 the **Appendix D - LUMA Active Projects** to show no duplication of scope elements.

## Facilities List

| Name   | Damage Number | Feeder Number | GPS Location |
|--------|---------------|---------------|--------------|
| Caguas | 1313024       | 2601-01       | [REDACTED]   |
| Caguas | 1313024       | 2601-03       | [REDACTED]   |
| Caguas | 1313024       | 2602-02       | [REDACTED]   |

|        |         |         |  |
|--------|---------|---------|--|
| Caguas | 1313024 | 2702-01 |  |
|--------|---------|---------|--|

Note: Please refer to **Appendix C —Project Considerations** for a list of all GPS locations to be impacted by this project.

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 2601-01

| POLE FID | COORDINATES LAT, LONG | Existing | Install                                                          | SCOPE OF WORK                                                                                                                                                                                 |
|----------|-----------------------|----------|------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |                       | (NONE)   | (60'-S8 GALVANIZED STEEL POLE) (OPS CP-C8) (S-6) (REC-2-2) (K-6) | <ul style="list-style-type: none"> <li>Install new 60'-S8 12-sided galvanized steel pole in new location mid span*.</li> <li>Install (1) Three-Phase recloser 2601-01A on a radial</li> </ul> |

| POLE FID | COORDINATES LAT, LONG | Existing                         | Install                                                                                                  | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                          |
|----------|-----------------------|----------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                  |                                                                                                          | configuration.<br><ul style="list-style-type: none"> <li>Install (1) 1kva transformer to feed source side</li> </ul>                                                                                                                                                                                                                                                   |
| 10351462 |                       | (45'C3 WOOD POLE) (S-1)<br>(K-6) | (50'-S8 12-SIDED GALVANIZED STEEL POLE)<br>(S-6)<br>(REC-2-2)<br>(K-6) (E-1-2-3)<br>(F-1-3)              | <ul style="list-style-type: none"> <li>Remove and dispose of the 45' C3 wood pole</li> <li>Replace with a 50' S8 12-sided galvanized steel pole.</li> <li>Install (1) down guys.</li> <li>Install (1) anchor.</li> <li>Use existing secondary conductor to feed source side.</li> <li>Install (1) Three-Phase Recloser 2601-01 B on a radial configuration.</li> </ul> |
| NEW POLE |                       | (NONE)                           | (50'-S8 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C6 XARM) (REC-2)<br>(K-6)<br>(87FT 1/0 TYPICAL (NERTINA)) | <ul style="list-style-type: none"> <li>Install new 50'-S8 12-sided galvanized steel pole in new location mid span*.</li> <li>Install Three-Phase Recloser 2601-01 C on a radial configuration.</li> <li>Install 87ft of secondary 1/0 tpx al (neritina) Fc source side.</li> </ul>                                                                                     |
| 10357297 |                       | (ASSY 1509 (QTY=3))              | (LABOR & REPAIR)                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose Fuse</li> </ul> <p>(fid:10861277) due to three-phase recloser 2601 installation.</p>                                                                                                                                                                                                                         |

|            |  |                                                                                                                                     |                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------|--|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10359335   |  | (ASSY 1509 (QTY=3))                                                                                                                 | (LABOR & REPAIR)                                                                                                           | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid:10864765) due to three-recloser 2601-01C Installation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |
| 10352712   |  | (ASSY 1509 (QTY=3))                                                                                                                 | (LABOR & REPAIR)                                                                                                           | <ul style="list-style-type: none"> <li>Remove and dispose Fuse due to three-phase recloser 2601-01 C Installation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   |
| 1000522388 |  | (ASSY 1509 (QTY=3))                                                                                                                 | (LABOR & REPAIR)                                                                                                           | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid: 1002046628) due to being located in the Mainline.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                               |
| 10361043   |  | (ASSY 1509 (QTY=3))                                                                                                                 | (LABOR & REPAIR)                                                                                                           | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid:1001303970) due to three- phase 2601-01 c Installation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                          |
| 10352708   |  | (45'-C3 WOOD POLE)<br>(S-4- XARM) (CP-B5<br>XARM) (ASSY 1509<br>(QTY=2)) (K-<br>5) (E-1-2-3<br>(QTY=2)) (F-1-3<br>(QTY=2)) (STL-10) | (50' S8 12-SIDED GALVANIZED<br>STEEL POLE)<br>(REC-3-B)<br>(S-6)<br>(CP-B5 XARM) (K-5)<br>(E-1-2-3)<br>(F-1-3)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose of a 45' C3 wood pole.</li> <li>Replace with 50' S8 12-Sided Galvanized steel pole.</li> <li>Install (2) Outout mounted Single- Phase Reclos on pole fid 10352708.</li> <li>Remove (2) down guy.</li> <li>Remove (2) anchor.</li> <li>Install (1) down guy.</li> <li>Install (1) anchor.</li> <li>Fuse (fid:10862287) removal due to cutout mounted single-phase recloser installation on pole fid 10352708.</li> <li>Replace streetlight.</li> </ul> |
| 10354083   |  | (40'-C5 WOOD POLE)<br>(CP-A6) (E-<br>1-2-3) (F-1-3)                                                                                 | (45' S5.7 12-SIDED GALVANIZED STEEL<br>POLE) (CP- A6)<br>(REC-3-A)                                                         | <ul style="list-style-type: none"> <li>Remove and dispose of 40' C5 wood pole.</li> <li>Replace with 45'-S5.7 12-Sided galvanized steel pole.</li> <li>Install (1) cutout mounted single-</li> </ul>                                                                                                                                                                                                                                                                                                            |

| POLE FID | COORDINATES LAT, LONG | Existing                                                                   | Install                                                                                              | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                            |
|----------|-----------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                                                            |                                                                                                      | phase recloser on pole fid 10354083. <ul style="list-style-type: none"> <li>Remove (1) down guy.</li> <li>Remove (1) Anchor.</li> </ul>                                                                                                                                                                                                  |
| 10354093 |                       | (40'-C5 WOOD POLE) (CP-A6)<br>(E- 1-2-3)<br>(F-1-3)<br>(K-7 B)<br>(STL-10) | (45' S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(CP- A3) (E-1-2-3)<br>(F-1-3)<br>(K-7 B)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose of a 40'C5 wood pole.</li> <li>Replace with 45' S5.7 12-sided galvanized steel pole due to cutout mounted single-phase recloser (qty=1) installation on pole fid 10354083</li> <li>Replace (1) down guy.</li> <li>Replace (1) anchor.</li> <li>Replace Streetlight.</li> </ul> |

|          |  |                                                                                                              |                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------|--|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10360709 |  | (45'-C3 WOOD POLE)<br>(S-6)<br>(CP-B5 XARM) (E-1-2-3)<br>(F-1-3)<br>(K-7 B)<br>(STL-10) (ASSY 1509 (QTY=2))  | (45'-S5.7 12-SIDE GALVANIZED STEEL POLE) (REC-3-B)<br>(S-6)<br>(CP-B5 XARM) (E-1-2-3)<br>(F-1-3)<br>(K-7-B)<br>(STL-10)  | <ul style="list-style-type: none"> <li>Remove and dispose of 45'C3 wood pole.</li> <li>Replace with 45' S.7 12-sided galvanized steel pole.</li> <li>Install (2) cutout mounted single- phase recloser on pole fid 10360709.</li> <li>Replace (1) down guy.</li> <li>Replace (1) anchor.</li> <li>Replace streetlight assembly.</li> <li>Fuse (fid:10864765) removal due to cutout mounted single-phase recloser (qty=2) installation on pole fid 10360709</li> </ul> |
| 10361952 |  | (35'-C4 WOOD POLE)<br>(S-5)<br>(CP- B5 XARM) (K-7 A)<br>(K-5)<br>(E-1-2-3(QTY=2))<br>(F-1-3(QTY=2)) (STL-10) | (45' S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(S-5)<br>(CP-B5 XARM) (REC-3-B)<br>(K-7 B) (E-1-2-3)<br>(F-1-3)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C4 wood pole.</li> <li>Replace with 45' S5.7 12-sided galvanized steel pole.</li> <li>Install (2) cutout mounted single- phase recloser on pole fid 10361952.</li> <li>Remove (2) down guys.</li> <li>Remove (2) anchors.</li> <li>Install (1) down guy.</li> <li>Install (1) anchor.</li> <li>Replace Streetlight.</li> </ul>                                                                       |
| 10362263 |  | (ASSY 1509 (QTY=2))                                                                                          | (LABOR & REPAIR)                                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid: 10867932) du cutout mounted single-phase recloser installation pole Fid:10361952.</li> </ul>                                                                                                                                                                                                                                                                                                     |
| 10354213 |  | (ASSY 1509 (QTY=1))                                                                                          | (LABOR & REPAIR)                                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid: 10864754) du cutout mounted single-phase recloser installation on pole fid:10354083.</li> </ul>                                                                                                                                                                                                                                                                                                  |
| 10362927 |  | (ASSY 1509 (QTY=2))                                                                                          | (LABOR & REPAIR)                                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid: 10866288) du cutout mounted single-phase recloser installation on pole fid:10361952.</li> </ul>                                                                                                                                                                                                                                                                                                  |
| 10354512 |  | (ASSY 1509 (QTY=1))                                                                                          | (LABOR & REPAIR)                                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid: 10864748) du cutout mounted single-phase recloser installation pole fid:10354083.</li> </ul>                                                                                                                                                                                                                                                                                                     |
| None     |  | None                                                                                                         | (LABOR, cFCI) (QTY=3)                                                                                                    | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator in segment</li> </ul>                                                                                                                                                                                                                                                                                                                                                   |

| POLE FID | COORDINATES LAT, LONG | Existing | Install               | SCOPE OF WORK                                                                                                                 |
|----------|-----------------------|----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
|          |                       |          |                       | 6673763.                                                                                                                      |
| None     |                       | None     | (LABOR, cFCI) (QTY=3) | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current Indicator in segment 10868121.</li> </ul> |

|            |  |                                                                |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                             |
|------------|--|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000522679 |  | (50' H4 CONCRETE POLE)<br><br>(S-6-2)<br><br>(K-7-4) ( STL-10) | (50' S8 12-SIDED GALVANIZED<br>STEEL POLE)<br><br>(ABS-3-XARM)<br><br>(S-6-2)<br><br>(K-7 B)<br><br>(K-5)<br>(E-1-2-3 (QTY=2)) (F-4-2)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose 50' H4 Concrete Pole.</li> <li>Replace with 50' S8 12-Sided Galvanized steel pole.</li> <li>Install <b>switch</b> due to cFOI installation.</li> <li>Replace streetlight.</li> <li>Install (2) down guys.</li> <li>Install (1) anchor.</li> </ul> |
|------------|--|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### Feeder 2601-03

| POLE ID    | COORDINATES LAT, LONG | Existing                                                                             | Install                                                                                           | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------|-----------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001734430 |                       | (45' H4 CONCRETE POLE)<br><br>(S-6) (ASSY<br>1509(QTY=3)) (STL-10)<br>(K-6)<br>(K-5) | (50' S8 12-SIDED GALVANIZED<br>POLE) (S-6)<br>(REC-2-2 Ver 3.) (STL-10)<br><br>(K-6)<br><br>(K-5) | <ul style="list-style-type: none"> <li>Remove and dispose of 45' H4 concrete pole.</li> <li>Replace with 50' S8 12-Sided galvanized steel pole.</li> <li>Replace primary and Secondary framing.</li> <li>Remove fuse fid 10954590 (qty=3).</li> <li>Install (1) Three-Phase recloser 2601-03 A.</li> <li>Install (1) 1 kva transformer (4.80/8.32 120/240 v) for source side.</li> <li>Use existing secondary conductor as Power supply for recloser load side.</li> <li>Replace streetlight.</li> </ul>                   |
| 7102218    |                       | 40' H4 CONCRETE POLE)<br>(K-6)<br>(STL-10)                                           | (50' S8 12-SIDED GALVANIZED<br>STEEL POLE)<br>(S-6) (REC-2-2 Ver. 3)<br><br>(STL-10)<br><br>(K-6) | <ul style="list-style-type: none"> <li>Remove and dispose of 40' H4 Concrete pole.</li> <li>Replace with 50' S8 12-Sided Galvanized steel pole.</li> <li>Replace primary and Secondary framing.</li> <li>Install (1) Three-Phase Recloser 2601-03</li> <li>Install (1) 1 kva transformer (4.80/8.32 kv 120/240 v) for load side.</li> <li>Use existing secondary conductor as Power supply for recloser source side.</li> <li>Replace streetlight.</li> <li>Install spacer starting at 60 inches from pole top.</li> </ul> |
| 7103730    |                       | (ASSY 1509<br>QTY=1))                                                                | (LABOR & REPAIR)                                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose Fuse fid 10951948 (qty=1) due to three-</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                               |

|  |  |  |  |                                        |
|--|--|--|--|----------------------------------------|
|  |  |  |  | phase recloser 2601-03 a installation. |
|--|--|--|--|----------------------------------------|

|      |  |      |                       |                                                                                                                               |
|------|--|------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------|
| None |  | None | (LABOR, cFOI) (QTY=3) | <ul style="list-style-type: none"> <li>• Labor to install communicating Fault Curr indicator in segment 6673772.</li> </ul>   |
| None |  | None | (LABOR, cFOI) (QTY=3) | <ul style="list-style-type: none"> <li>• Labor to install communicating Fault Current indicator in segment 1095568</li> </ul> |

#### Feeder 2602-02

| POLE/FID   | COORDINATES LAT, LONG | Existing                                                                     | Install                                                                                                                            | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                            |
|------------|-----------------------|------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7212183    |                       | (40'-C2 WOOD POLE) (S-3)<br>(K-7)<br>B) (E-1-2-3 (QTY = 1)) (F-1-3 (QTY =1)) | (50' S8 12-SIDED GALVANIZED STEEL POLE)<br>(S-6)<br>(REC-2-2 VER 3)<br>(K-7-4)<br>(K-6)<br>(E-1-2-3 (QTY = 1))<br>(F-1-3 (QTY =1)) | <ul style="list-style-type: none"> <li>• Remove and dispose of a 40' C2 wood pole.</li> <li>• Replace with 50' S8 12-sided Galvanized Steel Pole.</li> <li>• Install (1) Three-Phase recloser 2602-02</li> <li>• Install (1) 1 kva transformer (2.40/4.16 kV 120/240 v) for source side Radial configuration.</li> <li>• Replace (1) Anchor.</li> <li>• Replace (1) down guy.</li> </ul> |
| 7211855    |                       | (ASSY 1509 (QTY=3))                                                          | (LABOR & REPAIR)                                                                                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose Fuses (fid: 843197) due to three-phase recloser A installation.</li> </ul>                                                                                                                                                                                                                                                   |
| 7212343    |                       | (ASSY 1509 (QTY=3))                                                          | (LABOR & REPAIR)                                                                                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose Fuses (fid: 843201) due to three-phase recloser A installation.</li> </ul>                                                                                                                                                                                                                                                   |
| 7213634    |                       | (ASSY 1509 (QTY=3))                                                          | (LABOR & REPAIR)                                                                                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose Fuses (fid: 843256) due to three-phase recloser A installation.</li> </ul>                                                                                                                                                                                                                                                   |
| 7936496    |                       | (45'-C3 WOOD POLE)<br>(CP-A6)<br>(K-7 B)                                     | (45' S5.7 12-SIDED GALVANIZED STEEL POLE) (REC-3-A)<br>(CP-A6)<br>(K-7 B)                                                          | <ul style="list-style-type: none"> <li>• Remove and dispose of a 45' C3 wood pole.</li> <li>• Replace with 45' S5.7 12-sided galvanized steel pole.</li> <li>• Install Outout mounted Single- Phase recloser CVM-A</li> </ul>                                                                                                                                                            |
| 7212941    |                       | (40'-S3 GALVANIZED STEEL POLE) (CP-A6)<br>(K-7 A) (STL-10)                   | (45' S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(CP-A6)<br>(K-7 A)<br>(STL- 10)<br>(REC-3)                                            | <ul style="list-style-type: none"> <li>• Remove and dispose of 40' S3 galvanized steel pole.</li> <li>• Replace with 45' S5.7 12-Sided galvanized steel pole.</li> <li>• Install Outout Mounted Single- Phase recloser CVM-B.</li> <li>• Replace complete streetlight assembly.</li> </ul>                                                                                               |
| 7936127    |                       | (ASSY 1509 (QTY=1))                                                          | (LABOR & REPAIR)                                                                                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose FUSES (FID: 843133) due to single-phase CVM-A Installation.</li> </ul>                                                                                                                                                                                                                                                       |
| 7936501    |                       | (ASSY 1509 (QTY=1))                                                          | (LABOR & REPAIR)                                                                                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose FUSES (FID: 8431947) due to single-phase CVM- Installation.</li> </ul>                                                                                                                                                                                                                                                       |
| 1002011550 |                       | (ASSY 1509                                                                   | (LABOR & REPAIR)                                                                                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose FUSES</li> </ul>                                                                                                                                                                                                                                                                                                             |

| POLE ID | COORDINATES LAT, LONG | Existing                                                         | Install                                                                                                                                        | SCOPE OF WORK                                                                                                                                                                                                                                                                                    |
|---------|-----------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                       | (QTY=1))                                                         |                                                                                                                                                | (FID: 1002011558) due to single-phase OMR-B Installation.                                                                                                                                                                                                                                        |
| 7213095 |                       | (ASSY 1509 (QTY=1))                                              | (LABOR & REPAIR)                                                                                                                               | • Remove and dispose FUSES (FID: 84329 due to single-phase OMR-B Installation.                                                                                                                                                                                                                   |
| 7213607 |                       | (ASSY 1509 (QTY=1))                                              | (LABOR & REPAIR)                                                                                                                               | • Remove and dispose FUSES (FID: 84329 due to single-phase OMR-B Installation.                                                                                                                                                                                                                   |
| None    |                       | (NONE)                                                           | (LABOR, cFCI) (QTY=3)                                                                                                                          | • Labor to install communicating Fault Curr Indicator cFCI in segment 7114242.                                                                                                                                                                                                                   |
| None    |                       | (NONE)                                                           | (LABOR, cFCI) (QTY=3)                                                                                                                          | • Labor to install communicating Fault Curr Indicator cFCI in segment 8432625.                                                                                                                                                                                                                   |
| 8432625 |                       | 50'-C2 WOOD POLE (CP-06 XARM) (K-7 B) (STL-10) (E-1-2-3) (F-1-3) | (50' S8 12-SIDED GALVANIZED STEEL POLE) (CP-06-XARM) (ABS-3-XARM) (K-7 B) (STL-10) (E-1-2-3) (F-1-3) (T-1) (37.5KVA, 2.40/4.16 KV - 120/240 V) | <ul style="list-style-type: none"> <li>• Remove and dispose of 50' C2 wood pole</li> <li>• Replace with 50' S8 12-sided Galvanizer Steel Pole.</li> <li>• Install air breaker switch.</li> <li>• Replace street light.</li> <li>• Replace transformer (37.5kva, 2.40/4.16 120/240 v).</li> </ul> |

#### Feeder 2702-01

| POLE ID  | COORDINATES LAT, LONG | Existing | Install                                                                                   | SCOPE OF WORK                                                                                                                                                                                                                                                                                                            |
|----------|-----------------------|----------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |                       | (NONE)   | (70'-S8 GALVANIZED STEEL POLE) (38KV VERTICAL SUSPENSION) (CP-06 XARM) (REC-2-2 VERS. 3)) | <ul style="list-style-type: none"> <li>• Install new galvanized 70'-S8 12-sided galvanized pole in new location mid span</li> <li>• Install transmission assembly.</li> <li>• Install (1) Three-Phase Recloser 2702-01 A.</li> <li>• Install (2) 1kva (4.80/8.32 kv) transform for source side and load side.</li> </ul> |



|          |  |                                                                                                      |                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                   |
|----------|--|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7117414  |  | (50'H6 CONCRETE POLE)<br>(38KV DEADEND- SC-<br>VERTICAL DEADEND ASSY<br>10-60)<br>(CP-C1)<br>(CP-A5) | 70'-S8 12-SIDED GALVANIZED<br>STEEL POLE)<br>(38KV DEADEND-SC- VERTICAL<br>DEADEND ASSY 10-60) (CP-C1)<br><br>(CP-A5)<br><br>(E-1-2-3(QTY-2)) (F 4-2) | <ul style="list-style-type: none"> <li>Remove and dispose of 50' H6 concrete pole.</li> <li>Replace with pole 70'-S8 12- Sided galvanized steel pole.</li> <li>Due to installation of recloser 2702-01 A, replace transmission assembly.</li> <li>Replace primary framing.</li> <li>Install (2) down guys.</li> <li>Install (1) Anchor</li> </ul> |
| 10650343 |  | (ASSY 1509<br>(QTY=3))                                                                               | (LABOR & REPAIR)                                                                                                                                      | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid:8455275) due to three phase recloser 2702-01A</li> </ul>                                                                                                                                                                                                                      |

| POLE ID    | COORDINATES LAT, LONG | Existing                                                      | Install                                                                                             | SCOPE OF WORK                                                                                                                                                                                                                           |
|------------|-----------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                       |                                                               |                                                                                                     | installation.                                                                                                                                                                                                                           |
| 1001756465 |                       | (ASSY 1509<br>(QTY=3))                                        | (LABOR & REPAIR)                                                                                    | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid:8456247) due to three phase recloser 2702-01 a installation.</li> </ul>                                                                                             |
| 7157370    |                       | (65'-H6 CONCRETE POLE)<br>(38KV VERTICAL<br>SUSPENSION) (S-1) | (70' S8 12-SIDED GALVANIZED STEEL<br>POLE) (38KV VERTICAL SUSPENSION)<br><br>(S-6)<br><br>(REC-3-C) | <ul style="list-style-type: none"> <li>Replace concrete pole with 70'- S8 12-Sided galvanized steel pole.</li> <li>Install (3) single-phase recloser CMR-A.</li> <li>Replace primary framing.</li> </ul>                                |
| NEW POLE   |                       | (NONE)                                                        | (45'-S5.7 12-SIDED GALVANIZED STEEL<br>POLE) (CP-B6 XARM)<br><br>(REC-3 B)                          | <ul style="list-style-type: none"> <li>Install new galvanized steel pole 45'-S5 12-sided galvanized steel pole in new location mid span*.</li> <li>Install (2) single-phase recloser CMR-B.</li> <li>Replace primary Framing</li> </ul> |
| 7118030    |                       | (FUSE REMOVAL<br>(QTY=3))                                     | (LABOR & REPAIR)                                                                                    | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid: 8453128) to single phase CMR-B installation.</li> </ul>                                                                                                            |
| 7116210    |                       | (FUSE REMOVAL<br>(QTY=3))                                     | (LABOR & REPAIR)                                                                                    | <ul style="list-style-type: none"> <li>Remove and Fuse (fid:8453141) removal single-phase CMR- B installation.</li> </ul>                                                                                                               |
| 1001325535 |                       | (FUSE REMOVAL<br>(QTY=3))                                     | (LABOR & REPAIR)                                                                                    | <ul style="list-style-type: none"> <li>Remove and dispose Fuse (fid:8453311) due to single-phase CMR-A installation.</li> </ul>                                                                                                         |

|         |  |  |                                                                                             |                                                                                                                                                |                                                                                                                                                                                                                                                                                                                         |
|---------|--|--|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7118824 |  |  | (35' C4 WOOD POLE)<br>(AC-C3 XARM) (STL-10)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) (K-7 B) | (45'-S5.7 12-SIDED GALVANIZED STEEL<br>POLE) (CP-C3 XARM)<br>(ABS-3-XARM)<br>(STL-10)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) (K-7 B)<br>(K-5) | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C4 wood pole</li> <li>Replace with 45' S5.7 12-Sided galvanize steel pole.</li> <li>Install <b>switch A</b> due to cFCI installation.</li> <li>Replace street light assembly.</li> <li>Replace (2) Down guys.</li> <li>Replace (2) anchors.</li> </ul> |
| None    |  |  | None                                                                                        | (LABOR cFCI) (QTY=3)                                                                                                                           | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current indicator cFCI in segment 6724656.</li> </ul>                                                                                                                                                                                       |
| None    |  |  | None                                                                                        | (LABOR cFCI) (QTY=3)                                                                                                                           | <ul style="list-style-type: none"> <li>Labor to install communicating Fault Current indicator cFCI in segment 845</li> </ul>                                                                                                                                                                                            |

## 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), 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, the pole will be installed within 3 feet of the same location.
- b. Most pole installations are to replace existing poles at the same location; there are four 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 will be installed according to 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 brushing 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.

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 Caguas Regional Warehouse, whose address is Carretera # 1 Jose Mercado Corner, Caguas, PR. Coordinates are [REDACTED]. [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 cleared 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 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              | \$206,974.47   | -   | \$206,974.47   |
| MANAGEMENT            | \$126,721.23   | -   | \$126,721.23   |
| Group 20- DAUT CAGUAS | \$2,178,563.01 | -   | \$2,178,563.01 |
| GENERAL CONDITIONS    | \$133,727.36   | -   | \$133,727.36   |
| CONTINGENCY           | \$310,971.71   | -   | \$310,971.71   |
| COST TOTALS           | \$2,956,957.78 | -   | \$2,956,957.78 |

|                   |                                      |                |
|-------------------|--------------------------------------|----------------|
| DEDUCTIONS        | TOTAL INSURANCE PROCEEDS<br>RECEIVED | \$ 0           |
| FAASt ALLOCATIONS | FAASt Project # 752810 TOTAL         | \$2,623,262.08 |
|                   | FAASt A&E # 335168 TOTAL             | \$333,695.70   |

FEMA Project Cost Summary, Version 0

Work to be Completed (WTBC): \$2,956,957.78

A&E Deduction (Global A&E FAASt 335168: -\$333,695.70

Project Total: \$2,623,262.08

## Attachments:

### Project Notes:

1. Refer to the detailed SOW provided in document 752810- DR4339PR- DSOW Group 20- DAUT.pdf
2. For Cost Estimate detailed information, refer to documents/attachments labeled: 752810-DR4339PR-APPENDIX B- DETAIL COST ESTIMATE.xlsx
3. For reference documents Appendix A through D, see the file labeled:

APPENDIX A - Initial Scope of Work

APPENDIX B - Detailed Cost Estimate

APPENDIX C - Project Considerations

APPENDIX D - LUMA's Active Projects

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

## 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 | \$2,956,957.78 | Uncompleted |
| 3510 | 1        | Lump Sum | (\$333,695.70) | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |

CRC Gross Cost \$2,623,262.08

Total 406 HMP Cost \$0.00

Total Insurance Reductions \$0.00

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CRC Net Cost \$2,623,262.08

Federal Share (90.00%) \$2,360,935.88

Non-Federal Share (10.00%) \$262,326.20

## 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

7/17/2026

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**

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**6/11/2026**

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 20] (Distribution) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST [Automation Program Group 20] (Distribution) (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.

- 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.
- 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 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.
- Puerto Rican boa (PR boa; *Chilabothrus inornatus*) In 2023, the Service amended a Programmatic Biological Opinion (PBO) for the Puerto Rican boa and the Virgin Islands tree boa. The below measures are included as Terms and Conditions (T&Cs) in the amended PBO (USFWS 2023). These T&Cs shall be part of FEMA's conditions in projects where these species can occur, and a copy of the PBO should be made available to the Applicant for compliance. 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 Service's 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](mailto:Caribbean_es@fws.gov) or [jose\\_cruz-burgos@fws.gov](mailto:jose_cruz-burgos@fws.gov)
- Coqui Guajon (*Eleutherodactylus cooki*) Conservation Measures to be implemented for a coqui guajon: i. Inform all project personnel about the potential presence of the coqui guajon 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. 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. An educational poster or sign with photos or illustrations of the species should be displayed at the project site. ii. 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. iii. Erosion and Sedimentation Control Best Management Practices (BMPs) must be included in the project scope of work when working within or adjacent to the coqui guajon 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. iv. 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 Maria. The guide is available at: <https://www.fws.gov/media/guidance-repair-replacement-and-clean-structures-streams-and-waterways-puerto-rico-and-us> If at any time you have doubts if the species or its habitat are present within a particular project or if the project may affect or not the species and its habitat, you may contact: Jose Cruz-Burgos, Endangered Species Program Coordinator. Mobile: 305-304-1386. Office phone: 786-244-0081. Office Direct Line: 939-320-3120. Email: [jose\\_cruz-burgos@fws.gov](mailto:jose_cruz-burgos@fws.gov)
- The below conservation measures apply to the following species: Puerto Rican parrot (*Amazona vittata*) and Puerto Rican broad-winged hawk (*Buteo platypterus brunescens*). 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 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](mailto: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](mailto:jose_cruz-burgos@fws.gov)
- For Feeders 2601-03 and 2702-01: 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 must provide documentation at close-out that proves completion of required Conservation Measures.
- 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 20] (Distribution) (Cost Only)**.

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 12/31/2024 4:25 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 1:22 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

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 752810                                                         | <b>P/W #</b>               | 108001                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 20] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

**Damage #1313024; FAASt [Automation Program Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02] (Distribution)**

### General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 20: Caguas
- **Facility Description:** Automation Program Underground Transmission Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02 (Distribution)
- **Approx. Year Built:** 1970
- **GPS Latitude/Longitude:** [REDACTED]

## Final Scope

1313024

**FAASt [Automation Program Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02] (Distribution)**

\*\*\*\*\* VERSION 1 \*\*\*\*\*

Version 1 has been created to capture change in scope and cost as per Applicant provided documentation. Refer to documents labeled: "752810- DR4339PR - Project Amendment Request Letter DA Group 20 v1.pdf", "752810-DR4339PR- DSOW Group 20 Revision 08 - V1", and "752810-DR4339PR-APPENDIX A -LUMA Project Cost Estimate Revision 08".

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 752810 Automation Program Group 20 (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 752810 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 2601-01, 2601-03, 2602-02, and 2702-01.

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 nineteen 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 20 Feeder Lines**

| Name   | Feeder Number | GPS Start   | GPS End     |
|--------|---------------|-------------|-------------|
|        |               | ██████████, | ██████████, |
| Caguas | 2601-01       | ██████████  | ██████████  |
|        |               | ██████████, | ██████████, |

| Caguas | 2601-03       |           |         |
|--------|---------------|-----------|---------|
|        |               |           |         |
| Name   | Feeder Number | GPS Start | GPS End |
|        |               |           |         |
| Caguas | 2602-02       |           |         |
|        |               |           |         |
| Caguas | 2702-01       |           |         |

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 Regional Warehouse, whose address is # 1 Street, Jose Mercado Corner, Caguas, PR. Warehouse coordinates are . The staging area will also be in the warehouse located at .

## 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:

☒ 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 sixteen (16) damaged poles.
- Install four (4) new poles.
- Install seven (7) Three Phase Reclosers.
- Install fourteen (14) Single Phase Reclosers, remove fuses and close jumpers.
- Install six (6) 1 kVA transformers.
- Install twenty-four (24) communicating fault indicators.

LUMA requests the alignment the scope and cost of Project 752810 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:

o 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.

• Due to engineering changes to the feeders in the project, this DSOW now includes six

(6) poles that were not part of Version 0 of the project.

o Three (3) new pole installations at new locations.

o Three (3) poles to be removed and replaced as part of the revised design.

o 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.

## 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 2601-01

| POLE FID | COORDINATES LAT, LONG | Existing (Remove) | 428 (Replacement)      | SCOPE OF WORK                         |
|----------|-----------------------|-------------------|------------------------|---------------------------------------|
| NEW POLE | 18.145109,            | (NONE)            | (50FT GALVANIZED ROUND | · Install a new 50FT galvanized round |

| POLE FID | COORDINATES LAT, LONG | Existing (Remove)                   | 428 (Replacement)                                                                                            | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                             |
|----------|-----------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                     | POLE<br>(OPS CP-C8) (S-6) (K-6)<br>(ABS-3-XARM QTY=3)                                                        | tapered pole in new location mid sp<br>· Install (2) primary and (1) second<br>framings.<br>· Install and connect one (1) set of<br>Break Bypass Switch (ABS-3-XAF<br>and the framing hardware to supp<br>them.                                                                                                                           |
| 10351462 |                       | (45'C3 WOOD POLE)<br>(S-1)<br>(K-6) | (50FT GALVANIZED ROUND<br>TAPERED POLE)<br>(S-6)<br><br>(K-6) (E-1-2-3)<br>(F-1-3)<br><br>(ABS-3-XARM QTY=3) | · Remove and dispose of the 45<br>wood pole and replace with a<br>galvanized round pole.<br>· Install (1) down guys.<br><br>· Install (1) anchor.<br>· Remove, dispose and repl<br>primary and secondary framings.<br>· Install and connect one (1) set of<br>Break Bypass Switch (ABS-3-XAF<br>and the framing hardware to supp<br>them. |
| NEW POLE |                       | (NONE)                              | (50T GALVANIZED ROUND<br>TAPERED POLE)<br>(CP- C6 XARM) (ABS-3-<br>XARM QTY=3)                               | · Install new 50FT galvanized round<br>tapered pole.<br>· Install primary framing.<br><br>· Install and connect one (1) set of<br>Break Bypass Switch (ABS-3-XARM<br>the<br>framing hardware to support them.                                                                                                                             |
| 10357297 |                       | (ASSY 1509 (QTY=3))                 | (LABOR & REPAIR)                                                                                             | · Remove and dispose (3) Fuse C                                                                                                                                                                                                                                                                                                           |
| 10359335 |                       | (ASSY 1509 (QTY=3))                 | (LABOR & REPAIR)                                                                                             | · Remove and dispose (3) Fuse C                                                                                                                                                                                                                                                                                                           |

|            |  |                                                                                                                     |                                                                                                            |                                                                                                                                                                                                                                                                             |
|------------|--|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10352712   |  | (ASSY 1509 (QTY=3))                                                                                                 | (LABOR & REPAIR)                                                                                           | · Remove and dispose (3) Fuse C                                                                                                                                                                                                                                             |
| 1000522388 |  | (ASSY 1509 (QTY=3))                                                                                                 | (LABOR & REPAIR)                                                                                           | · Remove and dispose (3) Fuse C                                                                                                                                                                                                                                             |
| 10361043   |  | (ASSY 1509 (QTY=3))                                                                                                 | (LABOR & REPAIR)                                                                                           | · Remove and dispose (3) Fuse C                                                                                                                                                                                                                                             |
| 10352708   |  | (45'-C3 WOOD POLE)<br>(S-4- XARM) (CP-B5 XARM) (ASSY 1509 (QTY=2)) (K-5) (E-1-2-3 (QTY=2)) (F-1-3 (QTY=2)) (STL-10) | (50FT GALVANIZED ROUND TAPERED POLE) (S-6) (CP-B5 XARM) (K-5) (E-1-2-3) (F-1-3) (STL-10) ASSY 1509 (QTY=2) | · Remove and dispose of a 45' wood pole and replace with 50 galvanized round tapered pole.<br>· Remove, dispose and replace primary and (1) secondary framings<br>· Remove and dispose (2) downguy.<br>Replace (1) downguy.<br>· Remove and dispose (2) Replace (1) anchor. |

| POLE FID | COORDINATES LAT, LONG | Existing (Remove)                                              | 428 (Replacement)                                                                | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                          |
|----------|-----------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                                                                |                                                                                  | · Remove, dispose and replace (2) Fuse Cutouts.<br>· Remove, dispose and replace street lighting (LED Type).                                                                                                                                                                                                                           |
| 10354083 |                       | (40'-C5 WOOD POLE) (CP-A6) (E-1-2-3) (F-1-3)                   | (50ft GALVANIZED ROUND TAPERED POLE) (CP- A6)                                    | · Remove and dispose of a 40' wood pole and replace with 5 galvanized round tapered pole<br>· Remove, dispose and replace frame<br>· Remove, dispose and replace down guy.<br>· Remove, dispose and replace (1) secondary framing<br>· Remove, dispose and replace street lighting (LED Type).                                         |
| 10354093 |                       | (40'-C5 WOOD POLE) (CP-A6) (E- 1-2-3) (F-1-3) (K-7 B) (STL-10) | (50FT GALVANIZED ROUND TAPERED POLE) (CP- A3) (E-1-2-3) (F-1-3) (K-7 B) (STL-10) | · Remove and dispose of a 40ft. C5 wood pole and replace with 50ft. galvanized round tapered pole.<br>· Remove, dispose and replace primary and secondary framings.<br>· Remove, dispose and replace (1) down guy.<br>· Remove, dispose and replace (1) secondary framing<br>· Remove, dispose and replace Street lighting (LED Type). |



|          |  |                                                                                                                 |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                          |
|----------|--|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10360709 |  | (45'-C3 WOOD POLE)<br>(S-6)<br>(CP-B5 XARM)<br>(E-1-2-3)<br>(F-1-3)<br>(K-7 B)<br>(STL-10) (ASSY 1509 (QTY=2))  | (50FT GALVANIZED ROUND TAPERED POLE)<br>(S-6)<br>(CP-B5 XARM) (E-1-2-3)<br>(F-1-3)<br>(K-7-B)<br>(STL-10)<br>ASSY 1509 (QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose of 45ft. wood pole and replace with 50ft. galvanized round tapered pole.</li> <li>Remove, dispose and replace down guy.</li> <li>Remove, dispose and Replace anchor.</li> <li>Remove, dispose and replace Streetlight (LED Type).</li> <li>Remove, dispose and replace (2) Cutouts.</li> </ul> |
| 10361952 |  | (35'-C4 WOOD POLE)<br>(S-5)<br>(CP- B5 XARM) (K-7 A)<br>(K-5)<br>(E-1-2-3(QTY=2))<br>(F-1-3(QTY=2))<br>(STL-10) | (50FT GALVANIZED ROUND TAPERED POLE )<br>(S-5)<br>(CP-B5 XARM) (K-7 B)<br>(E-1-2-3)<br>(F-1-3)<br>(STL-10)                      | <ul style="list-style-type: none"> <li>Remove and dispose of 35ft. wood pole and replace with 50ft. galvanized round tapered pole.</li> <li>Remove and dispose (2) down guys. Replace (1) down guy.</li> <li>Remove and dispose (2) anchors. Replace (1) anchor.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> </ul>                 |
| 10362263 |  | (ASSY 1509 (QTY=2))                                                                                             | ASSY 1509 (QTY=2))                                                                                                              | Remove, dispose and replace (2)                                                                                                                                                                                                                                                                                                                          |

| POLE FID             | COORDINATES LAT, LONG | Existing (Remove)          | 428 (Replacement)                                             | SCOPE OF WORK                                                                                                                                                  |
|----------------------|-----------------------|----------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                      |                       |                            |                                                               | Cutouts.                                                                                                                                                       |
| 10354213             |                       | (ASSY 1509 (QTY=1))        | ASSY 1509 (QTY=1))                                            | Remove, dispose and replace (1) Fuse cutout.                                                                                                                   |
| 10362927             |                       | (ASSY 1509 (QTY=2))        | (LABOR & REPAIR)                                              | Remove and dispose (2) Fuse cutouts.                                                                                                                           |
| 10354512             |                       | (ASSY 1509 (QTY=1))        | (LABOR & REPAIR)                                              | Remove and dispose (1) Fuse cutout.                                                                                                                            |
| New pole             |                       | NONE                       | (50FT GALVANIZED ROUND TAPERED STEEL POLE) (CP-C6-XARM) (K-6) | <ul style="list-style-type: none"> <li>Install a new 50FT galvanized round tapered pole.</li> <li>Install primary, neutral, and secondary framings.</li> </ul> |
| 10351775             |                       | LABOR, FUSE CUTOUT (QTY=3) | LABOR, JUMPER (QTY=3))<br>ASSY 1509 (QTY=3))                  | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Cutouts.</li> <li>Close jumpers.</li> </ul>                                        |
| Segment FID 6673763  |                       | None                       | (LABOR, FCI) (QTY=3)                                          | Install (3) Fault Current Indicators                                                                                                                           |
| Segment FID 10868121 |                       | None                       | (LABOR, FCI) (QTY=3)                                          | Install (3) Fault Current Indicators                                                                                                                           |

|                           |  |                                                             |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------|--|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Segment FID<br>1000522679 |  | (50'H4 CONCRETE<br>POLE)<br>(S-6-2)<br><br>(K-7-4) (STL-10) | (50FT GALVANIZED ROUND<br>TAPERED POLE)<br>(ABS-3-XARM)<br>(S-6-2)<br>(K-7 B)<br>(K-5)<br>(E-1-2-3 (QTY=2)) (F-4-2)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose 50' H4 concrete pole and replace with 50' galvanized round tapered pole.</li> <li>Install switch (ABS-3-XARM) due cFCI installation.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Install primary and secondary framing.</li> <li>Install (2) down guys.</li> <li>Install (1) anchor.</li> </ul> |
|                           |  |                                                             |                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                     |

#### Feeder 2601-03

| POLE FID                | COORDINATES LAT, LONG | Existing (Remove)                                                                          | 428 (Replacement)                                                                                     | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------|-----------------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1001734430              |                       | (45' H4 CONCRETE<br>POLE)<br>(S-6)<br><br>(ASSY 1509(QTY=3))<br>(STL-10)<br>(K-6)<br>(K-5) | (50FT GALVANIZED ROUND<br>TAPERED POLE)<br>(S-6)<br>(STL-10)<br>(K-6)<br>(K-5)<br>(ABS-3-XARM QTY=3)) | <ul style="list-style-type: none"> <li>Remove and dispose of 45' concrete pole and replace with galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove and dispose (3) Fuse Cutouts.</li> <li>Install and connect one (1) s Air Break Bypass Switch (ABS-XARM) and the framing hardware support them.</li> <li>Use existing secondary conductor as power supply for recloser located side.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> </ul> |
| 7102218                 |                       | 40' H4 CONCRETE<br>POLE)<br>(K-6)<br><br>(STL-10)                                          | (50FT GALVANIZED ROUND<br>TAPERED POLE)<br>(S-6)<br>(STL-10)<br>(K-6)<br>(ABS-3-XARMQTY=3))           | <ul style="list-style-type: none"> <li>Remove and dispose of 40' H4 concrete pole and replace with galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framing.</li> <li>Remove, dispose and replace streetlight (LED type).</li> <li>Install spacer starting at 60 inches from pole top.</li> <li>Install and connect one (1) s Air Break Bypass Switch (A XARM) and the framing hardware support them.</li> </ul>                                                                      |
| 7103730                 |                       | (ASSY 1509 QTY=1))                                                                         | (LABOR & REPAIR)                                                                                      | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Segment FID<br>6673772  |                       | None                                                                                       | (LABOR, FCI) (QTY=3)                                                                                  | Install (3) Fault Current Indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Segment FID<br>10955688 |                       | None                                                                                       | (LABOR, FCI) (QTY=3)                                                                                  | Install (3) Fault Current Indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## Feeder 2602-02

| POLE FID | COORDINATES LAT,<br>LONG | Existing                                                                               | Install                                                                                                                                 | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|--------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7212183  |                          | (40'-C2 WOOD POLE)<br>(S-3) (K-7 B)<br>(E-1-2-3 (QTY = 1))<br>(F-1-3 (QTY =1))         | (50ft GALVANIZED ROUND<br>TAPERED POLE)<br>(S-6)<br>(K-7-4)<br>(K-6)<br>(E-1-2-3 (QTY = 1))<br>(F-1-3 (QTY =1)) (ABS-3-<br>XARM QTY=3)) | <ul style="list-style-type: none"> <li>Remove and dispose of a 40' wood pole and replace with 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace (1) primary and (2) secondary framing.</li> <li>Remove, dispose and replace (1) Anchor.</li> <li>Remove, dispose and replace (1) down guy.</li> <li>Install and connect one (1) set Break Bypass Switch (ABS-3-X) and the framing hardware to support them.</li> </ul>                                                                                      |
| 7211855  |                          | (ASSY 1509<br>(QTY=3))                                                                 | (LABOR & REPAIR)                                                                                                                        | Remove and dispose (3) Fuse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 7212343  |                          | (ASSY 1509<br>(QTY=3))                                                                 | (LABOR & REPAIR)                                                                                                                        | Remove and dispose (3) Fuse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 7213634  |                          | (ASSY 1509<br>(QTY=3))                                                                 | (LABOR & REPAIR)                                                                                                                        | Remove and dispose (3) Fuse                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 7211911  |                          | (45 FT S3<br>GALVANIZED STEEL<br>POLE) (CP-C1) (35<br>FT C2 WOOD STUB<br>POLE) (E-2-1) | (50FT GALVANIZED ROUND<br>TAPERED POLE )<br>(ABS-3-XARM)<br>(40 FT ROUND GALVANIZED<br>STEEL STUB POLE)<br>(E-2-1) (E-1-2-3) (F1-3)     | <ul style="list-style-type: none"> <li>Remove and dispose 45' S3 and replace with a 50FT galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and neutral framing.</li> <li>Install (3) Manual Disconnect Switches (<b>ABS-3-XARM</b>).</li> <li>Remove and dispose stub pole C2 wood stub pole and replace 40' galvanized round tapered pole at coordinates 18.1354 65.83911.</li> <li>Remove, dispose and replace (1) spanguy wire</li> <li>Install (1) down guy.</li> <li>Install (1) anchor.</li> </ul> |
| 7211855  |                          | (LABOR, FUSE<br>CUTOUT (QTY=3))<br>(LABOR, CROSSARM<br>(QTY=2))                        | (LABOR, JUMPER<br>(QTY=3)) (LABOR, PIN<br>INSULATOR (QTY=1))                                                                            | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Cutouts.</li> <li>Remove and dispose (2) crossarm</li> <li>Close (3) Jumpers.</li> <li>Pin (1) insulator.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |

| POLE FID | COORDINATES LAT,<br>LONG | Existing | Install | SCOPE OF WORK |
|----------|--------------------------|----------|---------|---------------|
|----------|--------------------------|----------|---------|---------------|

|                     |  |                                                                         |                                                                                                          |                                                                                                                                                                                                                                                                                               |
|---------------------|--|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7936496             |  | (45'-C3 WOOD POLE)<br>(CP-A6)<br>(K-7 B)                                | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-A6)<br>(K-7 B)                                               | <ul style="list-style-type: none"> <li>Remove and dispose of a 45ft wood pole and replace with 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framings.</li> </ul>                                                                            |
| 7212941             |  | (40'-S3 GALVANIZED STEEL POLE) (CP-A6)<br>(K-7 A) (STL-10)              | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-A6)<br>(K-7 A)<br>(STL-10)                                   | <ul style="list-style-type: none"> <li>Remove and dispose of 40ft. S galvanized steel pole and replace with 50ft. galvanized round tapered pole.</li> <li>Remove, dispose and replace primary and secondary framings.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> </ul> |
| 7936127             |  | (ASSY 1509 (QTY=1))                                                     | (LABOR & REPAIR)                                                                                         | <ul style="list-style-type: none"> <li>Remove, dispose and replace Fuse Cutout.</li> </ul>                                                                                                                                                                                                    |
| 7936501             |  | (ASSY 1509 (QTY=1))                                                     | (LABOR & REPAIR)                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse Cutout.</li> </ul>                                                                                                                                                                                                         |
| 1002011550          |  | (ASSY 1509 (QTY=1))                                                     | (LABOR & REPAIR)                                                                                         | <ul style="list-style-type: none"> <li>Remove, dispose and replace Fuse Cutout.</li> </ul>                                                                                                                                                                                                    |
| 7213095             |  | (ASSY 1509 (QTY=1))                                                     | (LABOR & REPAIR)                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse Cutout.</li> </ul>                                                                                                                                                                                                         |
| 7213607             |  | (ASSY 1509 (QTY=1))                                                     | (LABOR & REPAIR)                                                                                         | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse Cutout.</li> </ul>                                                                                                                                                                                                         |
| NEW POLE            |  | NONE                                                                    | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-B12-XARM)                                                    | <ul style="list-style-type: none"> <li>Install new 50FT galvanized round tapered pole as midspan</li> <li>Install primary and neutral frame</li> </ul>                                                                                                                                        |
| 7214099             |  | (LABOR, FUSE (QTY=2))                                                   | (LABOR, SOLID BLADE (QTY=2))                                                                             | <ul style="list-style-type: none"> <li>Remove, dispose and replace Fuse Cutouts.</li> <li>Install (2) Solid Blades.</li> </ul>                                                                                                                                                                |
| Segment FID 7114242 |  | (NONE)                                                                  | (LABOR, FCI) (QTY=3)                                                                                     | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indica</li> </ul>                                                                                                                                                                                                            |
| Segment FID 8432625 |  | (NONE)                                                                  | (LABOR, FCI) (QTY=3)                                                                                     | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indica</li> </ul>                                                                                                                                                                                                            |
| Segment FID 8432625 |  | 50'-C2 WOOD POLE)<br>(CP-C6 XARM) (K-7 B)<br>(STL-10) (E-1-2-3) (F-1-3) | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(ABS-3-XARM)<br>(K-7 B)<br>(STL-10)<br>(E-1-2-3) | <ul style="list-style-type: none"> <li>Remove and dispose of 50' C wood pole and replace with 50ft galvanized round tapered pole.</li> <li>Install (3) Manual Disconnecting Switch (ABS-3-XARM)</li> <li>Remove, dispose and replace streetlight (LED type).</li> </ul>                       |

| POLE FID | COORDINATES LAT, LONG | Existing | Install | SCOPE OF WORK |
|----------|-----------------------|----------|---------|---------------|
|----------|-----------------------|----------|---------|---------------|

|          |  |                                                                |                                                                    |                                                                                                                                                                                                                                                             |
|----------|--|----------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |  |                                                                | (F-1-3)<br>(T-1) (37.5KVA,2.40/4.16 KV<br>- 120/240 V)             | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary and secondary framing</li> <li>Remove, dispose and replace (1) anchor and (1) downguy.</li> <li>Remove, dispose and replace transformer 37.5 kVA, 2.40/4.1 120/240V).</li> </ul> |
| NEW POLE |  | NONE                                                           | (50FT GALVANIZED ROUND<br>TAPERED<br>POLE) (CP-A12) (K-6)          | <ul style="list-style-type: none"> <li>Install new midspan 50FT Galvanized round tapered pole</li> <li>Install primary, secondary, and neutral framings.</li> <li>Install (1) Fuse Cutout.</li> </ul>                                                       |
| 7935831  |  | (40 FT S3 STEEL<br>POLE)<br>(CP-A6) (K-7 FIG. A)               | (50ft GALVANIZED ROUND<br>TAPERED POLE) (CP-A12) (K-<br>7 FIG. A)  | <ul style="list-style-type: none"> <li>Remove and dispose 40' S3 pole and replace with a 50FT galvanized round pole.</li> <li>Remove, dispose and replace the primary, neutral and secondary framings.</li> <li>Install (1) Fuse Cutout.</li> </ul>         |
| 7936131  |  | (45 FT H3<br>CONCRETE<br>POLE) (CP-A1) (CP-A5)<br>(K-7 FIG. A) | (50FT GALVANIZED ROUND<br>TAPERED<br>POLE) (CP-A7)<br>(K-7 FIG. A) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H3 concrete pole and replace with galvanized round pole.</li> <li>Remove, dispose and replace primary, neutral and secondary framings.</li> <li>Install (1) Fuse Cutout.</li> </ul>           |

#### Feeder 2702-01

| POLE FID   | COORDINATES LAT,<br>LONG | Existing                                                                                               | Install                                                                                                                                              | SCOPE OF WORK                                                                                                                                                                                                                                                                                                             |
|------------|--------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE   |                          | (NONE)                                                                                                 | (70FT GALVANIZED<br>ROUND TAPERED POLE)<br>(38KV VERTICAL<br>SUSPENSION)<br>(CP-C6 XARM) (ABS-3-<br>XARM QTY=3)                                      | <ul style="list-style-type: none"> <li>Install new midspan galvanized 70FT galvanized round pole.</li> <li>Install primary framing.</li> <li>Install 38kV vertical suspension framing.</li> <li>Install and connect one (1) switch Air Break Bypass Switch (ABS-3 XARM) and the framing hardware support them.</li> </ul> |
| 7117414    |                          | (50'H6 CONCRETE<br>POLE)<br>(38kV DEADEND-<br>SC-VERTICAL<br>DEADEND ASSY 10-60)<br>(CP-C1)<br>(CP-A5) | (70FT GALVANIZED<br>ROUND TAPERED POLE)<br>(38kV DEADEND-<br>SC-VERTICAL<br>DEADEND ASSY 10-60)<br>(CP-C1)<br>(CP-A5)<br>(E-1-2-3(QTY=2))<br>(F 4-2) | <ul style="list-style-type: none"> <li>Remove and dispose of 50' H6 concrete pole and replace with a galvanized round pole.</li> <li>Remove, dispose and replace transmission assembly.</li> <li>Remove, dispose and replace primary framing .</li> <li>Install (2) downguys.</li> <li>Install (1) anchor</li> </ul>      |
| 10650343   |                          | (ASSY 1509 (QTY=3))                                                                                    | (LABOR & REPAIR)                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                    |
| 1001756465 |                          | (ASSY 1509 (QTY=3))                                                                                    | (LABOR & REPAIR)                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse</li> </ul>                                                                                                                                                                                                                                             |

|            |  |                                                                                        |                                                                               |                                                                                                                                                                                                      |
|------------|--|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7157370    |  | (65'-H6 CONCRETE POLE)<br>(38KV VERTICAL SUSPENSION)<br>(S-1)                          | (70FT GALVANIZED ROUND TAPERED POLE)<br>(38KV VERTICAL SUSPENSION)<br>(S-6)   | <ul style="list-style-type: none"> <li>Remove and dispose 65' H6 concrete pole and replace with 70FT galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> </ul> |
| NEW POLE   |  | (NONE)                                                                                 | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-B6 XARM)                          | <ul style="list-style-type: none"> <li>Install new midspan 50ft. galvanized round pole.</li> <li>Install primary framing.</li> </ul>                                                                 |
| 7118030    |  | (FUSE REMOVAL (QTY=3))                                                                 | (LABOR & REPAIR)                                                              | Remove, dispose and replace (3) Fuse Cutouts.                                                                                                                                                        |
| 7116210    |  | (FUSE REMOVAL (QTY=3))                                                                 | (LABOR & REPAIR)                                                              | Remove and dispose (3) Fuse Cutouts.                                                                                                                                                                 |
| 1001325535 |  | (FUSE REMOVAL (QTY=3))                                                                 | (LABOR & REPAIR)                                                              | Remove, dispose and replace (3) Fuse Cutouts.                                                                                                                                                        |
| 7118824    |  | (35' C4 WOOD POLE)<br>(AC-C3 XARM)<br>(STL-10)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) | (50FT GALVANIZED ROUND TAPERED POLE)<br>(CP-C3 XARM) (ABS-3-XARM)<br>(STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose of 35' C4 wood pole and replace with 50FT galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> </ul>  |

| POLE FID                | COORDINATES LAT, LONG | Existing | Install                                               | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|-----------------------|----------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                       | (K-7 B)  | (E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) (K-7 B)<br>(K-5) | <ul style="list-style-type: none"> <li>Remove and dispose (1) secondary framing.</li> <li>Install (2) secondary framing.</li> <li>Install (3) Manual Disconnecting Switches (ABS-3-XARM).</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove, dispose and replace (3) downguys.</li> <li>Remove, dispose and replace (3) anchors.</li> </ul> |
| Segment FID<br>67224656 |                       | None     | (LABOR, FCI) (QTY=3)                                  | Install (3) Fault Current Indicators                                                                                                                                                                                                                                                                                                                                   |
| Segment FID<br>8454059  |                       | 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 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.

## 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.

☒ **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 project723883 FAAS [SanJuan] (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

☒ **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 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.

☒ **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                              | \$332,131.56                         |                |
| MANAGEMENT                            | \$95,774.44                          |                |
| LPCE Distribution Automation Group 20 | \$1,652,653.61                       |                |
| GENERAL CONDITIONS                    | \$83,412.31                          |                |
| COST TOTALS                           | \$2,163,971.92                       |                |
| DEDUCTIONS                            | TOTAL INSURANCE PROCEEDS RECEIVED    | \$-            |
|                                       | DE-OBLIGATION TO FAASt IF APPLICABLE | \$-            |
| FAASt ALLOCATIONS                     | FAASt PROJECT # 752810- 428          | \$1,614,232.03 |
|                                       | FAASt A&E # 335168 - 428             | \$346,930.18   |
|                                       | FAASt E&M #673691 - 428              | \$202,809.71   |

### 428 Project Summary, Version 1:

Work to Be Completed (WTBC): \$2,163,971.92 - \$2,163,971.92 = \$0.00 (See project note #7)

E&M Deduction (#673691) 428: -\$202,809.71 + \$202,809.71 = \$0.00 (See project note #7)

A&E Deduction (Global A&E FAASt 335168):-\$346,930.18 + \$346,930.18 = \$0.00 (See project note #7)

Project Total Cost: = \$0.00 (See project note #7)

### VERSION SUMMARY OF KEY CHANGES:

V0: \$2,956,957.78 - \$333,695.70 (WTBC, A&E Deduction)

V1: \$2,163,971.92 - \$202,809.71 - \$346,930.18- \$2,623,262.08 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V0)

### Project Notes:

1. Refer to detailed SOW provided in document: "752810-DR4339PR- DSOW Group 20 Revision 08 - V1".
2. Refer to detailed cost estimate in document: "752810-DR4339PR-APPENDIX A -LUMA Project Cost Estimate Revision 08".
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: LUMA Project Cost Estimate; Project Considerations; LUMA's Active Projects; Pole Height Increase Justification.
7. 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 752810 - DR4339PR - Email Confirmation Sub-FAASt Transaction Guid-ance.pdf", and "SP 752810 - DR4339PR - Email for Version 1 Cost Change".



406 HMP Scope

Project number: 752810; FAASt [Automation Program Group 20] (Distribution)

Damage number: DI#1313024; FAASt [Automation Program Group 20: Caguas Feeders 2601-01, 2601-03, 2602-02] (Distribution)

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

Location: Caguas, 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.

Project Overview:

DA Group 20 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 2601-01; 2601-03; 2602-02 and 2702-01.

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 2601-01; 2601-03; 2602-02 and 2702-01, and 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.

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 27ea pole strengthening (pole class, concrete base, and additional guywire).

#### Pole Description:

- a. 40ft S5.7 12-sided galvanized steel poles = 1ea
- b. 45ft S5.7 12-sided galvanized steel poles = 11ea
- c. 50ft S8.5 12-sided galvanized steel poles = 11ea
- d. \*60ft S8.5 12-sided galvanized steel poles = 1ea
- e. 70ft S8.5 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:

- Feeder 2601-01, WOP 3PH Recloser Installation – Segment FID 10860947: The proposed design scope includes the installation of a new 60-foot S8.5 steel pole at a midspan location. The structure will support two overhead distribution feeders operating at 13.2 kV (Feeder 2603-10) and 8.32 kV (Feeder 2601-01), respectively. Additionally, a three-phase recloser will be installed on the lower 8.32kV circuit to provide fault isolation and sectionalizing capabilities.

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 (Feeder 2601-01).

## 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 19ea single-phase reclosers and the installation of 7ea 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 24ea fault current indicators (FCIs) by 24ea communicating fault current

indicators (cFCIs).

4. Stainless Steel Transformer (37.5 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)

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 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.

Hazard Mitigation Proposal (HMP) Cost:

|                                                            |                      |
|------------------------------------------------------------|----------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =             | \$ 671,727.82        |
| + HM (Subrecipient A&E, Management & General Conditions) = | <u>\$ 245,747.26</u> |
| Hazard Mitigation Total Cost =                             | \$ 917,475.07        |

Hazard Mitigation Proposal (HMP) Cost Distribution:

|                                      |               |
|--------------------------------------|---------------|
| Equipment and Materials (E&M) =      | \$ 358,776.21 |
| Architecture and Engineering (A&E) = | \$ 147,943.48 |

Construction Cost = \$ 410,755.38

Hazard Mitigation Total Cost = \$ 917,475.07

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 **\$917,475.07 (Hazard Mitigation Total Cost)**. The cost of this HMP combined with 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 | \$2,956,957.78 | Uncompleted |
| 3510 | 1        | Lump Sum | (\$333,695.70) | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 3510 | 1        | Lump Sum | \$0.00         | 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 | \$0.00         | Uncompleted |

|                            |                |
|----------------------------|----------------|
| CRC Gross Cost             | \$2,623,262.08 |
| Total 406 HMP Cost         | \$917,475.07   |
| Total Insurance Reductions | \$0.00         |
| <hr/>                      |                |
| CRC Net Cost               | \$3,540,737.15 |
| Federal Share (90.00%)     | \$3,186,663.44 |
| Non-Federal Share (10.00%) | \$354,073.71   |

## 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

7/17/2026

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**

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**6/11/2026**

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 20] (Distribution) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST [Automation Program Group 20] (Distribution) (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.

- 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.
- 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 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.
- Puerto Rican boa (PR boa; *Chilabothrus inornatus*) In 2023, the Service amended a Programmatic Biological Opinion (PBO) for the Puerto Rican boa and the Virgin Islands tree boa. The below measures are included as Terms and Conditions (T&Cs) in the amended PBO (USFWS 2023). These T&Cs shall be part of FEMA's conditions in projects where these species can occur, and a copy of the PBO should be made available to the Applicant for compliance. 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 Service's 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](mailto:Caribbean_es@fws.gov) or [jose\\_cruz-burgos@fws.gov](mailto:jose_cruz-burgos@fws.gov)
- Coqui Guajon (*Eleutherodactylus cooki*) Conservation Measures to be implemented for a coqui guajon: i. Inform all project personnel about the potential presence of the coqui guajon 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. 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. An educational poster or sign with photos or illustrations of the species should be displayed at the project site. ii. 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. iii. Erosion and Sedimentation Control Best Management Practices (BMPs) must be included in the project scope of work when working within or adjacent to the coqui guajon 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. iv. 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 Maria. The guide is available at: <https://www.fws.gov/media/guidance-repair-replacement-and-clean-structures-streams-and-waterways-puerto-rico-and-us> If at any time you have doubts if the species or its habitat are present within a particular project or if the project may affect or not the species and its habitat, you may contact: Jose Cruz-Burgos, Endangered Species Program Coordinator. Mobile: 305-304-1386. Office phone: 786-244-0081. Office Direct Line: 939-320-3120. Email: [jose\\_cruz-burgos@fws.gov](mailto:jose_cruz-burgos@fws.gov)
- The below conservation measures apply to the following species: Puerto Rican parrot (*Amazona vittata*) and Puerto Rican broad-winged hawk (*Buteo platypterus brunnescens*). 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 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](mailto: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](mailto:jose_cruz-burgos@fws.gov)
- For Feeders 2601-03 and 2702-01: 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 must provide documentation at close-out that proves completion of required Conservation Measures.
- 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 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 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 with the opportunity to submit conditions for work 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 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.
- Additional staging areas and/or work pads within work site area have not 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 20] (Distribution) (Cost Only)**.

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 07/31/2026 12:47 PM PDT

#### Review Comments

[752810] FAASt [Automation Program Group 20] (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 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. V.1 reconciliates HM funding with a cost of \$917,475.07 for a total CRC net cost of \$3,540,737.15. FEMA will administratively process the 428 portion of this subgrant in a separate version as per the Financial Management Section Request. This effort does not affect one-time change for HM eligibility.

### Recipient Review

**Reviewed By** Mulero, Noel

**Reviewed On** 08/03/2026 5:49 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 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 \$3,540,737.15 for subaward number 108001 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                        | 4339DRPRP01080011  | 20173YOZ-06102025  | 6/9/2025      | \$590,233.97    |
| 3/20/2026                        | 4339DRPRP01080011  | 20173YOZ-03042026  | 3/3/2026      | (\$590,233.97)  |

### Obligation History

| Version # | Date Obligated | Obligated Cost | Cost Share | IFMIS Status | IFMIS Obligation # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 1         | 8/27/2026      | \$825,727.56   | 90%        | Accepted     | 4339DRPRP01080011  |
| 0         | 2/6/2025       | \$2,360,935.88 | 90%        | Accepted     | 4339DRPRP01080011  |

**Department of Homeland Security  
Federal Emergency Management Agency**

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## General Info

|                                 |                                                         |                            |                                            |                     |              |                    |
|---------------------------------|---------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------|--------------------|
| <b>Project #</b>                | 755211                                                  | <b>P/W #</b>               | 108022                                     | <b>Project Type</b> | Specialized  |                    |
| <b>Project Category</b>         | F - Utilities                                           | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |              |                    |
| <b>Project Title</b>            | FAASt * [Automation Program Group 15]<br>(Distribution) |                            |                                            |                     | <b>Event</b> | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                   | <b>Declaration Date</b>    | 9/20/2017                                  |                     |              |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                               | <b>Incident Start Date</b> | 9/17/2017                                  |                     |              |                    |
| <b>Process Step</b>             | Obligated                                               | <b>Incident End Date</b>   | 11/15/2017                                 |                     |              |                    |

## Damage Description and Dimensions

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

**Damage #1392753; FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

### General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 15: San Juan, Feeder: 1646-02
- **Facility Description:** Transmission and Distribution Automation Feeder 1646-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1392753 FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (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 Lett 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 755211 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 Feeder 1646-02.

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:

### **(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 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 compounded structural demands and spacing prerequisites, and ensure 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 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 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. 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.

### **(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.

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 later.

## **Facilities:**

### **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 Active Projects** to show no duplication of scope elements.

### **Facilities List**

| Name     | Damage Number | Feeder Number | GPS Location |
|----------|---------------|---------------|--------------|
| San Juan | 1392753       | 1646-02       |              |

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 1646- 02.

### Proposed 428 Public Assistance Scope of Work Feeder 1646-02

| Pole FID | Coordinates Lat, Long | Existing                                                                                      | 428 Replacement                                                                                                                  | SCOPE OF WORK                                                                                                                                                                                                                                                                                                                                                                            |
|----------|-----------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New Pole |                       | None                                                                                          | (60' S10 STEEL POLE)<br>(CP-C6- XARM)<br>(CP-C5-XARM) (ASSY-1509)<br>(E-1-2-3)<br>(F-1-3)<br>(K-5)<br>(STL-10) (REC-2-1-1 ver 1) | <ul style="list-style-type: none"> <li>• Install new 60' S-10 Galvanized steel pole as a midspan pole</li> <li>• Install Primary and secondary framing.</li> <li>• Install (1) three- phase recloser 1646- 02-A on a non-configuration.</li> <li>• Install (2) 1kva transformer (13.2/7.62- 120/240v) to recloser from source side and load side.</li> </ul>                             |
| 22795938 |                       | (65'-H6 CONCRETE POLE)<br>(38KV SC VERTICAL TANGENT 10(QTY=1))<br>(CP1C8(QTY=1)) (S-1(QTY=1)) | (70' S8 12-SIDED GALVANIZED STEEL POLE)<br>(38KV SC TANGENT DELTA SUSPENSION(QTY=1))<br>REC-2-1-1 VER1(QTY=1))<br>(S-1(QTY=1))   | <ul style="list-style-type: none"> <li>• Remove and dispose 65' H6 Concrete pole</li> <li>• Replace with 70' S8 12-sided galvanized steel pole.</li> <li>• Install (1) three-Phase recloser 1646- 02B on a radial configuration.</li> <li>• Replace primary framing.</li> <li>• Install (2) 1kva transformer (13.2/7.62- 120/240v) to recloser from source Side and load side</li> </ul> |

| Pole FID | Coordinates Lat, Long | Existing                                       | 428 Replacement                                                                                                     | SCOPE OF WORK                                                                                                                                                                                                                                                                                         |
|----------|-----------------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |                       | (NONE)                                         | (60' S8 12-SIDED GALVANIZED STEEL POLE)<br>(38KV 3P DELTA SUSPENSION)<br>(CP-C9-XARM)<br>(REC-3-C)<br>(K-6 (QTY=1)) | <ul style="list-style-type: none"> <li>• Install new 60' S8 12-sided galvanized steel pole as a Midspan pole</li> <li>• Install 38kv standards framing.</li> <li>• Install primary and secondary framing.</li> <li>• Install (3) Outout Mounted Single-Phase Recloser on segment 26851351.</li> </ul> |
| 15158761 |                       | (55'-C2 WOOD POLE)<br>(CP-C1)<br>(K-6 (QTY=1)) | (45' S5.7 STEEL POLE)<br>(CP-C6-VERT)<br>(REC-3-C-VERT)<br>(K-6 (QTY=1))                                            | <ul style="list-style-type: none"> <li>• Remove and dispose 55'C2 wood pole.</li> <li>• Replace with 45' S5.7 12-sided galvanized steel pole.</li> <li>• Replace primary and secondary framing.</li> <li>• Install (3) cutout mounted Single-Phase recloser on segment 26851351.</li> </ul>           |
| 15158776 |                       | (ASSY- 1509(QTY=3))                            | (LABOR & REPAIR)                                                                                                    | <ul style="list-style-type: none"> <li>• Remove and dispose fuses (fid: 26521870 (qty=3)) and close jumpers due to cutout mounted single-phase recloser installation in pole fid: 15158761.</li> </ul>                                                                                                |
| 15152286 |                       | (ASSY- 1509(QTY=3))                            | (LABOR & REPAIR)                                                                                                    | <ul style="list-style-type: none"> <li>• Remove and dispose fuses (fid: 26521895 (qty=3)) and close jumpers due to cutout mounted single-phase recloser installation in segment fid: 26522009.</li> </ul>                                                                                             |
| 28482726 |                       | (ASSY- 1509(QTY=3))                            | (LABOR & REPAIR)                                                                                                    | <ul style="list-style-type: none"> <li>• Remove and dispose fuses (qty=3) and close jumpers due to cutout mounted single-phase recloser installation in segment 26851351.</li> </ul>                                                                                                                  |
| 15158633 |                       | (ASSY- 1509(QTY=3))                            | (LABOR & REPAIR)                                                                                                    | <ul style="list-style-type: none"> <li>• Remove and dispose fuses (qty=3) and close jumpers due to cutout mounted single-phase recloser installation in segment 26851351.</li> </ul>                                                                                                                  |



|    |  |  |      |                     |                                                                               |
|----|--|--|------|---------------------|-------------------------------------------------------------------------------|
| NA |  |  | NONE | (LABOR, cFO) (QTY=3 | • Labor to install communicating fault current indicator on segment 23399078. |
| NA |  |  | NONE | (LABOR, cFO) (QTY=3 | • Labor to install communicating fault current indicator on segment 26522373. |

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 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 pole locations; 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 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, 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 Carolina District Warehouse, whose address is #21 Campeche Street, Industrial Julio N. Matos, Martin González Ward, Carolina, 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.

#### 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.

#### Type of Project:

Restoration to Codes/Standards: Restores the facility(s) to pre-disaster function and to approved codes and standards.

This work will follow FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020).

**Note:** If preliminary A&E work has not been completed, the type of project designation is considered initial and based on currently available information. The designation may be revised based on the completed preliminary A&E work results.

## 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) 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).

## Project Schedule:

| Milestone                            | Target Date    |
|--------------------------------------|----------------|
| FEMA Obligation Funds                | September 2024 |
| Start Procurement of Long-Lead Items | July 2023      |
| Start Environmental and Permitting   | September 2024 |
| Start Detailed Design Engineering    | January 2024   |
| Start Project Construction           | October 2024   |
| In-Service-Date                      | April 2025     |

## 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- Detailed Cost Estimate**.

| COST ESTIMATE      |                                   |     |               |
|--------------------|-----------------------------------|-----|---------------|
| COST ELEMENT       | 428                               | 406 | PROJECT TOTAL |
| PLANNING           | \$50,770.52                       | -   | \$50,770.52   |
| MANAGEMENT         | \$31,088.05                       | -   | \$31,088.05   |
| Group 15- DAUT     | \$533,842.94                      | -   | \$533,842.94  |
| GENERAL CONDITIONS | \$33,428.39                       | -   | \$33,428.39   |
| CONTINGENCY        | \$76,289.52                       | -   | \$76,289.52   |
| COST TOTALS        | \$725,419.42                      | -   | \$725,419.42  |
| DEDUCTIONS         | TOTAL INSURANCE PROCEEDS RECEIVED |     | \$0           |
| FAASt ALLOCATIONS  | FAASt Project # 755211 TOTAL      |     | \$643,560.85  |
|                    | FAASt A&E # 335168 TOTAL          |     | \$81,858.57   |

## Project Cost Summary, Version 0:

Work to be Completed (WTBC): \$725,419.42

A&E Deduction (Global A&E FAASt 335168): -\$81,858.57

Project Total: \$643,560.85

## Attachments:

755211-DR4339PR-APPENDIX A - Initial Scope of Work

755211-DR4339PR-APPENDIX B – Detailed Cost Estimate

755211-DR4339PR-APPENDIX C - Project Considerations

755211-DR4339PR-APPENDIX D - LUMA's Active Projects

**Project Notes:**

1. Refer to the detailed SOW provided in document named: **755211- DR4339PR- DSOW Group 15 DAUT Revision 01.pdf**.
2. This project is part of Donor FAAS 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS Project.
3. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAAS PREPA work (see project: 335168 - FAAS A&E PREPA).
4. This project is part of Donor FAAS 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS Project.
5. The permanent staging area will be located inside the existing PREPA facilities.
6. For detailed cost estimate, please refer to document named: *755211-DR4339PR-APPENDIX B- DETAILED COST ESTIMATE.xlsx*.

**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 | \$725,419.42  | Uncompleted |
| 3510 | 1        | Lump Sum | (\$81,858.57) | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00        | Completed   |

CRC Gross Cost \$643,560.85

Total 406 HMP Cost \$0.00

Total Insurance Reductions \$0.00

CRC Net Cost \$643,560.85

Federal Share (90.00%) \$579,204.77

Non-Federal Share (10.00%) \$64,356.08

## 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

7/1/2026

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.**

5/14/2025

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 15] (Distribution)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [Automation Program Group 15] (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
- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boa 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 reinstate 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 reinstate 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
- 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.
- 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 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 Subrecipients 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 have not 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.
- Additional staging areas and/or work pads within work site area have not 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 15] (Distribution).

## Final Reviews

### Final Review

**Reviewed By** Amaro, Luis N.

**Reviewed On** 12/17/2024 8:11 PM PDT

#### Review Comments

LNA 12/17/24. 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** 12/19/2024 5:31 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 #        | 755211                                               | P/W # | 108022 | Project Type        | Specialized                               |
| Project Category | F - Utilities                                        |       |        | Applicant           | PR Electric Power Authority (000-UA2QU00) |
| Project Title    | FAASt * [Automation Program Group 15] (Distribution) |       |        | Event               | 4339DR-PR (4339DR)                        |
| Project Size     | Large                                                |       |        | Declaration Date    | 9/20/2017                                 |
| Activity         | 9/20/2027                                            |       |        | Incident Start Date | 9/17/2017                                 |
| Completion Date  |                                                      |       |        | 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 #1392753; FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

**General Facility Information:**

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 15: San Juan, Feeder: 1646-02
- **Facility Description:** Transmission and Distribution Automation Feeder 1646-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1392753 FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

\*\*\*\*\* Version 1 \*\*\*\*\*

Version 1 was created to address fund code correction from FC6E to FC06 for FAASt projects. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for de-obligating the available balance in this PW, and a next version will be submitted to reconcile available funding in the correct code. Per the Financial Management Section, the amount to be de-obligated in this version is -\$643,560.85 (100%) / -\$579,204.77 (90%).

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

### 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 | \$725,419.42   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$81,858.57)  | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |

CRC Gross Cost \$0.00

Total 406 HMP Cost \$0.00

Total Insurance Reductions \$0.00

CRC Net Cost \$0.00

Federal Share (90.00%) \$0.00

Non-Federal Share (10.00%) \$0.00

## 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

7/1/2026

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.**

5/14/2025

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 15] (Distribution)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [Automation Program Group 15] (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
- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boar and VI boar 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 boar habitat will be thoroughly inspected each morning before work starts to ensure that no boar have sheltered within engine compartments or other areas of the heavy machinery. If a PR boar or VI boar is found within vehicles or heavy machinery, boars 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 boar and VI boar may seek shelter within debris piles. Measures should be taken to avoid and minimize boar 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 boars and VI boars. If debris piles will be left on site, we recommend they be placed in an undisturbed area. \*. In the event a PR boar and VI boar 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 boar or a VI boar 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 reinstate 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 reinstate 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
- 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.
- 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 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 Subrecipients 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.
- 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 15] (Distribution).

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 05/08/2025 5:04 PM PDT

#### Review Comments

"Version to address fund code correction from FC6E to FC06 for FAASSt projects. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for de-obligating the available balance in this PW. Per the Financial Management Section, the amount to be de-obligated in this version is -\$643,560.86 (100%) / -\$579,204.77 (90%)."

### Recipient Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 05/08/2025 5:05 PM PDT

#### Review Comments

"Version to address fund code correction from FC6E to FC06 for FAASSt projects. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for de-obligating the available balance in this PW. Per the Financial Management Section, the amount to be de-obligated in this version is -\$643,560.86 (100%) / -\$579,204.77 (90%)."

## Project Signatures

**Reviewed By** Unsigned

**Reviewed On** Unsigned

## General Info

|                                 |                                                                  |                            |                                           |                     |                    |
|---------------------------------|------------------------------------------------------------------|----------------------------|-------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 755211                                                           | <b>P/W #</b>               | 108022                                    | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                    | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU00) |                     |                    |
| <b>Project Title</b>            | FAAS <sup>t</sup> * [Automation Program Group 15] (Distribution) |                            |                                           | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                            | <b>Declaration Date</b>    | 9/20/2017                                 |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                        | <b>Incident Start Date</b> | 9/17/2017                                 |                     |                    |
| <b>Process Step</b>             | Canceled                                                         | <b>Incident End Date</b>   | 11/15/2017                                |                     |                    |

## Damage Description and Dimensions

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

**Damage #1392753; FAASSt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

**General Facility Information:**

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 15: San Juan, Feeder: 1646-02
- **Facility Description:** Transmission and Distribution Automation Feeder 1646-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1392753 FAASSt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

\*\*\*\*\* Version 1 \*\*\*\*\*

Version 1 was created to address fund code correction from FC6E to FC06 for FAASSt projects. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for de-obligating the available balance in this PW, and a next version will be submitted to reconcile available funding in the correct code. Per the Financial Management Section, the amount to be de-obligated in this version is -\$643,560.85 (100%) / -\$579,204.77 (90%).

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

### 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 | \$725,419.42   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$81,858.57)  | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |

CRC Gross Cost \$0.00

Total 406 HMP Cost \$0.00

Total Insurance Reductions \$0.00

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CRC Net Cost \$0.00

Federal Share (90.00%) \$0.00

Non-Federal Share (10.00%) \$0.00



## 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

7/1/2026

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.**

5/14/2025

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 15] (Distribution)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [Automation Program Group 15] (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
- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boar and VI boar 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 boar habitat will be thoroughly inspected each morning before work starts to ensure that no boar have sheltered within engine compartments or other areas of the heavy machinery. If a PR boar or VI boar is found within vehicles or heavy machinery, boars 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 boar and VI boar may seek shelter within debris piles. Measures should be taken to avoid and minimize boar 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 boars and VI boars. If debris piles will be left on site, we recommend they be placed in an undisturbed area. \*. In the event a PR boar and VI boar 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 boar or a VI boar 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 reinstate 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 reinstate 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
- 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.
- 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 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 Subrecipients 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.
- 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 15] (Distribution)**.

## Final Reviews

### Final Review

**Reviewed By** Not Reviewed

**Reviewed On** Not Reviewed

### Review Comments

*No comments available for the Final Review step*

### Recipient Review

**Reviewed By** Not Reviewed

**Reviewed On** Not Reviewed

### Review Comments

*No comments available for the Final Review step*

## Project Signatures

**Reviewed By** Unsigned

**Reviewed On** Unsigned

## General Info

|                                 |                                                      |                            |                                            |                     |                    |
|---------------------------------|------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 755211                                               | <b>P/W #</b>               | 108022                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                        | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt * [Automation Program Group 15] (Distribution) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                            | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                            | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

**Damage #1392753; FAASSt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

**General Facility Information:**

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 15: San Juan, Feeder: 1646-02
- **Facility Description:** Transmission and Distribution Automation Feeder 1646-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1392753 FAASSt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

\*\*\*\*\* Version 3 \*\*\*\*\*

Version 3 was created to address fund code correction from FC6E to FC06 for FAASSt projects. This version is being approved to re-obligate available the balance de-obligated in a previous version as part of the fund code fix under FC06. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for re-obligating the available balance in this PW. Per the Financial Management Section, the amount to be re-obligated in this version is \$643,560.85 (100%) / \$579,204.77 (90%).

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

### 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 | \$725,419.42   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$81,858.57)  | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |
| 9001 | 1        | Lump Sum | \$643,560.85   | Uncompleted |

CRC Gross Cost \$643,560.85

Total 406 HMP Cost \$0.00

Total Insurance Reductions \$0.00

CRC Net Cost \$643,560.85

Federal Share (90.00%) \$579,204.77

Non-Federal Share (10.00%) \$64,356.08

## 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

7/1/2026

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.**

5/14/2025

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 15] (Distribution)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [Automation Program Group 15] (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.
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- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boar and VI boar 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 boar habitat will be thoroughly inspected each morning before work starts to ensure that no boar have sheltered within engine compartments or other areas of the heavy machinery. If a PR boar or VI boar is found within vehicles or heavy machinery, boars 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 boar and VI boar may seek shelter within debris piles. Measures should be taken to avoid and minimize boar 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 boars and VI boars. If debris piles will be left on site, we recommend they be placed in an undisturbed area. \*. In the event a PR boar and VI boar 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 boar or a VI boar 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 reinstate 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 reinstate 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
- 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.
- 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 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 Subrecipients 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.
- 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 15] (Distribution).

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 05/15/2025 6:17 PM PDT

#### Review Comments

Version to address fund code correction from FC6E to FC06 for FAASt projects. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for re-obligating the available balance in this PW. Per the Financial Management Section, the amount to be re-obligated in this version is \$643,560.86 (100%) / \$579,204.77 (90%).

### Recipient Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 05/15/2025 6:17 PM PDT

#### Review Comments

Version to address fund code correction from FC6E to FC06 for FAASt projects. This administrative amendment does not change the previously approved scope of work or costs, however, to be able to process the correction a version is being submitted for re-obligating the available balance in this PW. Per the Financial Management Section, the amount to be re-obligated in this version is \$643,560.86 (100%) / \$579,204.77 (90%).

## Project Signatures

**Reviewed By** Unsigned

**Reviewed On** Unsigned

## General Info

|                                 |                                                      |                            |                                            |                     |                    |
|---------------------------------|------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 755211                                               | <b>P/W #</b>               | 108022                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                        | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt * [Automation Program Group 15] (Distribution) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                            | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Signed                                               | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

### Damage #1392753; FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)

#### General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 15: San Juan, Feeder: 1646-02
- **Facility Description:** Transmission and Distribution Automation Feeder 1646-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

### 1392753 FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)

\*\*\*\*\* VERSION 4 \*\*\*\*\*

Version 4 has been created to capture the LUMA change in cost of the project, as 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. 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 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 755211 Automation Program Group 15 (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 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 1646-02.

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 two 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 six 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 aids the grid operator in making decisions that avoid outages and speed restoration. The cFCI can be programmed to send automatic notification/alerts 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 15 Feeder Lines

| Name     | Feeder Number | GPS Start | GPS End |
|----------|---------------|-----------|---------|
| San Juan | 1646-02       |           |         |

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 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:

☒ 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 two (2) damaged concrete poles.
- Install two (2) new poles.
- Install two (2) Three-Phase Reclosers.
- Install six (6) Single Phase Reclosers, remove fuses, and close jumpers.
- Install four (4) 1 kVA transformers.
- Install two (2) communicating fault indicators (cFCIs).

LUMA requests the alignment of the scope of work of Project 755211 with the approved 406 mitigation proposal from Project 746309 FAAS [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% cost for the three-phase reclosers on the feeder backbone and the additional cost (delta) for the replacement of fuse cutouts for a single-phase reclosers on laterals 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 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 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, keeping the three-phase circuit energized while the situation is resolved.

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

During the development and discussion of the "FAAS 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 recloser).

#### **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                                                         | 428 Scope of Work                                                                     | Scope of work                                                                                                                                                                                                                                                            |
|----------|-----------------------|------------------------------------------------------------------|---------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22795938 |                       | (65'-H6 CONCRETE POLE)                                           | (65' GALVANIZED TAPERED ROUND STEEL POLE)                                             | <ul style="list-style-type: none"> <li>Remove and dispose 65ft. H6 Concrete pole. Replace with a 65 galvanized</li> <li>tapered round pole.</li> </ul>                                                                                                                   |
|          |                       | (38KV SC VERTICAL TANGENT 1Q(QTY=1)) (CP1C8(QTY=1)) (S-1(QTY=1)) | (38KV SC TANGENT DELTA SUSPENSION(QTY=1) VER1(QTY=1)) (S-1(QTY=1)) (ABS-3-XARM QTY=3) | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace 38KV tangent.</li> <li>Install and connect three (3) sets of Air Break Bypass (ABS-3-XARM) and the</li> </ul> framing hardware to support them. |
| NEW POLE |                       | NONE                                                             | 50' GALVANIZED ROUND TAPERED POLE (ABS-3-XARM QTY=3)                                  | <ul style="list-style-type: none"> <li>Install a new 50ft. galvanized steel round tapered pole.</li> <li>Install and connect three (3) sets of Air Break Bypass (ABS-3-XARM) and the</li> </ul> framing hardware to support them.                                        |
| NEW POLE |                       | NONE                                                             | 70' GALVANIZED ROUND TAPERED POLE 38kv STANDARD                                       | <ul style="list-style-type: none"> <li>Install a new 70ft. galvanized round tapered pole as a Midspan.</li> </ul> Install 38kV standard, distribution primary and secondary framing                                                                                      |
| 15158761 |                       | (55'-C2 WOOD POLE) (CP-C1) (K-6 (QTY=1))                         | (55' GALVANIZED TAPERED ROUND POLE) (CP-C6-VERT) (K-6 (QTY=1))                        | <ul style="list-style-type: none"> <li>Remove and dispose 55ft. C2 wood pole. Replace with a 55ft. galvanized tapered round pole.</li> </ul> Remove, dispose and replace primary and secondary framing.                                                                  |
| 15158776 |                       | (ASSY-1509(QTY=3))                                               | (LABOR & REPAIR)                                                                      | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) fuse Outouts.</li> </ul> Labor to Close Jumpers.                                                                                                                                                  |
| 15152286 |                       | (ASSY-1509(QTY=3))                                               | (LABOR & REPAIR)                                                                      | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> </ul> Labor to Close Jumpers.                                                                                                                                                           |
| 28482726 |                       | (ASSY-1509(QTY=3))                                               | (LABOR & REPAIR)                                                                      | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) fuse cutouts.</li> </ul> Labor to close Jumpers.                                                                                                                                                  |
| 15158633 |                       | (ASSY-1509(QTY=3))                                               | (LABOR & REPAIR)                                                                      | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuse Outouts.</li> </ul> Labor to Close Jumpers.                                                                                                                                                           |
| NA       |                       | NONE                                                             | (LABOR, FCI) (QTY=3)                                                                  | Install (3) Fault Current Indicators.                                                                                                                                                                                                                                    |
| NA       |                       | 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. The existing wood pole is to be replaced by galvanized tapered poles, at the locations identified 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.
- 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, describe the scope, extent, and location of the selected activity.

☒ **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.

☒ **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 723883 FAAS (SanJuan) (Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

☒ **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.

☒ **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 easement.

☒ **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                                 | \$25,796.06                       | \$0.00 | \$25,796.06   |
| MANAGEMENT                               | \$18,201.05                       | \$0.00 | \$18,201.05   |
| LPCE Distribution<br>Automation Group 15 | \$298,190.03                      | \$0.00 | \$298,190.03  |
| GENERAL CONDITIONS                       | \$15,596.91                       | \$0.00 | \$15,596.91   |
| COST TOTALS                              | \$357,784.05                      | \$0.00 | \$357,784.05  |
| DEDUCTIONS                               | TOTAL INSURANCE PROCEEDS RECEIVED |        | \$ 0          |
| FAASt ALLOCATIONS                        | 428 FAASt PROJECT # 755211 TOTAL  |        | \$276,        |
|                                          | FAASt E&M #673691 - 428           |        | \$53,         |
|                                          | FAASt A&E # 335168 TOTAL          |        | \$28,         |
|                                          |                                   |        |               |

**428 Project Summary, Version 4:**

Work To Be Completed (WTBC): \$357,784.05

E&M Deduction (#673691) 428: -\$53,139.71

A&E Deduction (Global A&E FAASt 335168): -\$28,366.57

Project Total Cost: \$276,277.77

Total Project Cost V4: V3 - (V3 De-obligation V4) + V4 (Cost Change) = \$643,560.85 - \$643,560.85 + \$276,277.77= \$276,277.77

**VERSION SUMMARY OF KEY CHANGES:**

V0: \$643,560.85 (WTBC, A&E Deduction)

V1: \$276,277.77 (WTBC, A&E Deduction, E&M Deduction, Reconcile funding from De-obligation of V3)

#### **Project Notes:**

1. Refer to detailed SOW provided in document: 755211-DR4339PR-DSOW Group 15 Automation- Revision 006- V4.pdf.
2. Refer to detailed cost estimate in document: 755211-DR4339PR-755211-DR4339PR-APPENDIX A- LUMA PROJECT COST ESTIMATE V4 Rev 06.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.

## **406 HMP Scope**

**Project number:** 755211 FAAsT [Automation Program Group 15] (Distribution)

**Damage #**1392753; FAAsT [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution).

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

**Location:** Carolina, 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 1ea 60ft (S10) 12-sided galvanized pole
- b) Existing 65ft concrete pole will be replaced with 1ea 65' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with 1ea 70ft 12-sided galvanized pole.
- c) Existing 55ft wood pole will be replaced by 1ea 55' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with 1ea 60ft (S8.5) 12-sided galvanized pole.
- d) One (1ea) new 70ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with 1ea 70ft (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) Feeder 1646-02, WOP 3PH Recloser Installation – Segment FID 26522974:

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 1646-02). 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.

b) Feeder 1646-02, WOP 3PH Recloser Installation – Pole FID 22795938:

The selection to increase the existing 65-foot H6 concrete pole with a 70-foot 12-sided tapered galvanized steel pole was because the existing pole does not need to be replaced as it meets the 160 mph LUMA codes and standards (C&S). However, due to clearance purposes caused by the installation of the three-phase automatic recloser and the presence of the existing 38kV transmission circuit and the two-distribution feeder, it is now necessary to replace it.

c) Feeder 1646-02, WOP 1PH Recloser Installation – Pole FID 15158761:

The decision to use a 60-foot pole instead of a 50-foot standard pole is based on two primary engineering considerations:

1. Proximity to Adjacent Structures:

A building is located adjacent to the primary distribution line. To ensure compliance with safety regulations, the design must meet the minimum vertical and horizontal clearance requirements between energized conductors and nearby structures.

2. Existing Line Construction:

The existing line is built on 55-foot wooden poles. To maintain or improve existing clearances and ensure structural consistency, the new steel pole must exceed the current height.

## 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 2ea fuse cutouts by 2ea single-phase reclosers and install 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.

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 cFCI 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 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.

### (III) Hazard Mitigation Proposal (HMP) Cost

|                                                            |                     |
|------------------------------------------------------------|---------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =             | \$ 199,267.98       |
| + HM (Subrecipient A&E, Management & General Conditions) = | <u>\$ 51,631.08</u> |
| Hazard Mitigation Total Cost =                             | <b>\$250,899.06</b> |

### (IV) Hazard Mitigation Proposal (HMP) Cost Distribution:

|                                      |                      |
|--------------------------------------|----------------------|
| Equipment and Materials (E&M) =      | \$ 103,164.29        |
| Architecture and Engineering (A&E) = | \$ 19,875.89         |
| Construction Cost =                  | <u>\$ 127,858.87</u> |
| Hazard Mitigation Total Cost =       | <b>\$250,899.06</b>  |

### (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 **\$250,899.06 (Hazard Mitigation Total Cost)**. The cost of this HMP combined with 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 | \$725,419.42   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$81,858.57)  | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |
| 9001 | 1        | Lump Sum | \$643,560.85   | Uncompleted |
| 9001 | 1        | Lump Sum | \$357,784.05   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$28,366.57)  | Uncompleted |
| 9001 | 1        | Lump Sum | (\$53,139.71)  | Uncompleted |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |

|                            |              |
|----------------------------|--------------|
| CRC Gross Cost             | \$276,277.77 |
| Total 406 HMP Cost         | \$250,899.06 |
| Total Insurance Reductions | \$0.00       |
| CRC Net Cost               | \$527,176.83 |
| Federal Share (90.00%)     | \$474,459.15 |
| Non-Federal Share (10.00%) | \$52,717.68  |

## 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

7/1/2026

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.**

5/14/2025

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 15] (Distribution)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [Automation Program Group 15] (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
- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boa 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 reinstate 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 reinstate 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
- 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.
- 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 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 Subrecipients 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 have not 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.
- \*\*\*DISREGARD PREVIOUS CONDITIONS\*\*\* The following conditions apply only to DI #1392753: Puerto Rican boa (PR boa; *Chilabothrus inornatus*) 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.
- The Sub-recipient must provide documentation at close-out that proves completion of required Conservation Measures.
- 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 15] (Distribution)**.

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 12/30/2025 1:19 PM PDT

#### Review Comments

V4 includes 406 Hazard Mitigation measures for a total amount of \$250,899.06. Project version has been reviewed, found eligible and reasonable. CLG 12/30/2025

### Recipient Review

**Reviewed By** Mulero, Noel

**Reviewed On** 12/30/2025 2:20 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

|                                 |                                                      |                            |                                            |                          |                    |
|---------------------------------|------------------------------------------------------|----------------------------|--------------------------------------------|--------------------------|--------------------|
| <b>Project #</b>                | 755211                                               | <b>P/W #</b>               | 108022                                     | <b>Project Type</b>      | Specialized        |
| <b>Project Category</b>         | F - Utilities                                        | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) | <b>Event</b>             | 4339DR-PR (4339DR) |
| <b>Project Title</b>            | FAASt * [Automation Program Group 15] (Distribution) |                            |                                            | <b>Declaration Date</b>  | 9/20/2017          |
| <b>Project Size</b>             | Large                                                | <b>Incident Start Date</b> | 9/17/2017                                  | <b>Incident End Date</b> | 11/15/2017         |
| <b>Activity Completion Date</b> | 9/20/2027                                            |                            |                                            |                          |                    |
| <b>Process Step</b>             | Obligated                                            |                            |                                            |                          |                    |

## Damage Description and Dimensions

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

**Damage #1392753; FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

**General Facility Information:**

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 15: San Juan, Feeder: 1646-02
- **Facility Description:** Transmission and Distribution Automation Feeder 1646-02
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1392753** **FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution)**

\*\*\*\*\* **VERSION 5** \*\*\*\*\*

Version 5 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, \$367,283.08 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 \$250,899.06 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.

**V5 Project Total Cost: \$367,283.08**

### VERSION SUMMARY OF KEY CHANGES:

- V0: \$643,560.85 (WTBC, A&E Deduction)
- V1: Fund code correction
- V2: Fund code correction
- V3: Fund code correction
- V4: \$276,277.77 (WTBC, A&E Deduction, E&M Deduction, Reconciliation of funding from de-obligation of V3)
- V5: Event Leadership Request to offset the CRC gross cost from the previous version (Sub-FAASt Transaction guidance).

## 406 HMP Scope

**Project number:** 755211 FAASt [Automation Program Group 15] (Distribution)

**Damage #**1392753; FAASt [Automation Program Group 15: San Juan, Feeder: 1646-02] (Distribution).

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

**Location:** Carolina, 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 1ea 60ft (S10) 12-sided galvanized pole
- b) Existing 65ft concrete pole will be replaced with 1ea 65' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with 1ea 70ft 12-sided galvanized pole.
- c) Existing 55ft wood pole will be replaced by 1ea 55' round galvanized pole (PA recovery solution), and 406 HM will replace round pole with 1ea 60ft (S8.5) 12-sided galvanized pole.
- d) One (1ea) new 70ft round galvanized pole will be installed as PA recovery solution, and 406 HM will replace round pole with 1ea 70ft (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) Feeder 1646-02, WOP 3PH Recloser Installation – Segment FID 26522974:

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 1646-02). 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.

b) Feeder 1646-02, WOP 3PH Recloser Installation – Pole FID 22795938:

The selection to increase the existing 65-foot H6 concrete pole with a 70-foot 12-sided tapered galvanized steel pole was because the existing pole does not need to be replaced as it meets the 160 mph LUMA codes and standards (C&S). However, due to clearance purposes caused by the installation of the three-phase automatic recloser and the presence of the existing 38kV transmission circuit and the two-distribution feeder, it is now necessary to replace it.

c) Feeder 1646-02, WOP 1PH Recloser Installation – Pole FID 15158761:

The decision to use a 60-foot pole instead of a 50-foot standard pole is based on two primary engineering considerations:

1. Proximity to Adjacent Structures:

A building is located adjacent to the primary distribution line. To ensure compliance with safety regulations, the design must meet the minimum vertical and horizontal clearance requirements between energized conductors and nearby structures.

2. Existing Line Construction:

The existing line is built on 55-foot wooden poles. To maintain or improve existing clearances and ensure structural consistency, the new steel pole must exceed the current height.

## 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 2ea fuse cutouts by 2ea single-phase reclosers and install 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.

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 cFCI 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 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.

### **(III) Hazard Mitigation Proposal (HMP) Cost**

|                                                            |                     |
|------------------------------------------------------------|---------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =             | \$ 199,267.98       |
| + HM (Subrecipient A&E, Management & General Conditions) = | <u>\$ 51,631.08</u> |
| Hazard Mitigation Total Cost =                             | <b>\$250,899.06</b> |

**(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                      |                      |
|--------------------------------------|----------------------|
| Equipment and Materials (E&M) =      | \$ 103,164.29        |
| Architecture and Engineering (A&E) = | \$ 19,875.89         |
| Construction Cost =                  | <u>\$ 127,858.87</u> |
| Hazard Mitigation Total Cost =       | <b>\$250,899.06</b>  |

**(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 **\$250,899.06 (Hazard Mitigation Total Cost)**. The cost of this HMP combined with 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 | \$725,419.42   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$81,858.57)  | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |
| 9001 | 1        | Lump Sum | \$643,560.85   | Uncompleted |
| 9001 | 1        | Lump Sum | \$357,784.05   | Uncompleted |
| 3510 | 1        | Lump Sum | (\$28,366.57)  | Uncompleted |
| 9001 | 1        | Lump Sum | (\$53,139.71)  | Uncompleted |
| 9001 | 1        | Lump Sum | (\$643,560.85) | Uncompleted |
| 9001 | 1        | Lump Sum | \$367,283.08   | Uncompleted |

|                            |              |
|----------------------------|--------------|
| CRC Gross Cost             | \$643,560.85 |
| Total 406 HMP Cost         | \$250,899.06 |
| Total Insurance Reductions | \$0.00       |
| <hr/>                      |              |
| CRC Net Cost               | \$894,459.91 |
| Federal Share (90.00%)     | \$805,013.92 |
| Non-Federal Share (10.00%) | \$89,445.99  |



## 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

7/1/2026

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.**

5/14/2025

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 15] (Distribution)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [Automation Program Group 15] (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
- 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'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 1 km from the Action Area and away from construction areas. PR boa relocation sites will be pre-determined before the project start 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 boa 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 reinstate 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 reinstate 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
- 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.
- 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 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 Subrecipients 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 have not 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.
- \*\*\*DISREGARD PREVIOUS CONDITIONS\*\*\* The following conditions apply only to DI #1392753: Puerto Rican boa (PR boa; *Chilabothrus inornatus*) 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.
- The Sub-recipient must provide documentation at close-out that proves completion of required Conservation Measures.
- 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 15] (Distribution)**.

## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 07/15/2026 12:21 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.

### Recipient Review

**Reviewed By** Mulero, Noel

**Reviewed On** 07/29/2026 8:40 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 does not apply to the Department of Energy's executive order. This means that FEMA 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 \$894,459.91 for subaward number 108022 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 5         | 8/27/2026      | \$225,809.15   | 90%        | Accepted     | 4339DRPRP01080221  |
| 3         | 8/30/2025      | \$579,204.77   | 90%        | Accepted     | 4339DRPRP01080221  |
| 1         | 5/12/2025      | (\$579,204.77) | 90%        | Accepted     | 4339DRPRP01080221  |
| 0         | 2/6/2025       | \$579,204.77   | 90%        | Accepted     | 4339DRPRP01080221  |

**Department of Homeland Security  
Federal Emergency Management Agency**

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## General Info

|                                 |                                                                       |                          |                                            |                            |                    |
|---------------------------------|-----------------------------------------------------------------------|--------------------------|--------------------------------------------|----------------------------|--------------------|
| <b>Project #</b>                | 757689                                                                | <b>P/W #</b>             | 108034                                     | <b>Project Type</b>        | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                         | <b>Applicant</b>         | PR Electric Power Authority (000-UA2QU-00) | <b>Event</b>               | 4339DR-PR (4339DR) |
| <b>Project Title</b>            | FAASt [Automation Program Group 24]<br>(TL/ Distribution) (Cost Only) |                          |                                            |                            |                    |
| <b>Project Size</b>             | Large                                                                 | <b>Declaration Date</b>  | 9/20/2017                                  | <b>Incident Start Date</b> | 9/17/2017          |
| <b>Activity Completion Date</b> | 9/20/2027                                                             | <b>Incident End Date</b> | 11/15/2017                                 |                            |                    |
| <b>Process Step</b>             | 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 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. 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 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 |
|--------|---------------|-----------|---------|
| Caguas | 3405-02       |           |         |
| 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<br>Lat, Long | Existing<br>(Remove) | 428<br>Replacement                                   | Scope of work                                                                                                                                                                                                                                                                       |
|----------|--------------------------|----------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6225594  |                          | (CP-C1)<br>(K-1)     | (CP-C6-XARM)<br>(REC-2-1VER 6.)<br><br>(K-7-4) (K-5) | <ul style="list-style-type: none"><li>• Use existing galvanized steel pole 50'.</li><li>• Install (1) Three-Phase recloser 3405-02A.</li><li>• Install and Commission Three-Phase radio communication kit for three-phase recloser.</li><li>• Install (1) kva transformer</li></ul> |
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Feeder 3501-01

| POLE FID | Coordinates Lat, Long | Existing (Remove)                                                                             | 428 Replacement                                                                                                                                       | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|-----------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New Pole |                       | (NONE)                                                                                        | (50'-S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C6- XARM) (REC-2-1 VERS6)<br>(K-6)<br>(E-1-2-3 (QTY=1))<br>(F- 1-3 (QTY=1))                             | <ul style="list-style-type: none"> <li>Install a new 50' S8.5 12-Sided galvanized steel pole on midspan.</li> <li>Install (1) Three-Phase recloser</li> </ul> <b>3501-01A.</b> <ul style="list-style-type: none"> <li>Install and Commission Three- Phase radio communication kit for three-phase recloser</li> <li>Use secondary conductor from adjacent pole 10650427 to feed recloser on a load side.</li> <li>Install (1) 1kva transformer (4.80/8.32 kv - 120/240 v) for source side.</li> </ul>                                                                                                                                    |
|          |                       |                                                                                               |                                                                                                                                                       | <ul style="list-style-type: none"> <li>Install (1) anchor.</li> <li>Install (1) down guy.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 7636018  |                       | (45'-C3 WOOD POLE)<br>(CP-C6-XARM)<br>(K-5)<br>(STL-10)<br>(E-1-2-(QTY=1))<br>(F-1-3 (QTY=1)) | (50' S8.5 12-SIDED GALVANIZED STEEL POLE) (CP-C3- XARM) (REC-2-1-VER6)<br>(K-5)<br>(STL-10)<br>(E-1-2-3(QTY=3))<br>(F-4-2 (QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' C3 wood pole.</li> <li>Replace pole with 50' S8.5 12- Sided galvanized steel pole.</li> <li>Install (1) Three-Phase recloser</li> </ul> <b>3501-01B</b> on a radial configuration. <ul style="list-style-type: none"> <li>Install and Commission Three- Phase radio communication kit for three-phase recloser</li> <li>Install (1) 1kva transformer (4.80/8.32kv - 120/240 source side.</li> <li>Remove, dispose and replace (1) anchor and (1) down guy. Install additional (2) down guys and (1) anchor.</li> <li>Remove, dispose, and replace streetlights.</li> </ul> |
| NEW POLE |                       | (NONE)                                                                                        | (70'-S8 12-SIDED GALVANIZED STEEL POLE)<br>(38KV/ SC VERTICAL SUSPENSION ASSY. ANGLE 0-10)<br>(OPS- REC-2-1-1)<br>(AH-GS-88.5)                        | <ul style="list-style-type: none"> <li>Install a new 70' S8 12-sided galvanized steel pole on midspan.</li> <li>Install (1) Three-Phase Recloser</li> </ul> <b>3501-01C.</b> <ul style="list-style-type: none"> <li>Install and Commission Three- Phase radio communication kit for three-phase recloser</li> <li>Install 1kva transformer (4.80/8.32 kv - 120/240 v source side.</li> <li>Install (1) Anchor and (1) down guy.</li> </ul>                                                                                                                                                                                               |
| 7637226  |                       | (ASSY 1509 (QTY=3))                                                                           | (LABOR & REPAIR)                                                                                                                                      | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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|------------|--|--------------------|------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 10070962   |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |
| 7638447    |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |
| 10070589   |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |
| 7638363    |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) fuses.</li> <li>Replace with (3) solid blade cutout.</li> </ul> |
| 7635056    |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |
| 7636028    |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |
| 1001762143 |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |
| 10072183   |  | (ASSY 1509 (QTY=3) | (LABOR & REPAIR) | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                               |

|          |  |                                                                                             |                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|--|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10650385 |  | (ASSY 1509 (QTY=3)                                                                          | (LABOR & REPAIR)                                                                                                                                                   | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 10650434 |  | (45'-S3 GALVANIZED<br>STEEL POLE) (CP-C7)<br><br>(K- 7 A)<br><br>(STL-10) (ASSY 1509QTY=3)) | (50'-S8.5 12-SIDED GALVANIZED<br>STEEL POLE)<br><br>(CP-C6- XARM)<br><br>(CP-C5-XARM)<br><br>(REC-3-C)<br>(K-7 A) (STL-10)<br>(E-1-2-3 (QTY=2))<br>(F-1-3 (QTY=2)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' S3 galvanized steel pole</li> <li>Replace pole with 50' S8.5 12- Sided galvanized steel pole. <ul style="list-style-type: none"> <li>Remove and dispose (3) fuses</li> </ul> </li> <li>Install (3) Outout Mounted Single- Phase Recloser</li> <li>Remove, dispose and replace streetlight.</li> <li>Install (2) anchors and (2) down guys.</li> <li>Remove, dispose and replace framings.</li> </ul>                                                                                            |
| 7636020  |  | (45'-CLASS 3 WOOD POLE)<br>(CP-C5-XARM)<br><br>(CP-C2)<br><br>(STL-10)                      | (50'-S8.5 12-SIDED GALVANIZED<br>STEEL POLE) (CP-C6- XARM)<br>(CP-C5-XARM)<br>(REC-3-C)<br>(E-1-2-3(QTY=1))<br>(F-1-3 (QTY=1)) (STL-10)                            | <ul style="list-style-type: none"> <li>Remove and dispose 45' Class 3 Wood pole.</li> <li>Replace pole with 50' S8.5 12- Sided galvaniz steel pole.</li> <li>Remove, dispose and replace framings. <ul style="list-style-type: none"> <li>Remove and dispose (3) fuses.</li> </ul> </li> <li>Install (3) Outout Mounted Single- Phase recloser. <ul style="list-style-type: none"> <li>Install (1) anchor and (1) down guy.</li> </ul> </li> <li>Remove, dispose and replace streetlight.</li> <li>Communication lines should remain in wood pole.</li> </ul> |

|          |  |                                                                             |                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|--|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7637703  |  | (40'-CLASS 4 WOOD POLE)<br>(CP-C6-XARM)<br><br>(CP-C5-XARM)                 | (50'S8.5 12-SIDED GALVANIZED<br>STEEL POLE) (CP-C6- XARM)<br>(CP-C5-XARM)<br>(REC-3-C)<br>(E-1-2-3(QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>Remove and dispose 40' Class 4 wood pole. <ul style="list-style-type: none"> <li>Replace pole with 50' S8.5 12- Sided galvaniz steel pole.</li> <li>Remove, dispose and replace framings.</li> </ul> </li> <li>Install (3) Outout Mounted Single- Phase. <ul style="list-style-type: none"> <li>Install (1) anchor and (1) down guy.</li> </ul> </li> </ul> |
| 10650761 |  | (ASSY 1509QTY=3)) (STL-10)<br><br>(K-7-B)                                   | (REC-3-C)<br>(K-7-B)<br>(STL-10) (290FT 3/0ACSR<br>PRIMARY)                                                                   | <ul style="list-style-type: none"> <li>Use existing steel pole 50'-s8.5. Remove <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul> </li> <li>Install (3) Outout Mounted Single- Phase Recloser</li> <li>Remove, dispose and replace streetlight.</li> <li>Install 290ft 3/0acsr primary conductor</li> </ul>                                                          |
| 10650746 |  | (40'-H4 CONCRETE POLE)<br>(CP-C1)<br>(K-7-A)<br><br>(STL-10)                | (45'-S5.7 12-SIDED GALVANIZED<br>STEEL<br>POLE) (CP-C1)<br><br>(K-7-A)<br><br>(STL-10)                                        | <ul style="list-style-type: none"> <li>Remove and dispose 40' H4 Concrete Pole.</li> <li>Replace with 45' S5.7 12-Sided galvanized steel pole <ul style="list-style-type: none"> <li>Remove, dispose and replace framings.</li> </ul> </li> <li>Remove, dispose, and replace Streetlight.</li> </ul>                                                                                               |
| 10650729 |  | (40'-H3 CONCRETE POLE)<br>(CP-C6-XARM) (ASSY 1509<br>(QTY=3))<br><br>(K- 5) | (45'-S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(REC-3-C)<br>(CP-C6-XARM)<br>(K-5)                                            | <ul style="list-style-type: none"> <li>Remove and dispose 40' H3 concrete pole.</li> <li>Replace pole with 45' S5.7 12- Sided galvanized steel pole.</li> <li>Remove, dispose and replace framings.</li> </ul>                                                                                                                                                                                     |

|          |  |                                           |                                                                                                                |                                                                                                                                                                                                                                                                                                                                                               |
|----------|--|-------------------------------------------|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |  | (K-7-2 B)                                 | (E-1- 2-3 (QTY=1))<br>(F-1-3(QTY=1)) (K-7-2 B)                                                                 | <ul style="list-style-type: none"> <li>Remove and dispose (3) fuses.</li> <li>Install (3) Outout Mounted Single- Phase recloser.</li> <li>Use existing (1) anchor and existing (1) down guy.</li> </ul>                                                                                                                                                       |
| 7638451  |  | (40'-S3 GALVANIZED<br>STEEL POLE) (CP-C2) | (45'-S5.7 12-SIDED GALVANIZED<br>STEEL POLE) (REC-3-C)<br>(CP-C6-XARM) (E-1-2-<br>3(QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>Remove and dispose 40' S3 galvanized pole.</li> <li>Replace with 45' S5.7 12-Sided galvanized steel pole.</li> <li>Remove, dispose and replace framings.</li> <li>Install (3) Outout Mounted Single- Phase recloser <ul style="list-style-type: none"> <li>Install (1) anchor and (1) down guy.</li> </ul> </li> </ul> |
| NEW POLE |  | (NONE)                                    | (45'-S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(REC-3-C)<br>(CP-C6-XARM)<br>(K-6)                             | <ul style="list-style-type: none"> <li>Install a new 45' S5.7 12-Sided galvanized steel pole midspan</li> <li>Install (3) Outout Mounted single- phase recloser.</li> <li>Replace open wire conductor to 1/0 source side : load side</li> </ul>                                                                                                               |

|          |  |                                                                                                                                           |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                      |
|----------|--|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10070681 |  | (35' CLASS 4 WOOD POLE)<br>(CP-C3-XARM)<br><br>(CP-C5-XARM)<br><br>(K-7-B)<br><br>(STL-10)<br><br>(E-1-2-3(QTY=1))<br><br>(F-1-3 (QTY=1)) | (50'-S8.5 12-SIDED GALVANIZED<br>STEEL POLE) (REC-3-C)<br>(CP-C3-XARM)<br>(CP-C5-XARM)<br>(K-7-B)<br>(STL-10)<br>(E-1-2-3 (QTY=1))<br>(F-1-3(QTY=1)) | <ul style="list-style-type: none"> <li>Remove and dispose 35' Class 4 wood pole.</li> <li>Replace with 50' S8.5 12-Sided galvanized steel pole.</li> <li>Install (3) Outout Mounted Single Phase recloser.</li> <li>Remove, dispose and replace streetlight.</li> <li>Remove, dispose and replace (1) anchor and (1) guy.</li> </ul> |
| 10070989 |  | (ASSY 1509 (QTY=3))                                                                                                                       | (LABOR & REPAIR)                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                      |
| 10071125 |  | (ASSY 1509 (QTY=3))                                                                                                                       | (LABOR & REPAIR)                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                      |
| 7638460  |  | (ASSY 1509 (QTY=1))                                                                                                                       | (LABOR & REPAIR)                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuses.</li> </ul>                                                                                                                                                                                                                                                      |
| 10650422 |  | (ASSY 1509 (QTY=3))                                                                                                                       | (LABOR & REPAIR)                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                      |
| NA       |  | (NONE)                                                                                                                                    | (LABOR, cFOI) (QTY=3)                                                                                                                                | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicator on Segment 14544804.</li> </ul>                                                                                                                                                                                                             |
| NA       |  | (NONE)                                                                                                                                    | (LABOR, cFOI) (QTY=3)                                                                                                                                | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault current indicator on Segment 8456952.</li> </ul>                                                                                                                                                                                                              |
| 7639086  |  | (ASSY 1509 (QTY=3))                                                                                                                       | (ABS-3-XARM) (E1-2-3 (QTY=1))<br><br>(F-1-3 (QTY=1))                                                                                                 | <ul style="list-style-type: none"> <li>Use existing galvanized steel Pole 50'-s8.5.</li> <li>Remove and dispose (3) fuses with</li> <li>Install (3) horizontal air-break Switch.</li> <li>Install (1) anchor and (1) Down guy.</li> </ul>                                                                                            |

### Feeder 3501-03

| POLE FID | Coordinates Lat,<br>Long | Existing (Remove) | 428<br>Replacement | Scope of work |
|----------|--------------------------|-------------------|--------------------|---------------|
|----------|--------------------------|-------------------|--------------------|---------------|

|          |  |                                                                                                   |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|--|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6834387  |  | (40'-C4 WOOD POLE)<br>(CP-B3)<br>(S-3)<br>(E-2-1 (QTY=1))<br>(E-1-2-3 (QTY=2))<br>(F-4-2 (QTY=1)) | (50'-S8.5 12-SIDED GALVANIZED STEEL POLE)<br>(40'-S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(REC-2-2 Ver.3) (S-6)<br>(K-5)<br>(E-2-1(QTY=1))<br>(E-1-2-3 (QTY=2))<br>(F-4-2(QTY=1)) | <ul style="list-style-type: none"> <li>Remove and dispose 40' C4 wood pole.</li> <li>Replace pole with 50' S8.5 12- Sided galvan Steel pole.</li> <li>Remove, dispose and replace primary Fram</li> <li>Install (1) Three-Phase Recloser Recloser 3501-03A.</li> <li>Install and Commission Three- Phase radio communication kit for three-phase recloser</li> <li>Install (1) 1kva (4.80/8.32 kv - 120/240 V) for source side.</li> <li>Install Secondary framing.</li> <li>Install 1/0 tpx Secd for load side (190ft).</li> <li>Remove and dispose. Replace this stub pole 40' S5.7 12- Sided galvanized Steel pole.</li> <li>Remove, dispose and replace (1) anchor.</li> <li>Remove, dispose and replace (3) Down guy</li> </ul> |
| NEW POLE |  | NONE                                                                                              | (50'-S8.5 12-SIDED GALVANIZED STEEL POLE)<br>(REC-2-2 Ver. 4) (S-6)<br>(E-1-2-3 (QTY=2))<br>(F-4-2 (QTY=1)) (K-6)                                                                 | <ul style="list-style-type: none"> <li>Install new 50' S8.5 12-Sided galvanized steel pole in new location mid span.</li> <li>Install primary framing.</li> <li>Install (1) Three-Phase Recloser 3501-03B in Configuration.</li> <li>Install and Commission Three- Phase radio communication kit for three-phase recloser</li> <li>Install (1) 1 kva Transformer (4.80/8.32-120/240v) for Source side.</li> <li>Install secondary Framing.</li> <li>Install secondary open Wire configuration 1/0 tpx secd (140ft).</li> <li>Install (1) anchor and (2) Down guys.</li> </ul>                                                                                                                                                        |
| 6837608  |  | (ASSY-1509 (QTY=3))                                                                               | (LABOR & REPAIR)                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 6835055  |  | (ASSY-1509 (QTY=3))                                                                               | (LABOR & REPAIR)                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7340258  |  | (ASSY-1509 (QTY=3))                                                                               | (LABOR & REPAIR)                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 6837183  |  | (35'-C4 WOOD POLE)<br>(CP-C12- XARM)<br>(E-1-2-3(QTY-1))                                          | (45'-S5.7 12-SIDED GALVANIZED STEEL POLE)<br>(CP-C12-XARM)                                                                                                                        | <ul style="list-style-type: none"> <li>Remove and dispose 36' C4 wood pole.</li> <li>Replace pole with 45' S5.7 12- Sided Galvar steel pole.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|  |  |                |  |                                                                                                                                                                                                                                           |
|--|--|----------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  | (F-1-3(QTY-1)) |  | <ul style="list-style-type: none"> <li>Remove, dispose and replace Primary fram</li> <li>Install solid blade Outout (fid: 14538193).</li> <li>Remove and dispose (3) fuses.</li> <li>Remove and dispose (1) Anchor and (1) dov</li> </ul> |
|--|--|----------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|         |  |                                                                                                                                  |                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------|--|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6835051 |  | 45'-C3 WOOD POLE)<br>(CP-C7-XARM)<br><br>(S-6)<br><br>(STL-10)<br>(K-7 A)<br><br>(K-5)<br><br>(E-1-2-3(QTY-2))<br>(F-1-3(QTY-2)) | (50'-S8.5 12-SIDED GALVANIZED<br>STEEL POLE)<br><br>(REC-3-B)<br><br>(S-6)<br><br>(CP-B5 XARM) (STL-10)<br><br>(K-7 A)<br><br>(K-5)<br>(E-1-2-3(QTY-1))<br>(F-1-3(QTY-1)) | <ul style="list-style-type: none"> <li>Remove and dispose 45' C3 wood pole</li> <li>Replace with 50' S8.5 12-Sided galvanized s Pole.</li> <li>Remove, dispose and replace framings.</li> <li>Install (3) Outout Mounted Single- Phase Rec</li> <li>Remove and dispose (2) fuses.</li> <li>Remove and dispose (2) Anchor. Replace or one.</li> <li>Remove and dispose (2) Downguy. Replace only one.</li> <li>Remove, dispose and replace streetlight.</li> </ul> |
| 6834513 |  | (40'-C3 WOOD POLE)<br>(CP-B6 XARM) (E-1-2-<br>3(QTY-2))<br><br>(F-1-3(QTY-2))                                                    | (45'-S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(REC-3-B) (CP-B6 XARM) (E-1-<br>2-3(QTY-1))<br><br>(F-1-3(QTY-1))                                                         | <ul style="list-style-type: none"> <li>Remove and dispose 40' C3 wood pole.</li> <li>Replace 45' S5.7 12-Sided galvanized steel Pole.</li> <li>Remove, dispose and replace framings.</li> <li>Install (2) Outout Mounted Single- Phase reclk pole</li> <li>Fid: 6834513.</li> <li>Remove and dispose (2) anchor. And (2) downguy. Replace (1) anchor and (1) downguy</li> </ul>                                                                                   |
| 6837617 |  | (40'-C3 WOOD POLE)<br>(CP-C6 XARM) (CP-C5 XARM)<br>(E-1-2-3(QTY-1))<br><br>(F-1-3(QTY-1))                                        | (45'-S5.7 12-SIDED GALVANIZED<br>STEEL POLE)<br>(REC-3-C) (CP-C6 XARM)                                                                                                    | <ul style="list-style-type: none"> <li>Remove and dispose 40' C3 wood</li> <li>Replace with 45' S5.7 12-Sided galvanized steel Pole.</li> <li>Remove, dispose and replace framings.</li> <li>Install (3) Outout Mounted Single- Phase Reclos</li> <li>Remove and dispose (1) anchor. And (1) downr</li> <li>Remove and dispose tap-off that is not in servi</li> </ul>                                                                                            |
| 6834559 |  | (ASSY-1509 (QTY=1))                                                                                                              | (LABOR & REPAIR)                                                                                                                                                          | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                    |
| 6834934 |  | (ASSY-1509 (QTY=1))                                                                                                              | (LABOR & REPAIR)                                                                                                                                                          | <ul style="list-style-type: none"> <li>Remove and dispose (1) Fuse.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                    |
| 6837612 |  | (ASSY-1509 (QTY=3))                                                                                                              | (LABOR & REPAIR)                                                                                                                                                          | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                   |
| NA      |  | NONE                                                                                                                             | (LABOR, cFOI) (QTY=3)                                                                                                                                                     | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicator Segment 14544808.</li> </ul>                                                                                                                                                                                                                                                                                                                                             |
| NA      |  | NONE                                                                                                                             | (LABOR, cFOI) (QTY=3)                                                                                                                                                     | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current indicator Segment 14538193.</li> </ul>                                                                                                                                                                                                                                                                                                                                             |

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**

- 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.
- 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 FAASSt Region 4 -Caguas Group C] (Vegetation)              |
| 3405-02 | 727692 FAASSt Region 4 -Caguas Group A] High Density (Vegetation) |
| 3501-03 |                                                                   |

- 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 APPENDIX 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 FAASSt 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 FAASSt projects.
5. Equipment and material costs included in this project will be reduced from this project and obligated under FAASSt 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 FAASSt 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

6/30/2026

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 24] (TL/ Distribution) (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.
- 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 reinstate 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 reinstate 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) (Cost Only)**.

## 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



## General Info

|                         |                                                                    |                            |                                            |                     |                    |
|-------------------------|--------------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>        | 757689                                                             | <b>PW #</b>                | 108034                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b> | F - Utilities                                                      | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>    | FAASt [Automation Program Group 24] (TL/ Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>     | Large                                                              | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity</b>         | 9/20/2027                                                          | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Completion Date</b>  |                                                                    | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |
| <b>Process Step</b>     | 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

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       | <div></div> |         |
| 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.

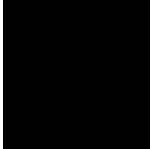
As detailed in the appendix of the amendment request letter, LUMA requests the following component additions to the project scope of work and cost estimate that were not included in the obligated project:

- Air Break Bypass Switches
  - 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 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.
  - o Three (3) new poles installations at new locations.
  - o One (1) pole to be removed and replaced.
  - o 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.

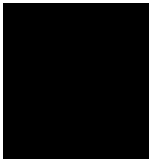
## 9.1 DESCRIPTION OF PROPOSED WORK TO BE PERFORMED

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<br>Lat, Long                                                          | Existing<br>(Remove) | 428<br>Replacement            | Scope of work                                                                                                                                                                                                                                                                                                    |
|----------|-----------------------------------------------------------------------------------|----------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6225594  |  | (CP-C1) (K-1)        | (CP-C6-XARM)<br>(K-7-4) (K-5) | <ul style="list-style-type: none"><li>•Existing galvanized steel pole: Remove, dispose and replace primary framings.</li><li>• Remove, dispose and replace secondary framing (K-7-4).</li><li>• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li></ul> |

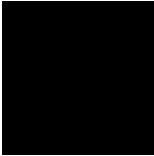


|          |                                                                                   |                                                               |                                                                                       |                                                                                                                                                                                                                                                                                                    |
|----------|-----------------------------------------------------------------------------------|---------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | NONE                                                          | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(S-6)                                | <ul style="list-style-type: none"> <li>•Install new 50ft galvanized round tapered pole in new location midspan.</li> <li>• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                       |
|          |                                                                                   | 35ft WOOD<br>POLE) (CP-C1)<br><br>(STL-10) (K-7-4)<br>(E-2-1) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br><br>(CP-C6-XARM)<br>(STL-10) (K-7-4) | <ul style="list-style-type: none"> <li>•Remove and dispose of a 35ft wood pole. Replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove and dispose stub pole.</li> </ul> |
|          |                                                                                   | (ASSY-1509<br>(QTY=3)                                         | (LABOR &<br>REPAIR)                                                                   | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                  |

|                         |  |                       |                        |                                              |
|-------------------------|--|-----------------------|------------------------|----------------------------------------------|
| 6225199                 |  | (ASSY-1509<br>(QTY=3) | (LABOR &<br>REPAIR)    | • Remove and<br>dispose (3) Fuse<br>Cutouts. |
| Segment FID<br>15920052 |  | (NONE)                | (LABOR,FCI)<br>(QTY=3) | • Install (3) Fault<br>Current Indicators.   |
| Segment FID<br>15894044 |  | (NONE)                | (LABOR,FCI)<br>(QTY=3) | • Install (3) Fault<br>Current Indicators.   |

**Feeder 3501-01**

|          |                          |                      |                    |               |
|----------|--------------------------|----------------------|--------------------|---------------|
| POLE FID | Coordinates<br>Lat, Long | Existing<br>(Remove) | 428<br>Replacement | Scope of work |
|----------|--------------------------|----------------------|--------------------|---------------|

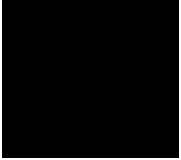
|          |                                                                                   |        |                                                                                                          |                                                                                                                                                                                                                                                                                          |
|----------|-----------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| New Pole |  | (NONE) | ((50ft<br>GALVANIZED<br>ROUDN<br>TAPERED POLE )<br>(CP-C6- XARM)<br>(E-1-2-3 (QTY=1)<br>(F- 1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>• Install a new 50ft. galvanized round tapered pole.</li> <li>• Install (1) anchor.</li> <li>• Install (1) down guy.</li> <li>• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
|----------|-----------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|         |                                                                                   |                                                                                                  |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7636018 |  | (45ft-C3 WOOD<br>POLE) (CP-C6-<br>XARM) (K-5)<br>(STL-10) (E-1-2-<br>(QTY=1)) (F-1-3<br>(QTY=1)) | ((50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C3- XARM)<br>(K-5) (STL-10)<br>(E-1-2-3(QTY=3))<br>(F-4-2 (QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft C3 wood pole. Replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace (1) anchor and (1) downguy. Install additional (2) downguys and (1) anchor.</li> <li>• Remove, dispose, and Replace streetlights (LED Type).</li> <li>• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
|---------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|          |  |                       |                                                                                                                           |                                                                                                                                                                                                                                |
|----------|--|-----------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | (NONE)                | (70ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(38KV SC<br>VERTICAL<br>SUSPENSION<br>ASSY. ANGLE 0-<br>10) (AH-GS-88.5) | • Install a new 70ft<br>galvanized round<br>tapered pole. • Install<br>(1) anchor and (1)<br>downguy. • Install and<br>connect (1) set of Air<br>Break Bypass (ABS-3-<br>XARM) and the<br>framing hardware to<br>support them. |
| 7637226  |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                                                                                       | • Remove and<br>dispose (3) Fuse<br>Cutouts.                                                                                                                                                                                   |
| 10070962 |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                                                                                       | • Remove and<br>dispose (3) Fuse<br>Cutouts.                                                                                                                                                                                   |
| 7638447  |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                                                                                       | • Remove and<br>dispose (3) Fuse<br>Cutouts.                                                                                                                                                                                   |
| 10070589 |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                                                                                       | • Remove and<br>dispose (3) Fuse<br>Cutouts.                                                                                                                                                                                   |
| 7638363  |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                                                                                       | • Remove and<br>dispose (3) Fuse<br>Cutouts and replace<br>with (3) solid blade<br>cutout.                                                                                                                                     |

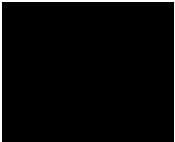
|            |  |                       |                     |                                              |
|------------|--|-----------------------|---------------------|----------------------------------------------|
| 7635056    |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR) | • Remove and<br>dispose (3) Fuse<br>Cutouts. |
| 7636028    |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR) | • Remove and<br>dispose (3) Fuse<br>Cutouts. |
| 1001762143 |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR) | • Remove and<br>dispose (3) Fuse<br>Cutouts. |
| 10072183   |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR) | • Remove and<br>dispose (3) Fuse<br>Cutouts  |
| 10650385   |  | (ASSY 1509<br>(QTY=3) | (LABOR &<br>REPAIR) | • Remove and<br>dispose (3) Fuse<br>Cutouts  |

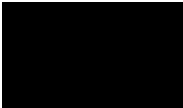
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|----------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10650434 |  | (45ft-S3<br>GALVANIZED<br>STEEL POLE)<br>(CP-C7) (K- 7 A)<br>(STL-10) (ASSY<br>1509QTY=3)) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C6- XARM)<br>(CP-C5-XARM)<br>(K-7 A) (STL-10)<br>(E-1-2-3<br>(QTY=2)) (F-1-3<br>(QTY=2)) | <ul style="list-style-type: none"> <li>• 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.</li> </ul> |
|----------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

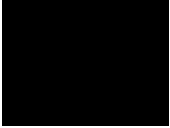
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|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7636020 | <br>(45ft-CLASS 3<br>WOOD POLE)<br>(CP-C5-XARM)<br>(CP-C2) (STL-10) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C6- XARM)<br>(CP-C5-XARM)<br>(E-1-2-3(QTY=1))<br>(F-1-3 (QTY=1))<br>(STL 10) | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft Class 3 wood pole. Replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Install (1) anchor and (1) downguy.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Communication lines should remain in</li> </ul> |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

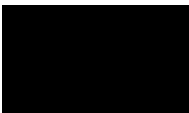
wood pole.



|          |                                                                                    |                                                             |                                                                                                                       |                                                                                                                                                                                                                                                                                   |
|----------|------------------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7637703  |   | (40ft-CLASS 4<br>WOOD POLE)<br>(CP-C6-XARM)<br>(CP-C5-XARM) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C6- XARM)<br>(CP-C5-XARM)<br>(E-1-2-3(QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft Class 4 wood pole. Replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Install (1) anchor and (1) downguy.</li> <li>• Install (3) Fuse Cutouts</li> </ul> |
| 10650761 |  | (ASSY<br>1509QTY=3))<br>(STL-10) (K-7-B)                    | (K-7-B) (STL-10)<br>(290FT 3/0ACSR<br>PRIMARY)                                                                        | <ul style="list-style-type: none"> <li>• On existing steel pole:</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Remove, dispose and replace streetlight (LED type).</li> <li>• Install 290ft 3/0acsr primary conductor.</li> </ul>                           |

|          |                                                                                    |                                                                                    |                                                                                                                    |                                                                                                                                                                                                                                                                                                                           |
|----------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10650746 |   | (40ft-H4<br>CONCRETE<br>POLE) (CP-C1)<br>(K-7-A) (STL-10)                          | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C1) (K-7-A)<br>(STL-10)                                       | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft H4 concrete pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove, dispose, and replace Streetlight (LED Type).</li> </ul>                                                          |
|          |                                                                                    | (40ft-H3<br>CONCRETE<br>POLE) (CP-C6-XARM) (ASSY 1509 (QTY=3))<br>(K- 5) (K-7-2 B) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C6-XARM)<br>(K-5) (E-1- 2-3 (QTY=1)) (F-1 3(QTY=1)) (K-7-2 B) | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft H3 concrete pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove, dispose and replace (3) Fuse Cutouts.</li> <li>• Re-use existing (1) anchor and existing (1) downguy.</li> </ul> |
| 10650729 |  |                                                                                    |                                                                                                                    |                                                                                                                                                                                                                                                                                                                           |

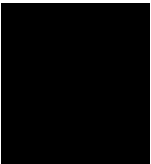
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|----------|-----------------------------------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7638451  |  | (40ft-S3<br>GALVANIZED<br>STEEL POLE)<br>(CP-C2) | (50ft<br>GALVANIZED<br>ROUND POLE)<br>(CP-C6-XARM)<br>(E-1-2-3(QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft S3 galvanized pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Install (1) anchor and (1) downguy.</li> </ul> |
|          |                                                                                   | (NONE)                                           | (50ft-<br>GALVANIZED<br>TAPERED STEEL<br>POLE) (CP-C6-<br>XARM) (K-6)                     | <ul style="list-style-type: none"> <li>• Install a new 50ft galvanized round tapered pole on midspan.</li> <li>• Install primary framings.</li> <li>• Replace open wire conductor to 1/0 source side and 65' load side.</li> </ul>                |
| NEW POLE |  |                                                  |                                                                                           |                                                                                                                                                                                                                                                   |

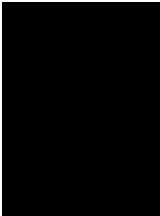
|          |                                                                                   |                                                                                                                            |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|----------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10070681 |  | (35ft CLASS 4<br>WOOD POLE)<br>(CP-C3-XARM)<br>(CP-C5-XARM)<br>(K-7-B) (STL-10)<br>(E-1-2-<br>3(QTY=1)) (F-1-3<br>(QTY=1)) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED) (CP-<br>C3-XARM) (CP-<br>C5-XARM) (K-7-<br>B) (STL-10) (E-1-<br>2-3 (QTY=1)) (F-<br>1-3(QTY=1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 35ft Class 4 wood pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove, dispose and replace (1) anchor and (1) downguy.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove, dispose and replace (1) anchor and (1) downguy.</li> </ul> |
|----------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                         |  |                        |                                                     |                                                                                                                                                                  |
|-------------------------|--|------------------------|-----------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10070989                |  | (ASSY 1509<br>(QTY=3)) | (LABOR &<br>REPAIR)                                 | • Remove, dispose<br>and replace (3) Fuse<br>Cutouts.                                                                                                            |
| 10071125                |  | (ASSY 1509<br>(QTY=3)) | (LABOR &<br>REPAIR)                                 | • Remove, dispose<br>and replace (3) Fuse<br>Cutouts.                                                                                                            |
| 7638460                 |  | (ASSY 1509<br>(QTY=1)) | (LABOR &<br>REPAIR)                                 | • Remove, dispose<br>and replace (1) Fuse<br>Cutouts.                                                                                                            |
| 10650422                |  | (ASSY 1509<br>(QTY=3)) | (LABOR &<br>REPAIR)                                 | • Remove, dispose<br>and replace (3) Fuse<br>Cutouts.                                                                                                            |
| Segment FID<br>14544804 |  | (NONE)                 | (LABOR, FCI)<br>(QTY=3)                             | • Install (3) Fault<br>Current Indicators.                                                                                                                       |
| Segment FID<br>8456952  |  | (NONE)                 | (LABOR, FCI)<br>(QTY=3)                             | • Install (3) Fault<br>Current Indicators.                                                                                                                       |
| 7639086                 |  | (ASSY 1509<br>(QTY=3)) | (ABS-3-XARM)<br>(E1-2-3 (QTY=1))<br>(F-1-3 (QTY=1)) | • Existing Pole.<br><br>• Remove and<br>dispose (3) fuse<br>cutouts and replace<br>with (3) Air-Break<br>Switch.<br><br>• Install (1) anchor and<br>(1) downguy. |

**Feeder 3501-03**

| POLE FID | Coordinates<br>Lat, Long | Existing<br>(Remove) | 428<br>Replacement | Scope of work |
|----------|--------------------------|----------------------|--------------------|---------------|
|----------|--------------------------|----------------------|--------------------|---------------|

|         |                                                                                   |                                                                                                      |                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6834387 |  | (40ft-C4 WOOD<br>POLE) (CP-B3)<br>(S-3) (E-2-1<br>(QTY=1)) (E-1-2-<br>3 (QTY=2)) (F 4-<br>2 (QTY=1)) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(40'-<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(S-6) (K-5) (E-2-<br>1(QTY=1)) (E-1-<br>2-3 (QTY=2)) (F-<br>4-2(Q40TY=1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft C4 pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Remove and dispose 40ft C4 wood pole (stub pole) and replace with 40ft round tapered steel pole.</li> <li>• Remove, dispose and replace (1) anchor.</li> <li>• Remove, dispose and replace (3) downguy.</li> <li>• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
|---------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|          |                                                                                   |                       |                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|-----------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | NONE                  | (50ft<br>GALVANIZED<br>TAPERED POLE)<br>(S-6) (E-1-2-3<br>(QTY=2)) (F-4-2<br>(QTY=1)) (K-6) | <ul style="list-style-type: none"> <li>• Install 50ft galvanized round tapered pole in new location mid span.</li> <li>• Install primary framing.</li> <li>• Install secondary framing.</li> <li>• Install secondary open wire configuration to secondary 1/0 triplex (140ft).</li> <li>• Install (1) anchor and (2) downguys.</li> <li>• Install and connect (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
|          |                                                                                   | (ASSY-1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                                                         | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Cutouts.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                    |

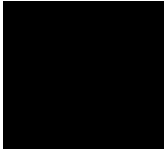
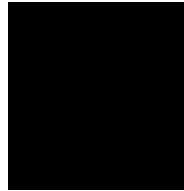
6837608





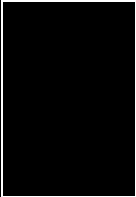
|         |  |                                                                                  |                                                                |                                                                                                                                                                                                                                                                                                                                              |
|---------|--|----------------------------------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6835055 |  | (ASSY-1509<br>(QTY=3)                                                            | (LABOR &<br>REPAIR)                                            | •Remove and dispose<br>(3) Fuse Cutouts.                                                                                                                                                                                                                                                                                                     |
| 7340258 |  | (ASSY-1509<br>(QTY=3)                                                            | (LABOR &<br>REPAIR)                                            | •Remove and dispose<br>(3) Fuse Cutouts.                                                                                                                                                                                                                                                                                                     |
| 6837183 |  | (35ft-C4 WOOD<br>POLE) (CP-C12-<br>XARM) (E-1-2-<br>3(QTY-1)) (F-1-<br>3(QTY-1)) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C12-XARM) | <ul style="list-style-type: none"> <li>• Remove and dispose 35ft C4 wood pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace primary framing.</li> <li>• Install solid blade cutout.</li> <li>• Remove and dispose (3) fuses.</li> <li>• Remove and dispose (1) anchor and (1) downguy</li> </ul> |

|         |                                                                                   |                                                                                                                   |                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6835051 |  | 45ft-C3 WOOD<br>POLE) (CP-C7-<br>XARM) (S-6)<br>(STL-10) (K-7 A)<br>(K-5) (E-1-2-<br>3(QTY-2)) (F-1-<br>3(QTY-2)) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(S-6) (CP-B5<br>XARM) (STL-10)<br>(K-7 A) (K-5) (E-<br>1-2-3(QTY-1)) (F-<br>1-3(QTY-1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft C3 wood pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove, dispose and replace (2) Fuse Cutouts.</li> <li>• Remove and dispose (2) anchor. Replace only one.</li> <li>• Remove and dispose (2) downguy. Replace only one.</li> <li>• Remove, dispose and replace <u>streetlight (LED Type).</u></li> </ul> |
|---------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|         |                                                                                     |                                                                                                |                                                                                                     |                                                                                                                                                                                                                                                                                                                      |
|---------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6834513 |    | (40ft-C3 WOOD<br>POLE) (CP-B6<br>XARM) (E-1-2-<br>3(QTY-2)) (F-1-<br>3(QTY-2))                 | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-B6 XARM)<br>(E-1-2-3(QTY-1))<br>(F-1-3(QTY-1)) | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft C3 wood pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove and dispose (2) anchor and (2) downguy. Replace only (1) anchor and (1) downguy.</li> </ul>                      |
| 6837617 |  | (40ft-C3 WOOD<br>POLE) (CP-C6<br>XARM) (CP-C5<br>XARM) (E-1-2-<br>3(QTY-1)) (F-1-<br>3(QTY-1)) | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C6 XARM)                                       | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft C3 wood pole and replace with 50ft round galvanized steel pole.</li> <li>• Remove, dispose and replace framings.</li> <li>• Remove and dispose (1) anchor and (1) downguy.</li> <li>• Remove and dispose tap-off that is not in service.</li> </ul> |

|                         |  |                       |                                                                |                                                                                                                                                       |
|-------------------------|--|-----------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6834559                 |  | (ASSY-1509<br>(QTY=1) | (LABOR &<br>REPAIR)                                            | •Remove, dispose<br>and replace (1) Fuse<br>Cutouts.                                                                                                  |
| 6834934                 |  | (ASSY-1509<br>(QTY=1) | (LABOR &<br>REPAIR)                                            | •Remove and dispose<br>(1) Fuse Cutouts                                                                                                               |
| 6837612                 |  | (ASSY-1509<br>(QTY=3) | (LABOR &<br>REPAIR)                                            | •Remove, dispose<br>and replace (3) Fuse<br>Cutouts.                                                                                                  |
| Segment FID<br>14544808 |  | NONE                  | (LABOR, FCI)<br>(QTY=3)                                        | •Install (3) Fault<br>Current Indicators.                                                                                                             |
| Segment FID<br>14538193 |  | NONE                  | (LABOR, FCI)<br>(QTY=3)                                        | •Install (3) Fault<br>Current Indicators.                                                                                                             |
| NEW POLE                |  | NONE                  | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-C12-XARM) | • Install a new<br>midspan 50' round<br>galvanized steel pole.<br><br>• Install primary and<br>neutral framing.<br><br>• Install (3) Fuse<br>Cutouts. |

|          |  |      |                                                                     |                                                                                                                                                                                                                                                                                                    |
|----------|--|------|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | NONE | (50ft<br>GALVANIZED<br>ROUND<br>TAPERED POLE)<br>(CP-A12)           | <ul style="list-style-type: none"> <li>• Install a new midspan 50ft round galvanized steel pole.</li> <li>• Install primary and neutral framing.</li> <li>• Install (1) Fuse Cutout.</li> </ul>                                                                                                    |
| NEW POLE |  | NONE | (50ft ROUND<br>TAPERED POLE<br>(CP-C7) (E-1-2-3)<br>(F-1-3) (F-4-2) | <ul style="list-style-type: none"> <li>• Install new midspan 50' round galvanized steel pole at 8' depth.</li> <li>• Install spacer deadend primary.</li> <li>• Install primary and neutral framing.</li> <li>• Install (3) Fuse Cutout.</li> <li>• Install (3) downguy and (2) anchor.</li> </ul> |

|         |                                                                                  |         |                                |                                                                                                                                                                                        |
|---------|----------------------------------------------------------------------------------|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6835042 |  | (CP-C1) | (CP-C6-VERT) (E-1-2-3) (F-4-2) | <ul style="list-style-type: none"> <li>• Existing pole.</li> <li>• Remove, dispose and replace primary and neutral framing.</li> <li>• Install (3) Downguys and (1) anchor.</li> </ul> |
|---------|----------------------------------------------------------------------------------|---------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### 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 FAAS [Region 4 -Caguas Group A] Low Density (Vegetation) and #727691 FAAS [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 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<br>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 FAASST IF APPLICABLE |              | \$-            |
| FAASST ALLOCATIONS                       | FAASST Project #757689- - 428         |              | \$1,594,252.07 |
|                                          | FAASST Project #757689 – 406 HM       |              | \$914,277.86   |
|                                          | FAASST Project #757689 Total          |              | \$2,508,529.93 |
|                                          | FAASST A&E Project #335168 - 428      |              | \$141,012.25   |
|                                          | FAASST A&E Project #335168 - 406      |              | \$68,290.29    |
|                                          | FAASST A&E Project #335168 – Total    |              | \$209,302.54   |
|                                          | FAASST E&M Project #673691 – 428      |              | \$169,799.83   |
|                                          | FAASST E&M Project #673691 – 406 HM   |              | \$399,788.17   |
|                                          | FAASST 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 FASt 335168): -\$141,012.25 + \$141,012.25 = \$0.00 (See project note 6)

E&M Deduction (Global E&M FASt 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 FASt 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FASt Project 136271.
4. A&E costs included in this project will be reduced from this project and obligated under the FASt 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 FASt projects.
5. Equipment and material costs included in this project will be reduced from this project and obligated under FASt 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 **7ea** 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) = | <u>\$ 174,701.84</u> |
| Hazard Mitigation Total Cost =                             | <b>\$ 914,277.86</b> |

-

**(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 =                  | <u>\$ 446,199.40</u> |
| Hazard Mitigation Total Cost =       | <b>\$ 914,277.86</b> |

**(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 with 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

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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

6/30/2026

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 24] (TL/ Distribution) (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.
- 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](mailto: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](mailto: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 dryophilum* (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](mailto: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](mailto: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) (Cost Only)**.

## 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

## 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 \$2,689,100.26 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 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

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 757696                                                         | <b>PW #</b>                | 108037                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 31] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

**Damage #1399052; FAASt [Automation Program Group 31: Bayamon Feeders: 1803-03, 1806-03] (Distribution)**

### General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 31
- **Facility Description:** Bayamon Feeders: 1803-03, 1806-01, 1806-02, 1806-03
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1399052** **FAASt [Automation Program Group 31: Bayamon Feeders: 1803-03, 1806-03] (Distribution)**

### Introduction

This document is to submit for approval a Detailed Scope of Work ("DSOW") to COR3 and FEMA for the Transmission and Distribution 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. 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 757696 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 links, 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 Feeders 1803-03 and 1806-03.

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 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. Therefore, Luma is 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 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. It enables remote control and status visualization of the 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.

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. In this project we are installing six three-phase reclosers.

**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. In this project we are installing five single-phase reclosers.

### **(3) Communicating Fault Current Indicators**

Communicating fault current indicators (cFCI) installed at strategic locations improve the outage management, restoration, and recovery process, specifically by decreasing the time required to detect and locate faults. The cFCI operates independently of the feeder reclosers. cFCI helps identify permanent and incipient faults in the distribution system and collects voltage and current data which can be used to detect system imbalance, prevent future issues due to harmonics, and help in building predictive failure models.

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 notifications/alerts 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 the communicating fault current indicators (communications ready) is critical for the Energy Management System ("EMS") to effectively mitigate the loss of service and potential damages in future disasters.

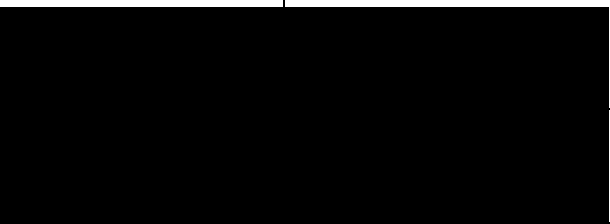
This project's scope does not contain fiber optics or communication capability that is included in other projects. This project is distinguishable from projects that include fiber optics as these feeders are using cellular technology for communications with the operations center. LUMA has developed this 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 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 each feeder. 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 **APPENDIX D – LUMA Active Projects** which shows no duplication of scope elements.

### Facilities List

| Name    | Feeder Number | GPS Start                                                                          | GPS End |
|---------|---------------|------------------------------------------------------------------------------------|---------|
| Bayamon | 1803-03       |  |         |
| Bayamon | 1806-03       |                                                                                    |         |
|         |               |                                                                                    |         |

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 1803-03

| POLE<br>FID | Coordinates<br>Lat, Long | Existing<br>(Remove) | 428<br>Replacement | Scope of work |
|-------------|--------------------------|----------------------|--------------------|---------------|
|-------------|--------------------------|----------------------|--------------------|---------------|

| POLE FID | Coordinates<br>Lat, Long | Existing<br>(Remove)                                                                                                     | 428<br>Replacement                                                                                                                            | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|--------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7153771  |                          | (40'-S3<br>GALVANIZED<br><br>STEEL POLE)<br>(AC-C6)<br><br>(K-1)<br><br>(ASSY 1509<br><br>(QTY=3))<br><br>(STL-10)       | (50'-S8<br>GALVANIZED<br><br>STEEL POLE) (CP-<br>C6-XARM) (K-6)<br><br>(REC-2-1 VERS 6)<br><br>(STL-10)                                       | <ul style="list-style-type: none"><li>Remove and dispose 40' Galvanized steel pole.</li><li>Replace with 50' S8 12-Sided galvanized steel pole.</li><li>Install (1) three-phase recloser 1803- 03A.</li><li>Install and commission the radio communication kit for the Three-Phase Recloser.</li><li>Install (1) 1 kva transformer (2.40/4.16 kva -120/240v) source side.</li><li>Remove, dispose, and replace primary framings.</li><li>Remove and dispose 336 Al. spacer conductors 700 ft. Replace with 1/0 al conductors 700 ft.</li><li>Remove, dispose, and replace streetlight.</li><li>Remove and dispose (3) fuses.</li></ul> |
| NEW POLE |                          | NA                                                                                                                       | (50'-S8<br>GALVANIZED<br>STEEL POLE)<br>(S-6)<br>(K-6)<br>(REC-2-2 VER 3)                                                                     | <ul style="list-style-type: none"><li>Install new 50' S8 12-Sided Galvanized Steel pole in new location mid span*.</li><li>Install (1) three-phase Recloser 1803-03B.</li><li>Install and commission the radio communication kit for the Three-Phase Recloser.</li><li>Install secondary conductor 1/0 al tpx - 130 ft. for load side and source side.</li></ul>                                                                                                                                                                                                                                                                       |
| 7153770  |                          | (40' CLASS 5<br>WOOD<br>POLE)<br>(CP-C5-XARM)<br>(CP-C6-XARM)<br>(K-1)<br>(E-1-2-3(QTY=1)) (F-1-3(QTY=1))                | (50' S8<br>GALVANIZED<br>STEEL POLE) (CP-<br>C5 XARM)<br>(CP-C6-XARM)<br>(K-6)<br>(E-1-2-3(QTY=1))<br><br>(F-1-3(QTY=1))                      | <ul style="list-style-type: none"><li>Remove and dispose 40' class 5 wood pole.</li><li>Replace pole with 50' S8 12-Sided galvanized steel pole due to recloser 1803-03A installation.</li><li>Remove, dispose, and replace the primary framings.</li><li>Replace, dispose, and replace (1) down guy and Replace (1) anchor</li></ul>                                                                                                                                                                                                                                                                                                  |
| 7153775  |                          | (40' CLASS 5<br>WOOD<br>POLE)<br>(AC-C6 XARM)<br>(T-2)<br>(25kVA,<br>2.40/4.16<br>kv120/240V)<br>(K-7 A)<br><br>(STL-10) | (50'-S8<br>GALVANIZED<br><br>STEEL POLE) (CP-<br>C6-XARM)<br><br>(T-2)<br><br>(25kVA,<br><br>2.40/4.16<br>kv120/240V)<br><br>(K-7-A) (STL-10) | <ul style="list-style-type: none"><li>Remove and dispose 40' Class 5 Wood pole.</li><li>Replace pole with 50' S8 12-Sided galvanized steel.</li><li>Replace transformer for Stainless Steel 25kva (2.40/4.16 kv120/240v)</li><li>Remove, dispose and Replace streetlight.</li><li>Remove, dispose, and replace primary framings.</li><li>Remove, dispose, and Replace 25kva (2.40/4.16 kv120/240v)</li></ul>                                                                                                                                                                                                                           |

| POLE<br>FID | Coordinates |  | Existing<br>(Remove)                                                                                                                      | 428<br>Replacement                                                                             | Scope of work                                                                                                                                                                                                                                                                                                                                                    |
|-------------|-------------|--|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | Lat, Long   |  |                                                                                                                                           |                                                                                                |                                                                                                                                                                                                                                                                                                                                                                  |
| 7153768     |             |  | (35' CLASS 4<br>WOOD<br>POLE)<br>(AC-06 XARM)<br>(K-6)<br>(URD-3) (STL-10)                                                                | (45' S5.7<br>GALVANIZED<br>STEEL POLE) (CP-06<br>XARM) (K-6)<br><br>(K-5)<br><br>(STL-10)      | <ul style="list-style-type: none"><li>Remove and dispose 35' Class 4 wood pole.</li><li>Replace pole with 45' S5.7 12-Sided galvanized steel pole.</li><li>Remove, dispose, and replace primary framings.</li><li>Remove, dispose, and replace streetlights.</li></ul>                                                                                           |
| 7153498     |             |  | (40' CLASS 5<br>WOOD<br>POLE) (S-5)<br><br>(S-1) (T-2)<br><br>(K-7-B)<br><br>(E-1-2-3)<br><br>(F-1-3) (STL-10)                            | (50'-S8<br>GALVANIZED<br>STEEL POLE)<br><br>(S-5) (S-6)<br><br>(T-2) (K-7 B) (K-5)<br>(STL-10) | <ul style="list-style-type: none"><li>Remove, dispose, and replace 40' Class 5 wood pole.</li><li>Replace with 50' S8 12-sided galvanized Steel pole.</li><li>Remove, dispose, and replace streetlight.</li><li>Transfer 37.5kva (2.40/4.16 kv- 120/240v) to new pole.</li><li>Re-Use downguy.</li><li>Remove and dispose (1) down guy and (1) Anchor.</li></ul> |
| 7153496     |             |  | (40' CLASS 2<br>WOOD<br>POLE)<br><br>(S-1)<br><br>(K-7 A)<br><br>(STL-10)<br><br>(T-1)<br><br>(37.5KVA,<br><br>(2.40/4.16KV-120/240<br>V) | (45' S5.7<br>GALVANIZED<br>STEEL POLE)<br>(S-1)<br>(K-7-B)<br>(STL-10)                         | <ul style="list-style-type: none"><li>Remove and dispose 40' Class 2 wood pole.</li><li>Replace pole with 45' S5.7 12-sided galvanized steel pole.</li><li>Remove, dispose, and replace primary framings.</li><li>Remove, dispose, and replace streetlight.</li><li>Labor:37.5kva (2.40/4.16kv- 120/240 v) transformer and install in FID 7153498.</li></ul>     |
| 7153580     |             |  | (35' CLASS 4<br>WOOD<br>POLE)<br><br>(K-7 B)<br><br>(E-1-2-3)<br><br>(F-1-3)<br><br>(STL-10)                                              | (40' S5.7<br>GALVANIZED<br>STEEL POLE)<br><br>(K-7-B)<br><br>(E-1-2-3)<br><br>(F-1-3) (STL-10) | <ul style="list-style-type: none"><li>Remove and dispose 35' Class 4 wood pole.</li><li>Replace pole with 40' S5.7 12-Sided galvanized steel pole</li><li>Remove dispose and replace primary framings.</li><li>Replace, dispose, and replace streetlight.</li><li>Replace, remove, dispose, and replace (1) down guy and (1) anchor.</li></ul>                   |
| 14053394    |             |  | (FUSES<br>REMOVAL<br>(QTY=3))                                                                                                             | (LABOR & REPAIR)                                                                               | <ul style="list-style-type: none"><li>Remove and dispose (3) Fuses.</li></ul>                                                                                                                                                                                                                                                                                    |

**Feeder 1806-03**

| POLE FID | Coordinates<br>Lat, Long | Existing<br>(Remove)          | 428<br>Replacement       | Scope of work                                        |
|----------|--------------------------|-------------------------------|--------------------------|------------------------------------------------------|
| 7153762  |                          | (FUSES<br>REMOVAL<br>(QTY=3)) | (LABOR & REPAIR)         | • Remove and dispose (3) Fuses.                      |
| NA       |                          | NONE                          | (LABOR, cFCI)<br>(QTY=3) | • Install (3) Communicating Fault Current Indicator. |

| POLE FID | Coordinates<br>Lat, Long | Existing (Remove)                                                                                                         | 428 Replacement                                                                                                                                                                                                                                                          | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|--------------------------|---------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11543149 |                          | (55FT C2 WOOD<br>POLE)<br>(38KV SINGLE<br>CIRCUIT DELTA<br>SUSPENSION ASSY.<br>ANGLE 0-2)<br>(CP-C1)<br>(K-6)<br>(STL-10) | (70FT S8 STEEL<br>POLE) (CONCRETE<br>POLE BASE) (38KV<br>SINGLE CIRCUIT<br>DELTA<br>SUSPENSION<br>ASSY. ANGLE 0-2)<br>(REC-2-1)<br>(K-6)<br>(STL-10)<br>(E-1-2-3, QTY=3)<br>(F-1-3)<br>(F-4-2)<br>(XFRM,<br>7.62/13.2KV,<br>120/240V, SS,<br>1KVA CONTROL<br>TRANSFORMER | <ul style="list-style-type: none"> <li>• Remove and dispose 55' C2 wood pole</li> <li>• Replace pole with 70' S8 12-Sided galvanized steel pole</li> <li>• Install (1) Three-phase recloser (1806-03B).</li> <li>• Install and commission the radio communication kit for the three-phase recloser.</li> <li>• Install (3) down guys and expansion anchors.</li> <li>• Install concrete base.</li> <li>• Install (1) Transformer 7.62/13.2kv, 120/240v, stainless steel, 1KV control transformer in to feed the recloser load side</li> <li>• Remove, dispose, and replace feeders' insulators.</li> <li>• Remove, dispose, and replace primary framing.</li> <li>• Remove, dispose, and replace secondary conductor insulator.</li> <li>• Remove, dispose, and replace existing streetlight.</li> </ul> |

|         |                                                                                  |                                            |                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|----------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7149675 |  | (40FT C2 WOOD<br>POLE)<br>(CP-C6-<br>XARM) | (50FT S8 STEEL<br>POLE)<br><br>(40FT S5.7<br>STEEL POLE) (REC-2-1)<br><br>(E-2-1)<br><br>(E-1-2-3)<br><br>(F-1-3)<br><br>(420FT<br>TRIPLEX #2<br>SECONDARY<br>CONDUCTOR)<br><br>(XFRM,<br>13.2/7.62KV,<br>120/240, SS, 1KVA<br>CONTROL<br>TRANSFORMER)<br><br>(K-5)<br><br>(K-6) | <ul style="list-style-type: none"> <li>• Remove and dispose 40' C2 Wood pole.</li> <li>• Replace pole with 50' S8 12-Sided galvanized steel pole</li> <li>• Remove, dispose, and replace primary framing.</li> <li>• Install (1) Three-phase recloser (1806-03C).</li> <li>• Install and commission the Radio communication kit for the Three-phase recloser.</li> <li>• Install stub pole (40ft s5.7 steel pole, for span guy.</li> <li>• Install secondary conductor insulators.</li> <li>• Install anchor for stub pole.</li> <li>• Install secondary span from pole with fid 7149696 () for 420 feet in conductor #2 trip secondary conductor identified in the adjacent pole to feed the recloser load side.</li> <li>• Install (1) Xfrm, 7.62/13.2kv, 120/240, ss, 1kva control transformer on 3phase recloser to feed the recloser source side.</li> </ul> |
|---------|----------------------------------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                 |  |                                                                                                                    |                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|--|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Not digitalized |  | (65FT H6 CONCRETE<br>POLE)<br>(38KV SINGLE<br>CIRCUIT DELTA<br>SUSPENSION ASSY.<br>ANGLE 0-2)<br>(CP-C2)<br>(E-2-1 | (70FT S8 STEEL<br>POLE)<br>(38KV<br>SINGLE CIRCUIT<br>DELTA<br>SUSPENSION<br>ASSY. ANGLE 0-2)<br>(REC-2-1)<br>(K-5)<br>(E-1-2-3, QTY=2) (F1-3, QTY=2)<br>(XFRM,<br>7.62/13.2KV,<br>120/240V, SS<br>1KVA CONTROL<br>TRANSFORMER,<br>QTY=2)<br>(E-1-2-3,<br>FOR FID 7149394)<br>(F-1-3, FOR FID<br>7149394 | <ul style="list-style-type: none"> <li>Remove and dispose 65' H6 Concrete pole.</li> <li>Replace pole with a 70' S8 12-Sided Galvanized Steel Pole.</li> <li>Replace feeders' insulators.</li> <li>Install (1) Three-phase recloser (1806-03D).</li> <li>Install and commission radio communication kit for Three Phase Recloser.</li> <li>Install anchors.</li> <li>Install (2) transformer, 7.62/13.2kv, 120/240, Stainless Steel 1 KVA control transformer to feed the source and load side.</li> <li>Remove, dispose, and replace primary framing</li> <li>Remove, dispose, and replace the secondary conductor insulator.</li> <li>Remove, dispose, and replace down guys.</li> </ul>                                                                                                                                   |
| 7149464         |  | (40FT S3 STEEL<br>POLE)<br>(K-6)<br>(STL-10)<br>(T-12)                                                             | (50FT S8 STEEL<br>POLE)<br>(REC-2)<br>(K-6) (STL-10)<br>(LABOR)<br>(375FT<br>SECONDARY<br>CONDUCTOR)                                                                                                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose 40' S3 Steel Pole.</li> <li>Replace pole with a 50' S8 12-Sided galvanized steel pole.</li> <li>Replace feeder crossarms and insulators.</li> <li>Install (1) three-phase recloser (1806-03E).</li> <li>Install and commission the communication radio kit for the three-phase recloser.</li> <li>Install secondary span of triplex #2 from pole with fid 7149453 for 375 feet identified to feed the recloser source side</li> <li>Remove, dispose, and replace feeder crossarms and insulators.</li> <li>Remove, dispose, and replace secondary conductor insulator.</li> <li>Remove, dispose and replace existing streetlight.</li> <li>Labor to close jumper wires and normalize feeder.</li> <li>Remove and dispose out of service capacitor bank.</li> </ul> |

|          |  |                                                                                                                                           |                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------|--|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11543153 |  | (60FT C2 WOOD<br>POLE<br>(38KV SINGLE<br>CIRCUIT VERTICAL<br>DEADEN ASSY.<br>ANGLE 0-10)<br>(CP-C6-XARM) (CP-C5XARM)<br>(K-6)<br>(STL-10) | (70FT S8 STEEL<br>POLE) (CONCRETE<br>POLE BASE) (38KV<br>SINGLE CIRCUIT<br>VERTICAL DEADEN<br>ASSY. ANGLE 0-10)<br>(CP-C6-XARM)<br>(CP-C7)<br>(K-6)<br>(STL-10)<br>(E-1-2-3)<br>(F-1-<br>3) | <ul style="list-style-type: none"> <li>Remove and dispose 60' C2 wood pole.</li> <li>Replace pole with a 70' S8 12-Sided galvanized steel pole.</li> <li>Install fuse cutouts for feeder tap.</li> <li>Install down guy and expansion anchor.</li> <li>Install concrete base.</li> <li>Remove, dispose, and replace feeders crossarms and insulators.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove, dispose, and replace secondary conductor insulator.</li> <li>Remove, dispose, and replace existing streetlight.</li> </ul> |
| 11544249 |  | (40FT C3 WOOD<br>POLE<br>(K-6)<br>(STL-10, QTY=2) (E-1-2-3)<br>(F-1-3)                                                                    | (70FT S8 STEEL POLE)<br>(38KV SINGLE<br>CIRCUIT DELTA<br>SUSPENSION ASSY.<br>ANGLE 0-2)<br>(CP-C1)<br>(CP-B5-XARM) (REC-3-B)<br>(K-6) (STL-10)<br>(E-1-2-3) (F-1-3)                         | <ul style="list-style-type: none"> <li>Remove and dispose 40' C3 wood pole.</li> <li>Replace pole with 70' S8 12-sided galvanize steel pole, intercept feeder.</li> <li>Install (2) Single-Phase Recloser.</li> <li>Remove and dispose fuse cut outs.</li> <li>Remove, dispose, and replace secondary conductor Insulator.</li> <li>Remove, dispose, and Replace Streetlight.</li> <li>Remove, dispose, and replace down guy and anchor.</li> </ul>                                                                                               |
| 7149631  |  | (45FT C2 WOOD<br>POLE<br>(CP-C6-XARM) (CP-C7)<br>(CP-A5)<br>(E-1-2-3, QTY=2) (F-1-3,<br>QTY=2)                                            | (50FT S8 STEEL POLE)<br>(CP-C6-XARM) (CP-A5)<br>(REC-3-C)<br>(K-6)<br>(E-1-2-3)<br>(F-1-3)                                                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose 45' C2 wood pole.</li> <li>Replace pole with 50' S8 12-sided galvanized steel pole</li> <li>Remove and dispose fuse</li> <li>Outouts.</li> <li>Install (3) Single-Phase Reclosers.</li> <li>Remove and dispose fuse Outouts.</li> <li>Remove, dispose, and replace secondary Conductor.</li> <li>Secondary span VMI will be installed in this pole Where recloser 1806-03D will Be installed to feed the new Recloser.</li> </ul>                                                       |
| 7150681  |  | (CP-A14)                                                                                                                                  | LABOR FOR CLOSE<br>JUMPERS                                                                                                                                                                  | <ul style="list-style-type: none"> <li>Remove and dispose fuses.</li> <li>Labor to Close jumper wires.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 11280103 |  | NONE                                                                                                                                      | (LABOR, cFCI) (QTY=3)                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicator</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 11543540 |  | NONE                                                                                                                                      | (LABOR, cFCI) (QTY=3)                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**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. 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.
- 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 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:

| Project Title |                                                        |
|---------------|--------------------------------------------------------|
| Feeder        |                                                        |
| 1803-03       | 727691 FAAsT [Region 1 -San Juan Group C] (Vegetation) |
| 1806-03       | 727558 FAAsT [Region 3 -Bayamon Group C] (Vegetation)  |

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 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 Regional Warehouse. The warehouse assigned is the Toa Baja District Warehouse, whose address is 165 street, 30.5 KM, Palo Seco Ward, Toa Baja, 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*.

#### **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

|                                                                                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>406 Hazard Mitigation Proposal</b>                                                                                                 |
| 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                         | \$121,483.46                         | \$- | \$121,483.46   |
| MANAGEMENT                       | \$73,692.20                          | \$- | \$73,692.20    |
| Distribution Automation Group 31 | \$1,440,436.49                       | \$- | \$1,440,436.49 |
| GENERAL CONDITIONS               | \$74,565.12                          | \$- | \$74,565.12    |
| COST TOTALS                      | \$1,710,177.27                       | \$- | \$1,710,177.27 |
| DEDUCTIONS                       | TOTAL INSURANCE PROCEEDS RECEIVED    |     | \$-            |
|                                  | DE-OBLIGATION TO FAASt IF APPLICABLE |     | \$-            |
| FAASt ALLOCATIONS                | FAASt 757696- 428                    |     | \$1,145,457.61 |
|                                  | FAASt 757696- 406 HM                 |     | \$-            |
|                                  | FAASt PROJECT 757697 TOTALS          |     | \$1,145,457.61 |
|                                  | FAASt A&E # 335168 - 428             |     | \$195,175.66   |
|                                  | FAASt A&E # 335168 - 406 HM          |     | \$-            |
|                                  | FAASt A&E # 335168 TOTAL             |     | \$195,175.66   |
|                                  | FAASt E&M #673691 - 428              |     | \$369,544.00   |
|                                  | FAASt E&M #673691 - 406 HM           |     | \$-            |
|                                  | FAASt E&M #673691 TOTAL              |     | \$369,544.00   |

Work To Be completed: \$1,710,177.27

**A&E Deduction (Global A&E FAAS# 335168): \$195,175.66**

**E&M Deduction (FAAS# 673691): \$369,544.00**

**Project Total Cost (FAAS Project# 757696): \$1,145,457.61**

**Project Notes:**

1. Refer to detailed SOW provided in document labeled: "757696-DR4339PR- DSOW Group 31 Revision 003-.pdf".
2. Refer to detailed Cost Estimate provided in document labeled: "757696-DR4339PR-APPENDIX B - LUMA Project Cost Estimate- Revision 003.xlsx"
3. A&E cost included in this project will be reduced from this project and obligated under the FAAS 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 FAAS projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAAS 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 Automation Group 31 FAAS 757696.
5. This project is part of Donor FAAS 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS Project 136271.

For reference documents Appendix A thru D, see files labeled:

**ATTACHMENTS**

757696-DR4339PR-APPENDIX A - Initial Scope of Work.pdf

757696-DR4339PR-APPENDIX B - LUMA Project Cost Estimate- Revision 003.xlsx

757696-DR4339PR-APPENDIX C - Project Considerations.xlsx

757696-DR4339PR-APPENDIX D - LUMA's Active Project.xlsx

**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 | \$1,710,177.27 | Uncompleted |
| 3510 | 1        | Lump Sum | (\$195,175.66) | Uncompleted |
| 9001 | 1        | Lump Sum | (\$369,544.00) | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |

|                            |                |
|----------------------------|----------------|
| CRC Gross Cost             | \$1,145,457.61 |
| Total 406 HMP Cost         | \$0.00         |
| Total Insurance Reductions | \$0.00         |

|                            |                |
|----------------------------|----------------|
| CRC Net Cost               | \$1,145,457.61 |
| Federal Share (90.00%)     | \$1,030,911.85 |
| Non-Federal Share (10.00%) | \$114,545.76   |

## 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

6/30/2026

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.

Gregory Berrios Torres, PA Insurance Specialist,

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 31] (Distribution) (Cost Only)** .

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 31] (Distribution) (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.

## EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 31] (Distribution) (Cost Only)** .

## Final Reviews

### Final Review

**Reviewed By** Diaz Rodriguez, Sheila M.

**Reviewed On** 07/01/2025 5:04 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 7:50 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

|                                 |                                                                |                            |                                            |                     |                    |
|---------------------------------|----------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 757696                                                         | <b>P/W #</b>               | 108037                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                  | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 31] (Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                          | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                      | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                      | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## Damage Description and Dimensions

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

**Damage #1399052; FAASt [Automation Program Group 31: Bayamon Feeders: 1803-03, 1806-03] (Distribution)**

### General Facility Information:

- **Facility Type:** Power generation, transmission, and distribution facilities
- **Facility:** Automation Program Group 31
- **Facility Description:** Bayamon Feeders: 1803-03, 1806-01, 1806-02, 1806-03
- **Approx. Year Built:** 1980
- **Start GPS Latitude/Longitude:** [REDACTED]
- **End GPS Latitude/Longitude:** [REDACTED]

## Final Scope

**1399052** **FAASt [Automation Program Group 31: Bayamon Feeders: 1803-03, 1806-03] (Distribution)**

\*\*\*\*\* VERSION 1 \*\*\*\*\*

Version 1 has been created to capture change in scope and cost as per Applicant provided documentation. Refer to documents labeled: "757696-DR4339PR- DSOW Group 31 Revision 8- V1.pdf", "757696-DR4339PR- Project Amendment Request DA Group 31 V1.pdf", "757696-DR4339PR-APPENDIX A - LUMA Project Cost Estimate- Revision 07 - V1.xlsx".

The change requested in this version include both 406 HMP and 428 PA costs, one with positive amount and the other negative, in order to be able to process project within the grants management systems, the positive funds will be included in this version and in a later version the negative costs will be included.

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 757696 Automation Program Group 31 (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 757696 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 1803-03 and 1806-03.

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 six 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 five 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

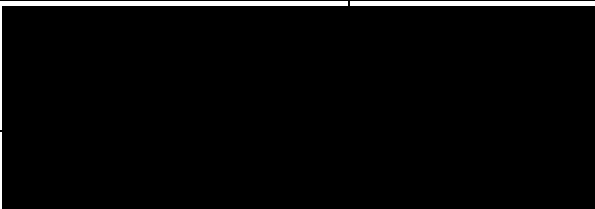
#### FACILITIES LIST – BUILDINGS AND SUBSTATIONS

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.

| Name    | Feeder Number | GPS Start                                                                            | GPS End |
|---------|---------------|--------------------------------------------------------------------------------------|---------|
| Bayamon | 1803-03       |  |         |
| Bayamon | 1806-03       |                                                                                      |         |

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

All materials will be stored and dispatched from the existing LUMA Regional Warehouses. The warehouse assigned is the Minillas Bayamón Regional Warehouse, whose address is Laurel Avenue, Minillas Industrial Center, Bayamon, PR. The warehouse coordinates are  - 66.14553. The staging area will be located at warehouse in the following coordinates .

#### 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:

☒ 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 fourteen (14) damaged poles.
- Install one (1) new pole.
- Install six (6) Three-Phase Reclosers.
- Install five (5) Single-Phase Reclosers, remove fuses and close jumpers.
- Install nine (9) communicating Fault Indicators (cFCIs).
- Install seven (7) transformers.

LUMA requests to align the scope and cost of Project 757696 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 a new mid-span pole installation. The revised 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

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 project feeders, the updated DSOW now includes # poles that were not included in Version 0 of the project.

o One (1) new pole installation at a new location.

o 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.

## 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 1803-03

| POLE FID | Coordinates Lat, Long                                                               | Existing (Remove)                                                         | 428 Replacement                                      | Scope of work                                                                                                                                                                                                                                                                                                       |
|----------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7153771  |  | (40'-S3 GALVANIZED STEEL POLE) (AC-C6) (K-1) (ASSY 1509 (QTY=3)) (STL-10) | (50'-ROUND TAPERED POLE) (CP-C6-XARM) (K-6) (STL-10) | <ul style="list-style-type: none"><li>• Remove and dispose 40ft galva pole and replace with 50ft round steel pole.</li><li>• Remove, dispose, and replace framings.</li><li>• Remove and dispose 336 conductors 700 ft. Replace conductors 700 ft.</li><li>• Remove, dispose, and streetlight (LED Type).</li></ul> |

| POLE FID | Coordinates Lat, Long | Existing (Remove) | 428 Replacement | Scope of work                                                                                                                                                                      |
|----------|-----------------------|-------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       |                   |                 | <ul style="list-style-type: none"><li>• Install and connect one (1) se Bypass Switch (ABS-3-XARM) and hardware to support them.</li><li>• Remove and dispose (3) fuse cu</li></ul> |

|          |  |                                                                                           |                                                                                            |                                                                                                                                                                                                                                                                                                                                |
|----------|--|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | N/A                                                                                       | (50' ROUND TAPERED POLE) (S-6) (K-6)                                                       | <ul style="list-style-type: none"> <li>· Install new 50ft galvanized round pole in new location mid span*.</li> <li>· Install framings.</li> <li>· Install and connect one (1) set Bypass Switch (ABS-3-XARM) and hardware to support them.</li> </ul>                                                                         |
| 7153770  |  | (40' CLASS 5 WOOD POLE) (CP-C5-XARM) (CP-C6-XARM) (K-1) (E-1-2-3(QTY=1)) (F-1-3(QTY=1))   | (50' ROUND TAPERED POLE) (CP-C5 XARM) (CP-C6-XARM) (K-6) (E-1-2-3(QTY=1)) (F-1-3(QTY=1))   | <ul style="list-style-type: none"> <li>· Remove and dispose 40ft class pole and replace with 50ft round steel pole.</li> <li>· Remove, dispose, and replace pole framings.</li> <li>· Remove, dispose, and replace (1) guy and (1) anchor.</li> </ul>                                                                          |
| 7153775  |  | (40' CLASS 5 WOOD POLE) (AC-C6 XARM) (T-2) (25kVA, 2.40/4.16 kV120/240V) (K-7 A) (STL-10) | (50' ROUND TAPERED POLE) (CP-C6-XARM) (T-2) (25kVA, 2.40/4.16 kV120/240V) (K-7-A) (STL-10) | <ul style="list-style-type: none"> <li>· Remove and dispose 40ft Class pole and replace with 50ft round steel pole.</li> <li>· Remove, dispose and replace transformer 25kVA (2.40/4.16kV120/240V).</li> <li>· Remove, dispose and Replace steel (LED Type).</li> <li>· Remove, dispose, and replace pole framings.</li> </ul> |
| 7153768  |  | (35' CLASS 4 WOOD POLE) (AC-C6 XARM) (K-6) (URD-3) (STL-10)                               | (45' ROUND TAPERED POLE) (CP-C6 XARM) (K-6) (K-5) (STL-10)                                 | <ul style="list-style-type: none"> <li>· Remove and dispose 35ft Class pole and replace with 45ft round steel pole.</li> <li>· Remove, dispose, and replace pole framings.</li> <li>· Remove, dispose, and replace steel (LED Type).</li> </ul>                                                                                |
| 7153498  |  | (40' CLASS 5 WOOD POLE) (S-5)                                                             | (50'-ROUND TAPERED POLE) (S-5) (S-6)                                                       | <ul style="list-style-type: none"> <li>· Remove, dispose, and replace 40 wood pole and replace with 50ft round galvanized steel pole.</li> </ul>                                                                                                                                                                               |

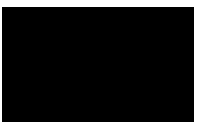
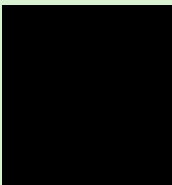
| POLE FID | Coordinates Lat, Long | Existing (Remove)                              | 428 Replacement              | Scope of work                                                                                                                                                                                                                                                                             |
|----------|-----------------------|------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                       | (S-1) (T-2) (K-7-B) (E-1-2-3) (F-1-3) (STL-10) | (T-2) (K-7 B) (K-5) (STL-10) | <ul style="list-style-type: none"> <li>· Remove, dispose, and replace streetlight (LED Type).</li> <li>· Install 37.5kVA transformer (2.40/4.16 kV-120/240V) from FID 7153496 to new pole</li> <li>· Re-use downguy.</li> <li>· Remove and dispose (1) downguy and (1) anchor.</li> </ul> |

|                      |  |                                                                                                                      |                                                                           |                                                                                                                                                                                                                                                                                                                               |
|----------------------|--|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7153496              |  | (40' CLASS 2 WOOD POLE)<br>(S-1)<br><br>(K-7 A)<br>(STL-10)<br><br>(T-1)<br><br>(37.5KVA,<br>(2.40/4.16KV-120/240 V) | (45' ROUND TAPERED POLE) (S-1)<br>(K-7-B)<br>(STL-10)                     | <ul style="list-style-type: none"> <li>Remove and dispose 40ft Class 2 wood pole and replace with 45' round tapered steel pole.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove, dispose, and replace streetlight (LED Type).</li> <li>Remove 37.5kVA (2.40/4.16KV) transformer and install on FID</li> </ul> |
| 7153580              |  | (35' CLASS 4 WOOD POLE)<br>(K-7 B) (E-1-2-3)<br><br>(F-1-3)<br><br>(STL-10)                                          | (40' S5.7 GALVANIZED STEEL POLE) (K-7-B)<br>(E-1-2-3)<br>(F-1-3) (STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose 35ft Class 4 wood pole and replace with 40' S5.7 galvanized steel pole.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove, dispose, and replace streetlight (LED Type).</li> <li>Remove, dispose, and replace downguy and (1) anchor.</li> </ul>      |
| 14053394             |  | (FUSES REMOVAL (QTY=3))                                                                                              | (LABOR & REPAIR)                                                          | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses</li> </ul>                                                                                                                                                                                                                                                |
| 7153762              |  | (FUSES REMOVAL (QTY=3))                                                                                              | (LABOR & REPAIR)                                                          | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses Cutouts.</li> </ul>                                                                                                                                                                                                                                       |
| Segment FID 17371056 |  | NONE                                                                                                                 | (LABOR, FCI) (QTY=3)                                                      | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators</li> </ul>                                                                                                                                                                                                                                        |

#### Feeder 1806-03

| POLE FID | Coordinates<br>Lat, Long | Existing<br>(Remove)                                                                                          | 428<br>Replacement                                                                                                                                | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------|--------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11543149 |                          | (55FT C2 WOOD POLE)<br>(38KV SINGLE CIRCUIT DELTA SUSPENSION ASSY.<br>ANGLE 0-2) (CP-C1)<br>(K-6)<br>(STL-10) | (70FT ROUND TAPERED POLE) (38KV SINGLE CIRCUIT DELTA SUSPENSION ASSY. ANGLE 0-2) (K-6)<br>(STL-10)<br><br>(E-1-2-3, QTY=3) (F-1-3)<br><br>(F-4-2) | <ul style="list-style-type: none"> <li>Remove and dispose 55ft C2 wood pole and replace with 70ft round galvanized steel pole.</li> <li>Install (3) downguys and expansion anchors.</li> <li>Remove, dispose, and replace feeders.</li> <li>Remove, dispose, and replace primary conductor insulator.</li> <li>Remove, dispose, and replace secondary conductor insulator.</li> <li>Remove, dispose, and replace existing streetlight (LED Type).</li> <li>Install and connect one (1) set of Air Switch (ABS-3-XARM) and the framings to support them.</li> </ul> |

|          |                                                                                   |                                  |                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------|-----------------------------------------------------------------------------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7149675  |   | (40FT C2 WOOD POLE) (CP-C6-XARM) | (50FT ROUND TAPERED POLE)<br>(40FT ROUND TAPERED POLE) (E-2-1)<br><br>(E-1-2-3)<br><br>(F-1-3) (420FT TRIPLEX #2 SECONDARY CONDUCTOR) (K-5) (K-6) | <ul style="list-style-type: none"> <li>Remove and dispose 40ft C2 wood replace with 50ft round galvanized steel</li> <li>Remove, dispose, and replace primary</li> <li>Install stub pole (40ft round tapered) for coordinates  for</li> <li>Install secondary conductor insulators</li> <li>Install anchor for stub pole.</li> <li>Install and connect one (1) set of Air Switch (ABS-3-XARM) and the framing support them.</li> </ul> |
| New Pole |  | NONE                             | (70FT ROUND TAPERED POLE) (38KV SINGLE CIRCUIT DELTA SUSPENSION ASSY. ANGLE 0-2) (K-5)<br>(E-1-2-3, QTY=2) (F1-3, QTY=2)                          | <ul style="list-style-type: none"> <li>Install a new 70ft round galvanized steel</li> <li>Install anchors and downguys</li> <li>Install 38kV delta suspension.</li> <li>Install framings.</li> <li>Install and connect one (1) set of Air Switch (ABS-3-XARM) and the framing support them.</li> </ul>                                                                                                                                                                                                                    |

| POLE FID | Coordinates Lat, Long                                                               | Existing (Remove)                                                                                                  | 428 Replacement                                                                                                                                  | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7149464  |   | (40FT S3 STEEL POLE) (K-6)<br><br>(STL-10)<br><br>(T-12)                                                           | (50FT ROUND TAPERED POLE)<br>(K-6) (STL-10) (LABOR)<br>(375FT SECONDARY CONDUCTOR)                                                               | <ul style="list-style-type: none"> <li>Remove and dispose 40ft S3 steel pole replace with 50ft round galvanized steel</li> <li>Remove, dispose and replace feeder and insulators.</li> <li>Remove, dispose, and replace feeder and insulators.</li> <li>Remove, dispose, and replace secondary conductor insulator.</li> <li>Remove, dispose and replace streetlight (Type).</li> <li>Labor to close jumper wires and normal feeder.</li> <li>Remove and dispose out of service cross bank.</li> <li>Install and connect one (1) set of Air Switch (ABS-3-XARM) and the framing support them.</li> </ul> |
| 11543153 |  | (60FT C2 WOOD POLE) (38KV SINGLE CIRCUIT VERTICAL DEADEN ASSY. ANGLE 0-10) (CP-C6-XARM) (CP-C5XARM) (K-6) (STL-10) | (70FT ROUND TAPERED POLE)<br>(38KV SINGLE CIRCUIT VERTICAL DEADEN ASSY. ANGLE 0-10) (CP-C6-XARM) (CP-C7) (K-6) (STL-10) (E-1-2-3)<br><br>(F-1-3) | <ul style="list-style-type: none"> <li>Remove and dispose 60ft C2 wood pole replace with 70ft galvanized round tapered</li> <li>Install fuse cutouts for feeder tap.</li> <li>Install down guy and expansion anchor</li> <li>Remove, dispose, and replace feeder and insulators.</li> <li>Remove, dispose, and replace framing</li> <li>Remove, dispose, and replace secondary conductor insulator.</li> <li>Remove, dispose, and replace streetlight (Type).</li> </ul>                                                                                                                                 |

|          |  |                                                                                 |                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------|--|---------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11544249 |  | (40FT C3 WOOD POLE)<br>(K-6)<br>(STL-10, QTY=2) (E-1-2-3)<br>(F-1-3) (ASSY1509) | (70FT ROUND TAPERED POLE) (38KV SINGLE CIRCUIT DELTA SUSPENSION ASSY. ANGLE 0-2)<br><br>(CP-C1)<br><br>(CP-B5-XARM) (K-6) (STL-10) (E-1-2-3) (F-1-3) | <ul style="list-style-type: none"> <li>Remove and dispose 40ft C3 wood pole and replace with 70ft round galvanized steel intercept feeder.</li> <li>Remove, dispose and replace (2) Fuses.</li> <li>Remove, dispose, and replace secondary conductor insulator.</li> <li>Remove, dispose, and replace street lighting (Type).</li> <li>Remove, dispose, and replace down rod and anchor.</li> </ul> |
| 7149631  |  | (45FT C2 WOOD POLE)<br>(CP-C6-XARM)<br>(CP-C7)                                  | (50FT ROUND TAPERED POLE) (CP-C6-XARM)<br><br>(CPA5)                                                                                                 | <ul style="list-style-type: none"> <li>Remove and dispose 45ft C2 wood pole and replace with 50ft round galvanized steel pole.</li> <li>Remove, dispose and replace (3) Fuses.</li> </ul>                                                                                                                                                                                                           |

| POLE FID | Coordinates Lat, Long | Existing (Remove)                            | 428 Replacement                | Scope of work                                                                                                                           |
|----------|-----------------------|----------------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
|          |                       | (CP-A5)<br>(E-1-2-, QTY=2)<br>(F-1-3, QTY=2) | (K-6) (E-1-2-3)<br><br>(F-1-3) | <ul style="list-style-type: none"> <li>Remove, dispose, and replace secondary conductor.</li> <li>Install Secondary Framing.</li> </ul> |
| 7150681  |                       | (CP-A14)                                     | LABOR FOR CLOSE JUMPERS        | <ul style="list-style-type: none"> <li>Remove and dispose (3) fuse cutouts.</li> <li>Labor to close jumper wires.</li> </ul>            |
| 11280103 |                       | NONE                                         | (LABOR, FCI)<br>(QTY=3)        | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                 |
| 11543540 |                       | NONE                                         | (LABOR, FCI)<br>(QTY=3)        | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                 |

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.

## CODES & STANDARDS

Per FEMA's SOP, the locally adopted codes/standards and/or FEMA-approved industry standards used for this project are provided below:

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.

☒ **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 727558 FAAS [Bayamon] Group C(Vegetation). The vegetation removal process will be managed in accordance with federal and state regulations.

☐ **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.



## 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                              | \$79,550.02                          |              |
| MANAGEMENT                            | \$54,281.64                          |              |
| LPCE Distribution Automation Group 31 | \$967,270.57                         |              |
| GENERAL CONDITIONS                    | \$49,108.12                          |              |
| COST TOTALS                           | \$1,150,210.34                       |              |
| DEDUCTIONS                            | TOTAL INSURANCE PROCEEDS RECEIVED    | \$-          |
|                                       | DE-OBLIGATION TO FAASf IF APPLICABLE | \$-          |
| FAASf ALLOCATIONS                     | FAASf PROJECT # 757696- 428          | \$940,960.74 |
|                                       | FAASf A&E # 335168 - 428             | \$87,081.37  |
|                                       | FAASf E&M #673691 - 428              | \$122,168.23 |

### 428 Project Summary, Version 1 (see project notes):

Work to Be Completed (WTBC): \$1,150,210.34 - \$1,150,210.34 = \$0.00 (See project note # 7)

E&M Deduction (#673691) 428: -\$122,168.23 + \$122,168.23 = \$0.00 (See project note # 7)

A&E Deduction (Global A&E FAASf 335168):-\$87,081.37 + \$87,081.37 = \$0.00 (See project note # 7)

Project Total Cost: \$940,960.74 - \$940,960.74 = \$0.00 (See project note # 7)

### VERSION SUMMARY OF KEY CHANGES:

V0: \$1,710,177.27 - \$195,175.66 - \$369,544.00 (WTBC, A&E Deduction, E&M Deduction)

V1: \$0.00 (see project notes)

### Project Notes:

1. Refer to detailed SOW provided in document: 757696-DR4339PR- DSOW Group 31 Revision 8- V1.pdf
2. Refer to detailed cost estimate in document: 757696-DR4339PR-APPENDIX A - LUMA Project Cost Estimate- Revision 07 - V1.xlsx
3. A&E costs included in this project will be reduced from this project and obligated under the FAASf 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 FAASf projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAASf 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 FAASf 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.
7. This version includes both 406 HMP and 428 PA costs, one with positive amount and the other negative. Due to grants manager system requirements, the positive cost change along with negative cost change cannot be processed in the same version, thus two separate versions are required to capture costs related to changes in this version. Version 1 will obligate the positive funds (whether 406 HMP or 428), and Version 2 (amendment) will include the negative cost change. This guidance applies only to Sub-FAASf transactions; non-FAASf transactions remain unchanged. See document file: 'SP757696- DR4339PR - Email Confirmation Sub-FAASf Transaction Guidance.pdf.'"

## 406 HMP Scope

Project number: 757696; FAASt [Automation Program Group 31] (TL/Distribution)

Damage #1399052; FAASt [Automation Program Group 31: Bayamon Feeders: 1803-03, 1806-03] (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 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 **16ea** poles 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 = 2ea
- c) 50ft S8.5 12-sided galvanized steel poles = 8ea
- d) 70ft 12-sided galvanized steel poles = 4ea

#### 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 **11ea** fuse cutouts with **5ea** single-phase reclosers and the installation of **6ea** 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 9ea fault current indicators (FCIs) by **9ea** 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 **5ea** 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 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 **6ea** radio communication kit.

#### **HMP Scope of Work:**

**a) Distribution Feeder 1803-03:**

FID 7153771

1. Replace 50ft round pole with a 5ft S8.5 12-sided galvanized pole.
2. Install (1) Three-Phase Recloser 1803-03A
3. Install and commission the radio communication kit for the Three-Phase Recloser.
4. Install (1) 1 kVA stainless steel transformer (2.40/4.16 kVA -120/240V) source side.

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FID NEW POLE

5. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole in new location mid span\*
6. Install (1) Three-Phase Recloser 1803-03B.
7. Install 65ft. 1/0 secondary conductor to feed the recloser from the source side.
8. Install 65ft. 1/0 secondary conductor to feed the recloser from the load side.
9. Install and commission the radio communication kit for the Three-Phase Recloser.

FID 7153770

10. Replace 50ft round pole with 50ft S8.512-sided galvanized steel pole.

FID 7153775

11. Replace 50ft round pole with 50ft S8.512-sided galvanized steel pole.

FID 7153768

12. Replace 45ft round pole with 45ft S5.7 12-sided galvanized steel pole.

FID 7153498

13. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.

FID 7153496

14. Replace 45ft round pole with 45ft S5.7 12-sided galvanized steel pole.

FID 7153580

15. Replace 40ft round pole with 40ft S5.7 12-sided galvanized steel pole.

Segment FID 17371056

16. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

**b) Distribution Feeder 1806-03:**

FID 11543149

17. Replace 70ft round pole with 70ft 12- sided galvanized steel pole.
18. Install (1) Three-Phase Recloser (1806- 03B).
19. Install and commission the radio communication kit for the Three-Phase Recloser.
20. Install (1) 1kVA stainless steel transformer (7.62/13.2kV, 120/240V) to feed the recloser load side.

FID 7149675

21. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
22. Install (1) Three-Phase Recloser (1806-03C).
23. Install and commission the radio communication kit for the Three-Phase Recloser.
24. Replace 40ft round stub pole with a 40ft S5.7 galvanized steel pole at coordinates [REDACTED]
25. Install (1) 1kVA stainless steel (7.62/13.2kV, 120/240V) transformer to feed the recloser source side.

NEW POLE

26. Replace 70ft round pole with a 70ft 12-sided galvanized steel pole.
27. Install (1) Three-Phase Recloser (1806-03D).
28. Install and commission radio communication kit for Three-Phase Recloser.
29. Install (2) 1KVA (7.62/13.2kV, 120/240) stainless steel control transformer to feed the source and load side.

FID 7149464

30. Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole.
31. Install (1) Three-Phase Recloser (1806-03E).
32. Install secondary span of triplex #2 from pole with FID7149453 for 375 feet identified to feed the recloser source side.
33. Install and commission the communication radio kit for the Three-Phase Recloser.

FID 11543153

34. Replace 70ft round pole with a 70ft 12-sided galvanized steel pole.

FID 11544249

- 35. Replace 70ft round pole with 70ft 12-sided galvanized steel pole, intercept feeder.
- 36. Replace (2) Fuse Cutouts with the installation of (2) Single-Phase Recloser.

FID 7149631

- 37. Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.
- 38. Replace (3) Fuse Cutouts with the Installation of (3) Single-Phase Reclosers.

FID 11280103

- 39. Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.

FID 11543540

- 40. 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) =             | \$ 473,005.75 |
| + HM (Subrecipient A&E, Management & General Conditions) = | \$ 111,978.28 |
| Hazard Mitigation Total Cost =                             | \$ 584,984.03 |

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**(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                      |               |
|--------------------------------------|---------------|
| Equipment and Materials (E&M) =      | \$ 240,541.77 |
| Architecture and Engineering (A&E) = | \$ 44,095.89  |
| Construction Cost =                  | \$ 300,346.37 |
| Hazard Mitigation Total Cost =       | \$ 584,984.03 |

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**(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 **\$584,984.03 (Hazard Mitigation Total Cost)**. The cost of this HMP combined with 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 | \$1,710,177.27 | Uncompleted |
| 3510 | 1        | Lump Sum | (\$195,175.66) | Uncompleted |
| 9001 | 1        | Lump Sum | (\$369,544.00) | Uncompleted |
| 9201 | 1        | Lump Sum | \$0.00         | Completed   |
| 3510 | 1        | Lump Sum | \$0.00         | Uncompleted |
| 9001 | 1        | Lump Sum | \$0.00         | 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 | \$0.00         | Uncompleted |

|                            |                |
|----------------------------|----------------|
| CRC Gross Cost             | \$1,145,457.61 |
| Total 406 HMP Cost         | \$584,984.03   |
| Total Insurance Reductions | \$0.00         |
| <hr/>                      |                |
| CRC Net Cost               | \$1,730,441.64 |
| Federal Share (90.00%)     | \$1,557,397.48 |
| Non-Federal Share (10.00%) | \$173,044.16   |

## 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

6/30/2026

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.

Gregory Berrios Torres, PA Insurance Specialist,

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 31] (Distribution) (Cost Only)** .

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 31] (Distribution) (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.

## EHP Additional Info

There is no additional environmental historical preservation on **FAASt [Automation Program Group 31] (Distribution) (Cost Only)** .



## Final Reviews

### Final Review

**Reviewed By** LEFRANC-GARCIA, CARLOS L.

**Reviewed On** 07/15/2026 12:35 PM PDT

#### Review Comments

[757696] FAASt [Automation Program Group 31] (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 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. CLG 07/15/26

### Recipient Review

**Reviewed By** Mulero, Noel

**Reviewed On** 07/29/2026 3:22 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. 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 \$1,730,441.64 for subaward number 108037 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 1         | 8/27/2026      | \$526,485.63   | 90%        | Accepted     | 4339DRPRP01080371  |
| 0         | 9/17/2025      | \$1,030,911.85 | 90%        | Accepted     | 4339DRPRP01080371  |

**Department of Homeland Security  
Federal Emergency Management Agency**

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## General Info

|                                 |                                                                        |                            |                                            |                     |                    |
|---------------------------------|------------------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 800286                                                                 | <b>PW#</b>                 | 108077                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                          | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt [Automation Program Group 36]<br>(TL / Distribution) (Cost Only) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                                  | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                              | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                              | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## 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 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 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 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 if fault 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       |           |         |
| 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<br>Lat, Long | Existing<br>(Remove)                                                                                   | 428<br>Replacement                                                                        | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------|--------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15198307 |                          | (45 FT C2 WOOD<br>POLE)<br><br>(OPS-CP-06-<br>XARM)<br><br>(ABS-3-XARM)<br><br>(K-7-4)<br><br>(STL-10) | (50 FT S8 STEEL<br>POLE)<br><br>(OPS-CP-06-XARM)<br><br>(K-7-4)<br><br>(REC-2-1) (STL-10) | <ul style="list-style-type: none"> <li>Remove and dispose 45' C2 wood pole.</li> <li>Replace with a 50' S8 12-Sided galvanized steel pole.</li> <li>Install (1) Three-Phase recloser 1102-03A in a loop restoration circuit. Use Existing secondary to feed three-phase recloser from source side.</li> <li>Install and commission the radio communication kit for three-phase recloser</li> <li>Install 1 kva transformer (2.4/7.62kv – 120v) to feed three</li> <li>Phase recloser from load side.</li> <li>Remove, dispose and replace primary Framing and secondary framing.</li> <li>Remove, dispose and replace streetlight.</li> <li>Remove and dispose air-break switch.</li> </ul> |
| 15197609 |                          | (S-1)                                                                                                  | (S-6) (REC-3-C)                                                                           | <ul style="list-style-type: none"> <li>Existing Pole: Remove, dispose and replace primary framing.</li> <li>Install (3) Single-Phase recloser 200A.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 15197623 |                          | (ASSY-1509<br>(QTY=3))                                                                                 | (LABOR, CLOSE<br>JUMPERS (QTY=3))                                                         | <ul style="list-style-type: none"> <li>Remove and dispose (3) Fuses</li> <li>Labor to close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 15197359 |                          | NONE                                                                                                   | (LABOR, cFCI<br>(QTY=3))                                                                  | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 15197882 |                          | NONE                                                                                                   | (LABOR, cFCI<br>(QTY=3))                                                                  | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

#### Feeder- 1106-05

| POLE FID   | Coordinates<br>Lat, Long | Existing<br>(Remove)                                                                                            | 428<br>Replacement                                                                                                   | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|--------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE   | ■■■■■<br>■■■■■           | NONE                                                                                                            | 60 FT S8 STEEL POLE)<br>(S-6)<br><br>(CP-C6-XARM)<br><br>(REC-2-1)                                                   | <ul style="list-style-type: none"> <li>• Install new galvanized steel pole 60' S10 12-Sided Galvanized steel pole in new location mid span*.</li> <li>• Install Primary Framings.</li> <li>• Install (1) Three-Phase Recloser 1106-05A</li> <li>• Install and commission radio communication kit for three-phase recloser.</li> <li>• Install 1 kva Transformer (7.62/13.20 kv -120/240v) for source side</li> </ul>                                         |
| 15196880   | ■■■■■<br>■■■■■           | (CP-C7)<br><br>(ASSY-1509<br><br>(QTY=3))(QTY=3)                                                                | LABOR TO CLOSE<br><br>JUMPERS (QTY=3)                                                                                | <ul style="list-style-type: none"> <li>• Remove and dispose (3) fuses.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                         |
| 15196868   | ■■■■■<br>■■■■■           | (35 FT C4 WOOD<br><br>POLE) (S-1)                                                                               | (45 FT S5.7 STEEL<br><br>POLE) (S-6)<br><br>(E-1-2-3) (F-1-3) (REC-3-C)                                              | <ul style="list-style-type: none"> <li>• Remove and dispose 35' wood pole.</li> <li>• Replace with a 45' S5.7 12-sided galvanized steel pole.</li> <li>• Remove, dispose and replace primary framing,</li> <li>• Install downguy.</li> <li>• Install Anchor</li> <li>• Install (3) Single-Phase Reclosers 200A.</li> </ul>                                                                                                                                   |
| 15196866   | ■■■■■<br>■■■■■           | (ASSY-1509<br><br>(QTY=3))<br><br>(CP-C7)                                                                       | (LABOR CLOSE<br><br>JUMPERS (QTY=3))                                                                                 | <ul style="list-style-type: none"> <li>• Remove and dispose (3)</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                                                                                                |
| 1000828279 | ■■■■■<br>■■■■■           | (45 FT H6<br><br>CONCRETE POLE)<br><br>(OPS-CP-C4-XARM)<br><br>(STL-10) (K-5)<br><br>(ASSY-1509<br><br>(QTY=3)) | (50 FT S8 STEEL<br><br>POLE)<br><br>(OPS-CP-C4-XARM)<br><br>(STL-10) (K-5)<br><br>(E-1-2-3)<br><br>(F-1-3) (REC-3-C) | <ul style="list-style-type: none"> <li>• Remove and dispose 45' concrete pole.</li> <li>• Replace with a 50' S8 12-sided galvanized steel pole.</li> <li>• Remove, dispose, and replace primary and secondary framing.</li> <li>• Remove, dispose and Replace streetlight.</li> <li>• Remove and dispose (3) fuses.</li> <li>• Install downguy and anchor.</li> <li>• Remove and dispose (3) fuses.</li> <li>• Install (3) Single-Phase Recloser.</li> </ul> |
| 15196831   | ■■■■■<br>■■■■■           | NONE                                                                                                            | (LABOR, cFI<br>(QTY=3))                                                                                              | <ul style="list-style-type: none"> <li>• Install (3) Communicating Fault Current Indicator.</li> </ul>                                                                                                                                                                                                                                                                                                                                                       |
| POLE FID   | Coordinates<br>Lat, Long | Existing<br>(Remove)                                                                                            | 428<br>Replacement                                                                                                   | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                |

Feeder- 1204-03



|          |  |                                                                                                                 |                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|--|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15202072 |  | (45'-C2 WOOD<br>POLE)<br><br>(CP-C6 XARM)<br><br>(S-6) (K-4)<br><br>(E-1-2-3 (QTY=1))<br>(F-1-3<br><br>(QTY=1)) | (60'-S8.5 GALVANIZED<br>STEEL POLE)<br><br>(CP-C6 XARM) (S-6)<br>(REC-2-1 Ver. 6) (K-4)<br>(E-1-2-3 (QTY=4))<br><br>(F-1-3 (QTY=2))<br><br>(F-4-2 (QTY=1))                                          | <ul style="list-style-type: none"> <li>• Remove and dispose 45' C2 Wood pole.</li> <li>• Replace pole with a 60' S8 12-Sided Galvanized steel pole.</li> <li>• Install (1) Three-Phase Recloser 1204-03A</li> <li>• Install and commission radio communication kit for three-phase recloser.</li> <li>• Install (2) 1 kva Transformer (7.62/13.20 kv -120/240v) for source side and load side.</li> <li>• Remove, dispose and replace anchor and down guy (1) fuses.</li> <li>• Install (2) additional anchors.</li> <li>• Install (3) additional down guys.</li> <li>• Remove, dispose and replace framings.</li> </ul> |
| NEW POLE |  | NONE                                                                                                            | (50'-S8.5 GALVANIZED<br>STEEL POLE)<br><br>(CP-C6 XARM)<br><br>(REC-2-1 Ver. 6)                                                                                                                     | <ul style="list-style-type: none"> <li>• Install new galvanized steel pole 50' S8.5 12-Sided galvanized steel pole in new location mid span*.</li> <li>• Install (1) Three-Phase Recloser 1204-03B.</li> <li>• Install and commission Radio Communication Kit for the Three-phase Recloser.</li> <li>• Install (2) 1kva (7.62/13.20 kv -120/240 v) for source and Load side.</li> </ul>                                                                                                                                                                                                                                  |
| NEW POLE |  | NONE                                                                                                            | 60'-S10 GALVANIZED<br>STEEL POLE)<br><br>(40'-S5.7<br>GALVANIZED STEEL<br>POLE)<br><br>(CP-C6 XARM) (S-6)<br>(REC-2-1 Ver. 6)<br><br>(E-2-1(QTY=1))<br><br>(E-1-2-3 (QTY=1))<br><br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>• Install a new 60'-S10 12-Sided Galvanized steel pole.</li> <li>• Install (1) Three-Phase Recloser 1204-03C.</li> <li>• Install and commission the Radio Communication kit for the Three-Phase Recloser.</li> <li>• Install (2) 1kva (7.62/13.20 kv - 120/240 v) for source and load side.</li> <li>• Install 40' S5.7 galvanized steel stub Pole.</li> </ul>                                                                                                                                                                                                                    |
| 15202071 |  | (ABS-3-XARM<br>(QTY=3))                                                                                         | (LABOR & REPAIR)                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>• Remove and dispose (3) air-brake switch.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 15201719 |  | (ASSY-1509<br><br>(QTY=3))                                                                                      | (LABOR<br><br>(QTY=3))                                                                                                                                                                              | <ul style="list-style-type: none"> <li>• Remove and dispose (3) fuses.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

Feeder- 1301-02

| 15201729                |                          | (45'-H4 CONCRETE<br>POLE)<br>(CP-C1) (CP-A5)<br>(ASSY 1509<br>(QTY=1))<br>(REMOVE EXISTING<br>PRIMARY<br>RISER) | (50'-S8.5<br>GALVANIZED STEEL<br>POLE)<br>(CP-C6 XARM)<br>(CP-A5)<br>(REC-3-A) | <ul style="list-style-type: none"> <li>Remove and dispose 45' H4 Concrete pole.</li> <li>Replace with a 50' S8.5 12-Sided galvanized Steel pole.</li> <li>Install (1) OutOut Mounted Single-Phase Recloser.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove and dispose (1) fuse</li> <li>Remove Out of service primary Riser.</li> </ul>                                                                                                                                                        |
|-------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15201997                |                          | (45'-H4 CONCRETE<br>POLE)<br>(CP-C1)                                                                            | (45'-S5.7<br>GALVANIZED STEEL<br>POLE)<br>(CP-C6 XARM)<br>(REC-3-C)            | <ul style="list-style-type: none"> <li>Remove and dispose 45'H4 concrete pole.</li> <li>Replace with 45' S5.7 12-Sided galvanized Steel pole.</li> <li>Install (3) Outout Mounted Single-Phase recloser.</li> <li>Remove, dispose, and replacer framings</li> </ul>                                                                                                                                                                                                                                              |
| Segment FID<br>13665918 |                          | NONE                                                                                                            | (LABOR, cFCI)<br>(QTY=3)                                                       | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                            |
| Segment FID<br>31220910 |                          | NONE                                                                                                            | (LABOR, cFCI)<br>(QTY=3)                                                       | <ul style="list-style-type: none"> <li>Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                            |
| POLE FID                | Coordinates<br>Lat, Long | Existing<br>(Remove)                                                                                            | 428<br>Replacement                                                             | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| NEW POLE                |                          | NONE                                                                                                            | (50 FT S8 STEEL POLE)<br><br>(CP-C6-XARM)<br><br>(K-5) (REC-2-1)               | <ul style="list-style-type: none"> <li>Install a new 50' S8 12-Sided Galvanized steel pole as a midspan.</li> <li>Install primary Framing.</li> <li>Install (1) three-phase recloser 1301-02A in loop restoration circuit. Use existing secondary to feed Three-phase recloser from load side.</li> <li>Install 1 kva stainless steel transformer (2.40/7.62kv-120v) to feed three phase recloser from Source side.</li> <li>Install and commission radio communication kit for three-phase recloser.</li> </ul> |
| 13524705                |                          | (CP-C6-XARM)                                                                                                    | (K-5)                                                                          | <ul style="list-style-type: none"> <li>Remove and dispose primary framing.</li> <li>Install secondary framing.</li> <li>Install 1/0 tpx (qty=25 ft).</li> <li>Install 1/0 acsr primary</li> <li>Conductor (qty=75 ft) and compression splices (qty=3).</li> </ul>                                                                                                                                                                                                                                                |

Feeder 2005-10

| 22053341    |           | (40 FT C3 WOOD<br>POLE)<br><br>(CP-C6-XARM)<br><br>(S-6) (ABS-3-XARM)           | (60 FT S8 STEEL<br>POLE)<br><br>(CP-C6-XARM)<br><br>(S-6) (REC-2-2)                                                   | <ul style="list-style-type: none"> <li>• Remove and dispose 40' C4 Wood pole.</li> <li>• Replace with a 60' S8 12-Sided Galvanized Steel pole.</li> <li>• Install (1) three-phase recloser 1301-02B in loop restoration Circuit.</li> <li>• Install and commission Radio Communication Kit for the three-phase recloser.</li> <li>• Install (2) 1 kva transformers (2.40/7.62kv-120v) to Feed three phase recloser from source Side and load side.</li> <li>• Remove and dispose air-break switch.</li> <li>• Remove, dispose and replace primary framings.</li> </ul> |
|-------------|-----------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13525293    |           | NONE                                                                            | (LABOR, cFOI)<br>(QTY=3)                                                                                              | <ul style="list-style-type: none"> <li>• Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 1001602057  |           | NONE                                                                            | (LABOR, cFOI)<br>(QTY=3)                                                                                              | <ul style="list-style-type: none"> <li>• Install (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Coordinates |           |                                                                                 |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| POLE FID    | Lat, Long | Existing<br>(Remove)                                                            | 428<br>Replacement                                                                                                    | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| NEW POLE    |           | NONE                                                                            | 60'-S10<br>GALVANIZED<br><br>STEEL POLE)<br>(REC-2-1<br><br>VER. 6) (K-1)<br><br>(CP-C6-XARM)<br><br>(S-1)            | <ul style="list-style-type: none"> <li>• Install new galvanized steel pole 60' S10 12-Sided Galvanized steel pole in new location mid span*.</li> <li>• Install (1) Three-Phase Recloser 2005-10A</li> <li>• Install and commission radio communication kit for three-phase recloser.</li> <li>• Install (2) 1 kva Transformer (7.62/13.20 kv -120/240v) for source side and load side.</li> </ul>                                                                                                                                                                     |
| 10044885    |           | (40'-H4<br>CONCRETE<br><br>POLE) (CP-C1)<br>(E-1-2-3 (QTY=))<br>(F-1-3 (QTY=1)) | (50'-S8<br>GALVANIZED<br><br>STEEL POLE)<br>(REC-2-1 VER. 6)<br>(E-1-2-3 (QTY=1))<br>(F-1-3 (QTY=1)) (CP-<br>C6-XARM) | <ul style="list-style-type: none"> <li>• Remove and dispose 40' H4 Concrete pole.</li> <li>• Replace pole with a 50' S8 12-sided galvanized steel pole.</li> <li>• Install (1) three-Phase recloser 2005-10B.</li> <li>• Install and commission radio communication kit for the three-phase recloser.</li> <li>• Install (2) 1 kva transformer</li> <li>• (7.62/13.20 kv - 120/240v) for source side and load side.</li> <li>• Remove, dispose, and replace framings.</li> <li>• Remove, dispose and replace (1) anchor and (1) downguy.</li> </ul>                    |

#### **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**.

| Coordinates                             |           | Existing<br>(Remove)                                   | 428<br>Replacement                                                                                              | Scope of work                                                                                                                                                                                                                                                                                                                                                                 | <b>Pole Replacement</b><br><br>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.<br><br>b. Most pole installations are to replace existing pole locations; there are some new pole locations included in this scope of work. Refer to <b>APPENDIX C - Project Considerations</b> column C (soil area and depth impact) for the depths of the poles to be installed.<br><br>c. Adjacent poles will be installed, in locations noted in the table above, in conformance with LUMA and industry standards.<br><br>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.<br><br>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: |
|-----------------------------------------|-----------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| POLE FID                                | Lat, Long |                                                        |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 12372255                                |           | (45'-H4 CONCRETE POLE) (S-1)<br>(CP-C8) (STL-10)       | (60'-S10 GALVANIZED STEEL POLE)<br>(CP-C1) (S-1) (STL-10)<br><br>(E-1-2-3 (QTY=2)) (F-4-2 (QTY=1))<br><br>(K-1) | <ul style="list-style-type: none"><li>• Adjacent Pole:</li><li>• Remove, dispose, and replace framings.</li><li>• Remove, dispose, and replace streetlights.</li><li>• Remove, dispose, and replace 45' H4 Concrete pole.</li><li>• Replace pole with 60' S10 12-Sided galvanized steel pole.</li><li>• Install (1) anchor.</li><li>• Install (2) DownGuy</li><li>•</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 12372254                                |           | (45'-H4 CONCRETE POLE) (S-6) (STL-10)<br>(CP-C8) (K-5) | (60'-S10 GALVANIZED STEEL POLE)<br>(CP-C1) (S-6) (STL-10) (K-5)                                                 | <ul style="list-style-type: none"><li>• Adjacent Pole:</li><li>• Remove and dispose 45 H4 Concrete pole.</li><li>• Replace pole with 60 S10 12-sided galvanized steel pole</li><li>• Remove, dispose, and replace framings</li><li>• Remove, dispose and replace streetlights.</li><li>• Labor to Transfer air brake switch to new pole.</li></ul>                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Segment FID<br><br>18371210             |           | NONE                                                   | (LABOR, cFCI) (QTY=3)                                                                                           | <ul style="list-style-type: none"><li>• Install (3) Communicating Fault Current Indicators.</li></ul>                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Segment FID<br><br>1000125552           |           | NONE                                                   | (LABOR, cFCI) (QTY=3)                                                                                           | <ul style="list-style-type: none"><li>• Install (3) Communicating Fault Current Indicators.</li></ul>                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Feeder                                  |           | Project Title                                          |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ??1102-03<br><br>1106-05<br><br>1204-03 |           | 723883 FAAsT [Region 1 -San Juan Group A] (Vegetation) |                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 1301-02<br><br>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:
- Department of Transportation and Public Works - ("DTOP") Endorsements & Municipality Notifications
  - 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          |
| <b>COST TOTALS</b>               | <b>\$2,601,467.92</b>                | <b>\$-</b> | <b>\$2,601,467.92</b> |
| 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      |            | \$-                   |
|                                  | <b>FAASt PROJECT # 800286 TOTAL:</b> |            | <b>\$1,703,712.89</b> |
|                                  | FAASt A&E # 335168 - 428             |            | \$300,364.95          |
|                                  | FAASt A&E # 335168 - 406 HM          |            | \$-                   |
|                                  | <b>FAASt A&amp;E # 335168 TOTAL</b>  |            | <b>\$300,364.95</b>   |
|                                  | FAASt E&M #673691 - 428              |            | \$597,390.08          |
|                                  | FAASt E&M #673691 - 406 HM           |            | \$-                   |
|                                  | <b>FAASt E&amp;M #673691 TOTAL</b>   |            | <b>\$597,390.08</b>   |

Project Cost Summary, 428 Version 0:

Work to be Completed (WTBC): \$ 2,601,467.86

**A&E Deduction (Global A&E FAAS t 335168):** -\$300,364.95

**E&M Deduction (Global E&M FAAS t 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 FAAS t 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 FAAS t projects.
4. Equipment and material costs included in this project will be reduced from this project and obligated under FAAS t 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 FAAS t 800286.
5. This project is part of Donor FAAS t 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS t 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

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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

6/25/2026

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.

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 36] (TL / Distribution) (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.
- 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) (Cost Only)**.

## 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



## General Info

|                                 |                                                                        |                          |                                            |                            |                    |
|---------------------------------|------------------------------------------------------------------------|--------------------------|--------------------------------------------|----------------------------|--------------------|
| <b>Project #</b>                | 800286                                                                 | <b>P/W #</b>             | 108077                                     | <b>Project Type</b>        | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                          | <b>Applicant</b>         | PR Electric Power Authority (000-UA2QU-00) | <b>Event</b>               | 4339DR-PR (4339DR) |
| <b>Project Title</b>            | FAASt [Automation Program Group 36]<br>(TL / Distribution) (Cost Only) |                          |                                            |                            |                    |
| <b>Project Size</b>             | Large                                                                  | <b>Declaration Date</b>  | 9/20/2017                                  | <b>Incident Start Date</b> | 9/17/2017          |
| <b>Activity Completion Date</b> | 9/20/2027                                                              | <b>Incident End Date</b> | 11/15/2017                                 |                            |                    |
| <b>Process Step</b>             | 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 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 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. 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 800286 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 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 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.

### **(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 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 preempting 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**

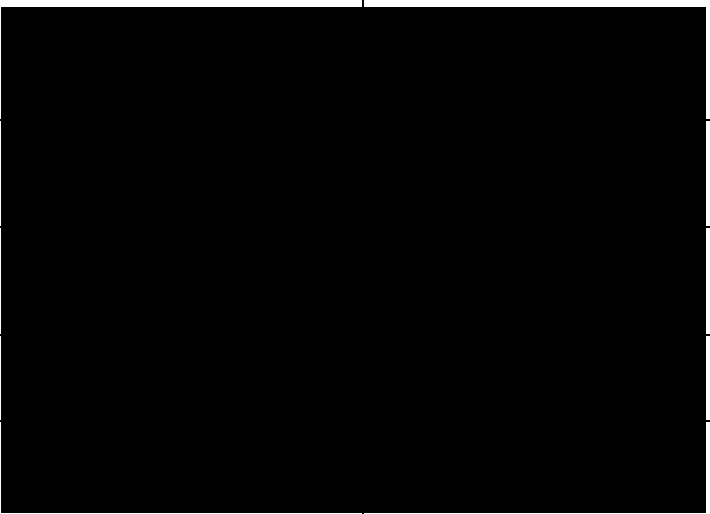
The following list includes the name, year of construction, and GPS coordinates of each building or substation included in this project:

- 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**

| <b>Name</b> | <b>Feeder Number</b> | <b>GPS Start</b>                                                                    | <b>GPS End</b> |
|-------------|----------------------|-------------------------------------------------------------------------------------|----------------|
| San Juan    | 1102-03              |  |                |
| 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 warehouse that 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.

|  |  |
|--|--|
|  |  |
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**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 |                       | (45 FT C2 WOOD POLE)<br><br>(OPS-CP-C6-XARM)<br><br>(ABS-3-XARM)<br><br>(K-7-4)<br><br>(STL-10) | (50' ROUND TAPERED POLE)<br><br>(OPS-CP-C6-XARM)<br><br>(K-7-4) (STL-10) | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft C2 wood pole.</li> <li>• Replace with a 50ft galvanized round tapered pole.</li> <li>• Remove, dispose and replace primary framing and secondary framing.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove and dispose air-break switch.</li> <li>• Install and connect one (1) set of Air Break Bypass Switches (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |
| 15197609 |                       | (S-1)                                                                                           | (S-6)                                                                    | <ul style="list-style-type: none"> <li>• Remove, dispose and replace primary framing and secondary framing on existing pole.</li> </ul>                                                                                                                                                                                                                                                                                                                                             |
| 15197623 |                       | (ASSY-1509 (QTY=3))                                                                             | (LABOR, CLOSE JUMPERS (QTY=3))                                           | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) Fuse Outlets.</li> <li>• Labor to close Jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                 |

| POLE FID | Coordinates Lat, Long | Existing (Remove) | 428 Replacement      | Scope of work                           |
|----------|-----------------------|-------------------|----------------------|-----------------------------------------|
| 15197359 | ■■■■■<br>■■■■■        | NONE              | (LABOR, FCI (QTY=3)) | • Install (3) Fault Current Indicators. |
| 15197882 | ■■■■■<br>■■■■■        | NONE              | (LABOR, FCI (QTY=3)) | • Install (3) Fault Current Indicators. |

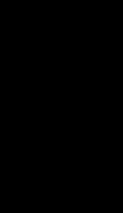
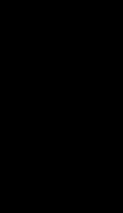
#### Feeder- 1106-05

| POLE FID   | Coordinates Lat, Long | Existing (Remove)                                                                     | 428 Replacement                                                                        | Scope of work                                                                                                                                                                                                                                                                                                                                                                                  |
|------------|-----------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE   | ■■■■■<br>■■■■■        | NONE                                                                                  | (50' ROUND TAPERED POLE)<br>(S-6)<br>(CP-C6-XARM)                                      | <ul style="list-style-type: none"> <li>• Install galvanized steel pole 50ft galvanized round tapered pole.</li> <li>• Install primary framings.</li> <li>• Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul>                                                                                                                |
| 15196880   | ■■■■■                 | (CP-C7) (ASSY-1509<br>(QTY=3))(QTY=3)                                                 | LABOR TO CLOSE JUMPERS<br>(QTY=3)                                                      | <ul style="list-style-type: none"> <li>• Remove and dispose (3) Fuse Outouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                                    |
| 15196868   | ■■■■■<br>■■■■■        | (35 FT C4 WOOD POLE) (S-1)                                                            | (45' ROUND TAPERED POLE) (S-6)<br>(E-1-2-3) (F-1-3)                                    | <ul style="list-style-type: none"> <li>• Remove and dispose 35ft wood pole.</li> <li>• Replace with a 45ft galvanized round tapered pole</li> <li>• Remove, dispose and replace primary framing,</li> <li>• Install down guy.</li> <li>• Install anchor.</li> </ul>                                                                                                                            |
| 15196866   | ■■■■■                 | (ASSY-1509 (QTY=3))<br>(CP-C7)                                                        | (LABOR, CLOSE JUMPERS<br>(QTY=3))                                                      | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (3) fuse cutouts.</li> <li>• Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                                           |
| 1000828279 | ■■■■■<br>■■■■■        | (45 FT H6 CONCRETE POLE)<br>(OPS-CP-C4-XARM)<br>(STL-10) (K-5) (ASSY-1509<br>(QTY=3)) | (50' ROUND TAPERED POLE)<br>(OPS-CP-C4-XARM)<br>(STL-10) (K-5)<br>(E-1-2-3)<br>(F-1-3) | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft concrete pole.</li> <li>• Replace with a 50ft galvanized round tapered pole</li> <li>• Remove, dispose, and replace primary and secondary framing.</li> <li>• Remove, dispose and replace streetlight (LED Type).</li> <li>• Remove, dispose and replace (3) Fuse Outouts.</li> <li>• Install down guy and anchor.</li> </ul> |
| 15196831   | ■■■■■<br>■■■■■        | NONE                                                                                  | (LABOR, FCI (QTY=3))                                                                   | • Install (3) Fault Current Indicators.                                                                                                                                                                                                                                                                                                                                                        |

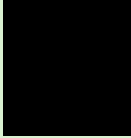
**Feeder- 1204-03**

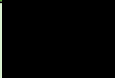
| POLE FID | Coordinates Lat, Long | Existing (Remove)                                                             | 428 Replacement                                                                                                                      | Scope of work                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|-----------------------|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15202072 | ██████<br>██████      | (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))                                  | <ul style="list-style-type: none"> <li>Remove and dispose 45ft C2 wood pole.</li> <li>Replace pole with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace anchor and down guys.</li> <li>Install (2) additional anchors.</li> <li>Install (3) additional down guys.</li> <li>Remove, dispose and replace framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> |
| NEW POLE | ██████<br>██████      | NONE                                                                          | (50' ROUND TAPERED POLE) (CP-C6 XARM)                                                                                                | <ul style="list-style-type: none"> <li>Install galvanized steel pole 50ft galvanized round tapered pole.</li> <li>Install framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul>                                                                                                                                                                                                         |
| NEW POLE | ██████<br>██████      | NONE                                                                          | (50' ROUND TAPERED POLE)<br>(40' ROUND TAPERED POLE)<br>(CP-C6 XARM) (S-6)<br>(E-2-1(QTY=1))<br>(E-1-2-3 (QTY=1))<br>(F-1-3 (QTY=1)) | <ul style="list-style-type: none"> <li>Install a new 50ft galvanized round tapered pole.</li> <li>Install framings.</li> <li>Install down guys.</li> <li>Install anchor.</li> <li>Install 40ft galvanized round tapered pole as a support pole with framings in coordinates ██████ - 66.002507.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul>                                             |
| 15202071 | ██████████            | (ABS-3-XARM (QTY=3))                                                          | (LABOR & REPAIR)                                                                                                                     | <ul style="list-style-type: none"> <li>Remove and dispose (3) air-brake switch.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                |

| POLE FID | Coordinates Lat, Long | Existing (Remove)   | 428 Replacement | Scope of work                                                                          |
|----------|-----------------------|---------------------|-----------------|----------------------------------------------------------------------------------------|
| 15201719 | ██████████            | (ASSY-1509 (QTY=3)) | (LABOR (QTY=3)) | <ul style="list-style-type: none"> <li>Remove and dispose (3) fuse cutouts.</li> </ul> |

|                         |                                                                                   |                                                                                                        |                                                  |                                                                                                                                                                                                                                                                                                                  |
|-------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15201729                |   | (45'-H4 CONCRETE POLE)<br>(CP-C1) (CP-A5) (ASSY 1509<br>(QTY=1))<br>(REMOVE EXISTING PRIMARY<br>RISER) | (50' ROUND TAPERED POLE)<br>(CP-C6 XARM) (CP-A5) | <ul style="list-style-type: none"> <li>Remove and dispose 45ft H4 concrete pole.</li> <li>Replace with a 50ft galvanized tapered pole.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove, dispose and replace (1) Fuse Outout.</li> </ul> <p>Labor to remove out of service<br/>primary riser.</p> |
| 15201997                |  | (45'-H4 CONCRETE POLE)<br>(CP-C1)                                                                      | (45' ROUND TAPERED POLE)<br>(CP-C6 XARM)         | <ul style="list-style-type: none"> <li>Remove and dispose 45ft H4 concrete pole.</li> <li>Replace with 45ft galvanized round tapered pole</li> </ul> <p>Remove, dispose, and replace framings.</p> <ul style="list-style-type: none"> <li>Install (3) Fuse Outouts.</li> </ul>                                   |
| Segment FID<br>13665918 |  | NONE                                                                                                   | (LABOR,FCI) (QTY=3)                              | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                          |
| Segment FID<br>31220910 |  | NONE                                                                                                   | (LABOR, FCI) (QTY=3)                             | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                          |

#### Feeder- 1301-02

| POLE FID | Coordinates Lat, Long                                                               | Existing (Remove) | 428 Replacement                              | Scope of work                                                                                                                                                                                                                                                  |
|----------|-------------------------------------------------------------------------------------|-------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | NONE              | (50' ROUND TAPERED POLE)<br><br>(CP-C6-XARM) | <ul style="list-style-type: none"> <li>Install a new 50ft galvanized round tapered pole midspan.</li> <li>Install primary framing.</li> <li>Install and connect one (1) set of Air Break Byp (ABS-3-XARM) and the framing hardware to support them.</li> </ul> |

| POLE FID | Coordinates Lat, Long                                                               | Existing (Remove) | 428 Replacement | Scope of work                                                                                                                                                                                                                                            |
|----------|-------------------------------------------------------------------------------------|-------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13524705 |  | (CP-C6-XARM)      | (K-5)           | <ul style="list-style-type: none"> <li>Remove and dispose primary framing.</li> <li>Install secondary framing.</li> <li>Install 1/0 triplex (qty=25 ft).</li> <li>Install 1/0 ACSR primary Conductor (qty=75 ft) compression splices (qty=3).</li> </ul> |

|            |  |                                                                |                                                   |                                                                                                                                                                                                                                                                                                                                                                             |
|------------|--|----------------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 22053341   |  | (40 FT C3 WOOD POLE)<br>(CP-C6-XARM)<br><br>(S-6) (ABS-3-XARM) | (50' ROUND TAPERED POLE)<br>(CP-C6-XARM)<br>(S-6) | <ul style="list-style-type: none"> <li>Remove and dispose 40ft C4 wood pole.</li> <li>Replace with a 50ft galvanized round tapered pole.</li> <li>Remove and dispose air-break switch.</li> <li>Remove, dispose and replace primary framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> |
| 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<br>(Remove) | 428 Replacement                                                 | Scope of work                                                                                                                                                                                                                                                     |
|----------|--|----------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE |  | NONE                 | (50' ROUND TAPERED POLE) (K-1)<br><br>(CP-C6-XARM)<br><br>(S-1) | <ul style="list-style-type: none"> <li>Install galvanized steel pole 50ft galvanized round tapered pole.</li> <li>Install framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> |
| 10044885 |  | (40'-H4<br>CONCRETE  | (50' ROUND<br><br>TAPERED POLE) (E-                             | <ul style="list-style-type: none"> <li>Remove and dispose 40ft H4 concrete pole.</li> </ul>                                                                                                                                                                       |

| POLE FID                |  | Existing<br>(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) | <ul style="list-style-type: none"> <li>Replace pole with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove, dispose and replace (1) anchor and (1) down guy.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> |
| Segment FID<br>18371210 |  | NONE                                           | (LABOR,FCI) (QTY=3)                         | • Install (3) Fault Current Indicators.                                                                                                                                                                                                                                                                                                        |

|                          |  |      |                     |                                         |
|--------------------------|--|------|---------------------|-----------------------------------------|
| Segment ID<br>1000125552 |  | 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.

## 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."<sup>1</sup> 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.”<sup>2</sup> The Guide emphasizes the importance of mitigation measures “to improve resilience of disaster-damaged facilities from future, similar damage to the facilities.”<sup>3</sup> 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.”<sup>4</sup> 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.

|  |  |
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|  |  |
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<sup>1</sup> FEMA § 428 Alternative Procedures Guide for Permanent Work for FEMA-4339-DR-PR (v.3) ("Guide") at 6.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.* at 8.

<sup>4</sup> PAPPG v.3 at 97.

| Feeder  | § 406 Hazard Mitigation Item                    | Quantity | FID      | Coordinates<br>Lat, Long |
|---------|-------------------------------------------------|----------|----------|--------------------------|
| 1102-03 | Three-Phase Recloser<br>Radio Communication Kit | 1        | 15198307 | <div></div>              |
| 1102-03 | Single-Phase Recloser                           | 3        | 15197609 | <div></div>              |
| 1106-05 | Three-Phase Recloser Radio<br>Communication Kit | 1        | NEW POLE | <div></div>              |
| 1106-05 | Single-Phase Recloser                           | 3        | 15196868 | <div></div>              |

|         |                                                 |   |            |             |
|---------|-------------------------------------------------|---|------------|-------------|
| 1106-05 | Single-Phase Recloser                           | 3 | 1000828279 | ██████████, |
| 1204-03 | Three-Phase Recloser<br>Radio Communication Kit | 1 | 15202072   | ██████████, |
| 1204-03 | Three-Phase Recloser Radio<br>Communication Kit | 1 | NEW POLE   | ██████████, |
| 1204-03 | Three-Phase Recloser Radio<br>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<br>Communication Kit | 1 | NEW POLE   | ██████████, |
| 1301-02 | Three-Phase Recloser Radio<br>Communication Kit | 1 | 22053341   | ██████████, |
| 2005-10 | Three-Phase Recloser Radio<br>Communication Kit | 1 | NEW POLE   | ██████████, |
| 2005-10 | Three-Phase Recloser                            | 1 | 10044885   | ██████████, |

| Feeder | § 406 Hazard Mitigation<br>Item | Quantity | FID | Coordinates<br>Lat, Long |
|--------|---------------------------------|----------|-----|--------------------------|
|        | Radio Communication Kit         |          |     | ██████████               |

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 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 these specific 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

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

**Feeder 1102-03**

| § 406 Hazard Mitigation Item         | Quantity | FID      | Coordinates<br>Lat, Long |
|--------------------------------------|----------|----------|--------------------------|
| 50ft. S8.5 12-sided Galvanized Steel | 1        | 15198307 | <div></div> <div></div>  |

**Feeder 1106-05**

| § 406 Hazard Mitigation Item             | Quantity | FID      | Coordinates<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
| 60ft S8.5 12-sided galvanized steel pole | 1        | NEW POLE | <div></div> <div></div>  |

| § 406 Hazard Mitigation Item             | Quantity | FID        | Coordinates<br>Lat, Long |
|------------------------------------------|----------|------------|--------------------------|
| 45ft S5.7 12-sided galvanized steel pole | 1        | 15196868   | <div></div> <div></div>  |
| 50ft S8.5 12-sided galvanized steel pole | 1        | 1000828279 | <div></div> <div></div>  |

**Feeder 1204-03**

| § 406 Hazard Mitigation Item             | Quantity | FID      | Coordinates<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
| 60ft S8.5 12-sided galvanized steel pole | 1        | 15202072 | <div></div> <div></div>  |

|                                          |   |          |                          |
|------------------------------------------|---|----------|--------------------------|
| 50ft S8.5 12-sided galvanized steel pole | 1 | NEW POLE | ██████████<br>██████████ |
| 60ft S10 12-sided galvanized steel pole  | 1 | NEW POLE | ██████████<br>██████████ |
| 40ft S5.7 12-sided galvanized steel pole | 1 | NEW POLE | ██████████<br>██████████ |
| 50ft S8.5 12-sided galvanized steel pole | 1 | 15201729 | ██████████<br>██████████ |
| 45ft S5.7 12-sided galvanized steel pole | 1 | 15201997 | ██████████<br>██████████ |

**Feeder 1301-02**

| § 406 Hazard Mitigation Item             | Quantity | FID      | Coordinates<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
| 50ft S8.5 12-sided galvanized steel pole | 1        | NEW POLE | ██████████               |
| 60ft S8.5 12-sided galvanized steel pole | 1        | 22053341 |                          |

| § 406 Hazard Mitigation Item            | Quantity | FID      | Coordinates<br>Lat, Long |
|-----------------------------------------|----------|----------|--------------------------|
|                                         |          |          | ██████████               |
| 60ft S10 12-sided galvanized steel pole |          | NEW POLE | ██████████<br>██████████ |

## Feeder 2005-10

| § 406 Hazard Mitigation Item             | Quantity | FID      | Coordinates<br>Lat, Long |
|------------------------------------------|----------|----------|--------------------------|
| 60ft S8.5 12-sided galvanized steel pole | 1        | NEW POLE | ██████<br>██████         |
| 50ft S8.5 12-sided galvanized steel pole | 1        | 10044885 | ██████<br>██████         |

**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      | Coordinates<br>Lat, Lo |
|---------|----------|----------|------------------------|
| 1102-03 | 3        | 15197359 | ██████,<br>██████      |
| 1102-03 | 3        | 15197882 | ██████,<br>██████      |
| 1106-05 | 3        | 15196831 | ██████<br>██████       |

|         |   |                           |    |
|---------|---|---------------------------|----|
| 1204-03 | 3 | Segment FID<br>13665918   |    |
| 1204-03 | 3 | Segment FID<br>31220910   |    |
| 1301-02 | 3 | 13525293                  |    |
| 1301-02 | 3 | 1001602057                |    |
| 2005-10 | 3 | Segment FID 18371210      |    |
| 2005-10 | 3 | Segment FID<br>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.<sup>5</sup>

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,

|  |  |
|--|--|
|  |  |
|--|--|

<sup>5</sup> The process for locating the cFCIs is described in Appendix E - "Feeder Automation Deployment and Protection Philosophies."

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.

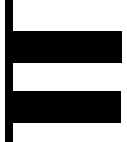
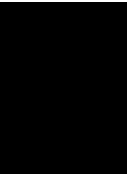
SCADA systems collect data from cFCIs and provide real-time visualization, control, and historical analysis. Integration helps in several ways:

- Real-Time Monitoring: Operators can see live data like voltage, current, temperature, and power flow. Any abnormal readings trigger alarms.
- Automated Alerts: If a cFCI 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<br>Lat, Long                                                              |
|---------|---------------------------------------------------------------|----------|----------|---------------------------------------------------------------------------------------|
| 1102-03 | 1kva stainless steel transformer<br>(2.4/7.62kv – 120v)       | 1        | 15198307 |    |
| 1106-05 | 1kva stainless steel transformer<br>(7.62/13.20 kv -120/240v) | 1        | NEW POLE |    |
| 1204-03 | 1kva stainless steel transformer<br>(7.62/13.20 kv -120/240v) | 2        | 15202072 |    |
| 1204-03 | 1kva stainless steel transformer<br>(7.62/13.20 kv -120/240v) | 2        | NEW POLE |    |
| 1204-03 | 1kva stainless steel transformer<br>(7.62/13.20 kv -120/240v) | 2        | NEW POLE |    |
| 1301-02 | 1 kva stainless steel<br>transformer (2.40/7.62kv-120v)       | 1        | NEW POLE |  |
| 1301-02 | 1 kva stainless steel<br>transformer (2.40/7.62kv-120v)       | 2        | 22053341 |  |
| 2005-10 | 1kva stainless steel transformer<br>(7.62/13.20 kv -120/240v) | 2        | NEW POLE |  |
| 2005-10 | 1kva stainless steel<br>transformer                           | 2        | 10044885 |  |

| Feeder | § 406 Hazard Mitigation Item | Quantity | FID | Coordinates<br>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 FAAS 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<br>Lat, Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Pole FID | Coordinates<br>Lat, Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15198307 |                          | <ul style="list-style-type: none"> <li>Remove and dispose 45ft C2 wood pole and replace with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Remove, dispose and replace secondary framing (K-7-4).</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove and dispose air-break switch.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> | 15198307 |                          | <ul style="list-style-type: none"> <li>Replace 50ft round pole with a 50ft S8.5 12-Sided galvanized steel pole.</li> <li>Install (1) Three-Phase recloser 1102-03A in a loop restoration circuit.</li> <li>Use existing secondary to feed three-phase recloser from source side.</li> <li>Install and commission the radio communication kit for three-phase recloser</li> <li>Install (1) 1 kVA stainless steel transformer (2.4/7.62kV-120V) to feed Three-Phase Recloser from load side.</li> </ul> |
| 15197609 |                          | <ul style="list-style-type: none"> <li>Remove, dispose and replace primary framing of existing pole.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                    | 15197609 |                          | <ul style="list-style-type: none"> <li>Replace (3) Fuse Outouts on FID 15197623 with the installation of (3) Single-Phase recloser 200A.</li> </ul>                                                                                                                                                                                                                                                                                                                                                    |
| 15197623 |                          | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) Fuse Outouts.</li> <li>Labor to close jumpers</li> </ul>                                                                                                                                                                                                                                                                                                                                                                    |          |                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 15197359 |                          | Install (3) Fault Current Indicators.                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 15197359 |                          | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |
| 15197882 |                          | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                            | 15197882 |                          | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                            |

## Feeder 1106-05

| 428 Section |                          |                                                                                                                                                                                                                                                                            | 406 HM   |                          |                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pole FID    | Coordinates<br>Lat, Long | Scope of Work                                                                                                                                                                                                                                                              | Pole FID | Coordinates<br>Lat, Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                        |
| NEW POLE    |                          | <ul style="list-style-type: none"> <li>Install galvanized steel pole 50ft galvanized round tapered pole.</li> <li>Install primary framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> | NEW POLE |                          | <ul style="list-style-type: none"> <li>Replace 50ft round pole with 60ft S8.5 12-sided galvanized steel pole.</li> <li>Install (1) Three-Phase Recloser 1106-05A.</li> <li>Install and commission radio communication kit for three-phase recloser.</li> <li>Install (1) 1kVA stainless steel transformer (7.62/13.20kV-120/240V)</li> </ul> <p>for source side.</p> |

|            |                |                                                                                                                                                                                                                                                                                                                                                                               |            |                |                                                                                                                                                                                                                                        |
|------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15196868   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Remove and dispose 35ft wood pole and replace with a 45ft galvanized round tapered pole.</li> <li>Remove, dispose and replace primary framing.</li> <li>Install down guy.</li> <li>Install anchor.</li> </ul>                                                                                                                          | 15196868   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Replace 45ft round pole with a 45ft S5.7 12-sided galvanized steel pole.</li> <li>Replace (3) Fuse Outouts on FID 15196866 with the installation of (3) Single-Phase Reclosers 200A.</li> </ul> |
| 15196866   | ■■■■■          | <ul style="list-style-type: none"> <li>Remove, dispose and replace (3) fuse cutouts.</li> <li>Labor to close jumpers.</li> </ul>                                                                                                                                                                                                                                              |            |                |                                                                                                                                                                                                                                        |
| 1000828279 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Remove and dispose 45ft concrete pole and replace with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose, and replace primary and secondary framing.</li> <li>Remove, dispose and replace streetlight (LED Type).</li> <li>Remove, dispose and replace (3) Fuse Outouts.</li> <li>Install down guy and anchor.</li> </ul> | 1000828279 | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole.</li> <li>Replace (3) Fuse Outouts with the installation of (3) Single-Phase Recloser.</li> </ul>                       |
| 15196831   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                       | 15196831   | ■■■■■<br>■■■■■ | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                            |

## Feeder 1204-03

| 428 Section |                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 406 HM   |                       |                                                                                                                                                                                                                                                                                                                                                                               |
|-------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pole FID    | Coordinates Lat, Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Pole FID | Coordinates Lat, Long | Scope of Work                                                                                                                                                                                                                                                                                                                                                                 |
| 15202072    | ■■■■■<br>■■■■■        | <ul style="list-style-type: none"> <li>Remove and dispose 45ft C2 wood pole and replace pole with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose and replace anchor and down guy.</li> <li>Install (2) additional anchors.</li> <li>Install (3) additional down guys.</li> <li>Remove, dispose and replace framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> | 15202072 | ■■■■■<br>■■■■■        | <ul style="list-style-type: none"> <li>Replace 50ft round pole with a 60ft S8.5 12-sided galvanized steel pole.</li> <li>Install (1) Three-Phase Recloser 1204-03A</li> <li>Install and commission radio communication kit for three-phase recloser.</li> <li>Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.</li> </ul> |
| NEW POLE    | ■■■■■<br>■■■■■        | <ul style="list-style-type: none"> <li>Install galvanized steel pole 50ft galvanized round tapered pole.</li> <li>Install framings.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul>                                                                                                                                                                                                  | NEW POLE | ■■■■■<br>■■■■■        | <ul style="list-style-type: none"> <li>Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole.</li> <li>Install (1) Three-Phase Recloser 1204-03B.</li> <li>Install and commission radio communication kit for the three-phase recloser.</li> <li>Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240v) for source and load side.</li> </ul>    |

|          |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE | <div></div> <div></div> | <ul style="list-style-type: none"> <li>• Install a new 50ft galvanized round tapered pole.</li> <li>• Install framings.</li> <li>• Install down guys.</li> <li>• Install anchor.</li> <li>• Install 40ft galvanized round tapered pole as a stub pole with framings in coordinates <div></div>.</li> <li>• Install and connect one (1) set of Air Brake Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> | NEW POLE | <div></div> <div></div> | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with a 60ft S10 12-sided galvanized steel pole.</li> <li>• Replace 40ft round pole with a 40ft S5.7 12-sided galvanized steel pole stub Pole at coordinates <div></div></li> <li>• Install (1) Three-Phase Recloser 1204-03C.</li> <li>• Install and commission radio communication kit for the Three-Phase Recloser.</li> <li>• Install (2) 1kVA stainless steel transformer (7.62/13.20kV-120/240V) for source and load side.</li> </ul> |
|          |                         | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft H4 concrete pole and replace with a 50ft galvanized round tapered pole.</li> <li>• Remove, dispose, and replace framings.</li> </ul>                                                                                                                                                                                                                           |          |                         | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole.</li> <li>• Replace (1) Fuse Outout with the installation of (1) Outout Mounted Single-Phase Recloser.</li> </ul>                                                                                                                                                                                                                                                                          |

| 428 Section          |                          |                                                                                                                                                                                                     | 406 HM               |                          |                                                                                                                                                                                                                                   |
|----------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pole FID             | Coordinates<br>Lat, Long | Scope of Work                                                                                                                                                                                       | Pole FID             | Coordinates<br>Lat, Long | Scope of Work                                                                                                                                                                                                                     |
|                      |                          | <ul style="list-style-type: none"> <li>• Remove, dispose and replace (1) Fuse Outout.</li> <li>• Labor to remove out of service primary riser.</li> </ul>                                           |                      |                          |                                                                                                                                                                                                                                   |
| 15201997             | <div></div> <div></div>  | <ul style="list-style-type: none"> <li>• Remove and dispose 45ft H4 concrete pole and replace with 45ft galvanized round tapered pole.</li> <li>• Remove, dispose, and replace framings.</li> </ul> | 15201997             | <div></div> <div></div>  | <ul style="list-style-type: none"> <li>• Replace 45ft round pole with 45ft S5.7 12-sided galvanized Steel pole.</li> <li>• Replace (3) Fuse Outouts with the installation of (3) Outout Mounted Single-Phase recloser.</li> </ul> |
| Segment FID 13665918 | <div></div>              | <ul style="list-style-type: none"> <li>• Install (3) Fuse Outouts.</li> <li>• Install (3) Fault Current Indicators.</li> </ul>                                                                      | Segment FID 13665918 | <div></div>              | <ul style="list-style-type: none"> <li>• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                     |
| Segment FID 31220910 |                          | <ul style="list-style-type: none"> <li>• Install (3) Fault Current Indicators.</li> </ul>                                                                                                           | Segment FID 31220910 |                          | <ul style="list-style-type: none"> <li>• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                     |

## Feeder 1301-02

| 428 Section |                          |               | 406 HM   |                          |               |
|-------------|--------------------------|---------------|----------|--------------------------|---------------|
| Pole FID    | Coordinates<br>Lat, Long | Scope of Work | Pole FID | Coordinates<br>Lat, Long | Scope of Work |

|            |  |                                                                                                                                                                                                                                                                                                                                                                               |            |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NEW POLE   |  | <ul style="list-style-type: none"> <li>• Install a new 50ft galvanized round tapered pole as a midspan.</li> <li>• Install primary framing.</li> <li>• Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul>                                                                                                   | NEW POLE   |  | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with 50ft S8.5 12-sided galvanized steel pole as a midspan.</li> <li>• Install (1) Three-Phase Recloser 1301-02A in loop restoration circuit.</li> <li>• Install (1) 1kVA stainless steel transformer (2.40/7.62KV-120V) to feed three phase recloser from source side.</li> <li>• Install Secondary framing (K-5). Connect existing secondary to feed three-phase recloser from load side.</li> <li>• Install and commission radio communication kit for three-phase recloser.</li> </ul> |
| 22053341   |  | <ul style="list-style-type: none"> <li>• Remove and dispose 40ft C4 wood pole and replace with a 50ft galvanized round tapered pole.</li> <li>• Remove and dispose air-break switch.</li> <li>• Remove, dispose and replace primary framings.</li> <li>• Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> | 22053341   |  | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with a 60ft S8.5 12-sided galvanized steel pole.</li> <li>• Install (1) Three-Phase Recloser 1301-02B in loop restoration Circuit.</li> <li>• Install and commission radio communication kit for the three-phase recloser.</li> <li>• Install (2) 1 kVA stainless steel transformers (2.40/7.62KV-120V) to feed three-phase recloser from source side and load side.</li> </ul>                                                                                                            |
| 13525293   |  | <ul style="list-style-type: none"> <li>• Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                     | 13525293   |  | <ul style="list-style-type: none"> <li>• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                               |
| 1001602057 |  | <ul style="list-style-type: none"> <li>• Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                     | 1001602057 |  | <ul style="list-style-type: none"> <li>• Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                               |

## Feeder 2005-10

| 428 Section |             |                                                                                                                                                                                                                                                                         | 406 HM   |             |                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pole FID    | Coordinates | Scope of Work                                                                                                                                                                                                                                                           | Pole FID | Coordinates | Scope of Work                                                                                                                                                                                                                                                                                                                                                                      |
|             | Lat, Long   |                                                                                                                                                                                                                                                                         |          | Lat, Long   |                                                                                                                                                                                                                                                                                                                                                                                    |
| NEW POLE    |             | <ul style="list-style-type: none"> <li>• Install galvanized steel pole 50ft galvanized round tapered pole.</li> <li>• Install framings.</li> <li>• Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them</li> </ul> | NEW POLE |             | <ul style="list-style-type: none"> <li>• Replace 50ft round pole with 60ft S10 12-sided galvanized steel pole.</li> <li>• Install (1) Three-Phase Recloser 2005-10A</li> <li>• Install and commission radio communication kit for three-phase recloser.</li> <li>• Install (2) 1 kVA stainless steel transformer (7.62/13.20KV-120/240V) for source side and load side.</li> </ul> |

|                        |  |                                                                                                                                                                                                                                                                                                                                                                                             |                        |  |                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10044885               |  | <ul style="list-style-type: none"> <li>Remove and dispose 40ft H4 concrete pole and replace pole with a 50ft galvanized round tapered pole.</li> <li>Remove, dispose, and replace framings.</li> <li>Remove, dispose and replace (1) anchor and (1) downguy.</li> <li>Install and connect one (1) set of Air Break Bypass (ABS-3-XARM) and the framing hardware to support them.</li> </ul> | 10044885               |  | <ul style="list-style-type: none"> <li>Replace 50ft round pole with a 50ft S8.5 12-sided galvanized steel pole.</li> <li>Install (1) Three-Phase Recloser 2005-10B.</li> <li>Install and commission radio communication kit for the three-phase recloser.</li> <li>Install (2) 1 kVA stainless steel transformer (7.62/13.20kV-120/240V) for source side and load side.</li> </ul> |
| Segment FID 18371210   |  | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                     | Segment FID 18371210   |  | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                        |
| Segment FID 1000125552 |  | <ul style="list-style-type: none"> <li>Install (3) Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                                                                                                     | Segment FID 1000125552 |  | <ul style="list-style-type: none"> <li>Replace (3) Fault Current Indicators with the installation of (3) Communicating Fault Current Indicators.</li> </ul>                                                                                                                                                                                                                        |

## 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 FAAS [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 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.

## 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 *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   |

|                          |                                             |              |                       |
|--------------------------|---------------------------------------------|--------------|-----------------------|
| <b>COST TOTALS</b>       | \$1,740,471.96                              | \$995,016.61 | \$2,735,488.57        |
| <b>DEDUCTIONS</b>        | <b>TOTAL INSURANCE PROCEEDS RECEIVED</b>    |              | <b>\$-</b>            |
|                          | <b>DE-OBLIGATION TO FAASt IF APPLICABLE</b> |              | <b>\$-</b>            |
| <b>FAASt ALLOCATIONS</b> | FAASt PROJECT # 800286 - 428                |              | \$1,427,638.43        |
|                          | FAASt PROJECT # 800286 - 406 HM             |              | \$995,016.61          |
|                          | <b>FAASt PROJECT # 800286 TOTAL:</b>        |              | <b>\$2,422,655.03</b> |
|                          | FAASt A&E # 335168 - 428                    |              | \$137,043.71          |
|                          | FAASt A&E # 335168 - 406 HM                 |              | \$78,366.54           |
|                          | <b>FAASt A&amp;E # 335168 TOTAL</b>         |              | <b>\$215,410.25</b>   |
|                          | FAASt E&M #673691 - 428                     |              | \$175,789.83          |
|                          | FAASt E&M #673691 - 406 HM                  |              | \$397,237.57          |
|                          | <b>FAASt E&amp;M #673691 TOTAL</b>          |              | <b>\$573,027.40</b>   |
|                          |                                             |              |                       |

#### 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] FAAS [Automation Program Group 36] (TL / Distribution)

**Damage #:** #1490780; FAAS [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), and 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) = | <u>\$ 193,897.91</u> |
| Hazard Mitigation Total Cost =                             | <b>\$ 995,016.61</b> |

-

#### **Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                      |                      |
|--------------------------------------|----------------------|
| Equipment and Materials (E&M) =      | \$ 397,237.57        |
| Architecture and Engineering (A&E) = | \$ 78,366.54         |
| Construction Cost =                  | <u>\$ 519,412.50</u> |
| Hazard Mitigation Total Cost =       | <b>\$ 995,016.61</b> |

#### **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 with 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

6/25/2026

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.

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) (Cost Only)**.

## 406 Mitigation

There is no additional mitigation information on **FAASt [Automation Program Group 36] (TL / Distribution) (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.
- 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) (Cost Only)**.

## 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





## 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 \$2,698,729.44 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
| 0         | 9/17/2025      | \$1,533,341.55 | 90%        | Accepted     | 4339DRPRP01080771  |
| 1         | 8/27/2026      | \$895,514.95   | 90%        | Accepted     | 4339DRPRP01080771  |

**Department of Homeland Security  
Federal Emergency Management Agency**

v0

## General Info

|                                 |                                                                                         |                            |                                            |                     |                    |
|---------------------------------|-----------------------------------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>                | 956349                                                                                  | <b>P/W #</b>               | 108157                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b>         | F - Utilities                                                                           | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>            | FAASt * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>             | Large                                                                                   | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity Completion Date</b> | 9/20/2027                                                                               | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Process Step</b>             | Obligated                                                                               | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |

## 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       |           |        | 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<br>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,<br>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]egetation 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<br>Recovery Project # | Project Name                       | GPS Start | GPS End | Miles |
|-----------------------------|------------------------------------|-----------|---------|-------|
| 180326                      | Canovanas TC to Sabana<br>Llana TC |           |         | 8     |
| 180326                      | Canovanas TC to Palmer<br>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<br><br>(Miles) 11.13 | Vegetation Line<br>length (Miles) | 10%Adm.<br>Buffer Acceptan<br>ce (Miles) | % of Vegetation | FEMA Cost    | FEMA Final Cost | 3% Basic<br>Construction<br>Services (A&E) | Total Project Cost<br>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 FAAS<sup>t</sup> 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 FAAS<sup>t</sup> 956349\_ San Juan Region 1 Transmission Line 36800 – Canovan<sup>a</sup>s TC to Palmer

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 FAASr 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAASr Project.
4. For clarification of cost estimate adjustment, please refer to email correspondence: “956353 - DR4339PR - PREPA FAASr projects (115kV) Email Correspondance”
5. A&E costs included in this project will be reduced from this project and obligated under the FAASr 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 FAASr 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 FAASr.



## 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

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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

6/25/2026

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.**

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)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (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.
- 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)**.

## 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

|                         |                                                                                         |                            |                                            |                     |                    |
|-------------------------|-----------------------------------------------------------------------------------------|----------------------------|--------------------------------------------|---------------------|--------------------|
| <b>Project #</b>        | 956349                                                                                  | <b>P/W #</b>               | 108157                                     | <b>Project Type</b> | Specialized        |
| <b>Project Category</b> | F - Utilities                                                                           | <b>Applicant</b>           | PR Electric Power Authority (000-UA2QU-00) |                     |                    |
| <b>Project Title</b>    | FAAST * [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (Vegetation) |                            |                                            | <b>Event</b>        | 4339DR-PR (4339DR) |
| <b>Project Size</b>     | Large                                                                                   | <b>Declaration Date</b>    | 9/20/2017                                  |                     |                    |
| <b>Activity</b>         | 9/20/2027                                                                               | <b>Incident Start Date</b> | 9/17/2017                                  |                     |                    |
| <b>Completion Date</b>  |                                                                                         | <b>Incident End Date</b>   | 11/15/2017                                 |                     |                    |
| <b>Process Step</b>     | 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 FAAS [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 FAAS 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 (FAAS 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 FAAS 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-FAAS projects) to provide ?exibility and enable multiple programmatic reviews simultaneously. The Vegetation clearance HMP Sub-FAAS 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-FAAS projects will be adjusted as describe in FEMA-4339-DR-PR Public Assistance PREPA FAAS Post-Fixed Cost Estimate Obligation Vegetation

HMP Approach: 115kV/230kV. Seed document FAASVegetationHMP Approach\_115- 230kV Trans\_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<br>per mile | Total miles | WTBC - PAA Cost with Subrecipient<br>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 FAAS 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-FAAS project.
2. Vegetation clearance HMP Sub-FAAS 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 FAAS [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 SubFAAS projects.
6. A&E cost included in this project will be reduced from this project and obligated under the FAAS 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 FAAS projects.
7. This project is part of Donor FAAS 136271 – MEPA078 Puerto Rico Electrical Power Authority (PREPA) Island Wide FAAS 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-FAAS transactions; non-FAAS transactions remain unchanged. See document file: "SP 956349- DR4339PR - Email Confirmation Sub-FAAS Transaction Guidance.pdf"

#### 406 HMP Scope

**Project number:** FAAS [956349] FAAS [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. 5 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 damaged 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.

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 DSOWs 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 13.2kV 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).

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 FAAS 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 "*FAASVegetationHMPApproach\_115-230kVTransmission\_08.05.2025.pdf*".

#### **(II) Hazard Mitigation Proposal (HMP) Scope of Work:**

##### **[956349] FAAS [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:

| Recommended 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

- 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 emphasize, 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:**

|                                                                     |                |
|---------------------------------------------------------------------|----------------|
| <sup>1</sup> Vegetation Clearance Cost per Mile (Base Cost) =       | \$300,0        |
| Risk Factor approved by the DR4339-PR leadership (5%) =             | \$15,0         |
| Vegetation Clearance Cost per Mile (w/Soft Cost) =                  | \$315,0        |
| <sup>2</sup> PA Vegetation Clearance Overlap per Mile (Deduction) = | (\$71,9        |
| <b>Hazard Mitigation Total Cost per Mile =</b>                      | <b>\$243,8</b> |
| V0 - Project Total Miles with Vegetation:                           |                |
|                                                                     |                |
| V0 - 10% Buffer (Validated on LUMA approach)                        |                |
| V1 - Additional Miles (LUMA approach)                               |                |
| <b>Total Project Miles with Vegetation:</b>                         |                |
| <b>Hazard Mitigation Total Cost =</b>                               | <b>\$</b>      |

**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.<sup>3</sup>

|                                                |    |
|------------------------------------------------|----|
| Total Net Hazard Mitigation Cost (Base Cost) = | \$ |
|------------------------------------------------|----|

|                                                  |           |
|--------------------------------------------------|-----------|
| + HM (Management & General Conditions Factors) = |           |
| <b>Hazard Mitigation Total Cost =</b>            | <b>\$</b> |

**(IV) Hazard Mitigation Proposal (HMP) Cost Distribution:**

|                                       |           |
|---------------------------------------|-----------|
| Architecture and Engineering (A&E) =  |           |
| Remaining Vegetation Clearance Cost = | \$        |
| <b>Hazard Mitigation Total Cost =</b> | <b>\$</b> |

**(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 (FAAS) 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-Applciant 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 FAASVegetationHMPApproach\_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. *"FAASiVegetationHMPApproach\_115-230kVTransmission\_08.05.2025.pdf"*
3. *"Appendix A and B - Protected Flora and Incompatible Flora Species.pdf"*
4. *"IWBCA HMP Package.pdf"*
5. *"PN956349 FAASi 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         |
| <hr/>                      |                |
| 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

6/25/2026

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.**

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)**.

## 406 Mitigation

There is no additional mitigation information on **FAAST \* [San Juan Region 1 Line 36800 (115kV) – Canovanas TC to Palmer TC] (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.
- 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 work 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).

## 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



## 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  |
| 0         | 9/17/2025      | \$1,227,974.51 | 90%        | Accepted     | 4339DRPRP01081571  |