

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

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| <b>NEPR</b><br><br><b>Received:</b><br><br>Jul 14, 2023<br><br>3:52 PM |
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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 One FEMA  
Approval of Project, Request for Confidential  
Treatment, and Supporting Memorandum of Law**

**MOTION SUBMITTING ONE FEMA APPROVAL OF PROJECT,  
REQUEST FOR CONFIDENTIAL TREATMENT AND  
SUPPORTING MEMORANDUM OF LAW**

**TO THE PUERTO RICO ENERGY BUREAU:**

COME NOW LUMA Energy, LLC<sup>1</sup>, and LUMA Energy ServCo, LLC<sup>2</sup>, (jointly referred to as "LUMA"), through the undersigned legal counsel and respectfully submits the following:

**I. Submittal of FEMA Approval 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,

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<sup>1</sup> Register No. 439372.

<sup>2</sup> Register No. 439373.

the progress of all ongoing efforts related to the approval of the submitted Projects not yet approved by the Energy Bureau. This Energy Bureau thereafter determined that this directive applied to PREPA and LUMA. *See* Resolution and Order of August 20, 2021.

2. On August 30, 2021, LUMA filed a *Motion Requesting Clarification of a Portion of the Energy Bureau’s Resolution and Order Entered on August 20, 2021, and Submitting Updated List of Transmission and Distribution Projects and Twenty-Nine Scope of Work* (“August 30th Motion”). In the August 30<sup>th</sup> Motion, LUMA submitted twenty-nine (29) SOWs for T&D Projects for the Energy Bureau’s review and approval prior to submitting them to COR3 and FEMA. The SOWs submitted by LUMA included the “FAASt Substation Minor Repairs -Group B (Substation)”<sup>3</sup> T&D Project.

3. On September 22, 2021, the Energy Bureau issued a Resolution and Order where it determined that most of the SOWs for T&D projects submitted by LUMA were necessary to improve the system’s reliability (“September 22nd Order”). Therefore, it approved most of the projects presented in the August 30<sup>th</sup> Motion, including the “FAASt Substation Minor Repairs - Group B (Substation)” T&D Project SOW. The Energy Bureau also ordered LUMA to submit a copy of the approval by COR3 and/or FEMA of the Project, which shall contain the costs obligated for each project within ten (10) days of receiving such approval.

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<sup>3</sup> This T&D Project was submitted initially to the Energy Bureau as the “Substation Minor Repairs,” which encompassed substation repairs projects throughout Puerto Rico but were later divided into individual projects per group.

4. In compliance with the September 22<sup>nd</sup> Order, LUMA hereby submits a copy of approval by FEMA of the Project issued on July 6, 2023.<sup>4</sup> See **Exhibit 1** to this Motion. The document contains FEMA’s approval and includes the cost obligated for the Project.

5. LUMA is submitting herein a redacted public version of the FEMA approval (**Exhibit 1**) protecting confidential information associated with Critical Energy Infrastructure Information (“CEII”). The FEMA approval of the “FAAST Substation Minor Repairs -Group B (Substation)” T&D Project is 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**

6. 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. If the Energy Bureau determines, after appropriate evaluation, that the information should be protected, “it shall grant such protection in a manner that least

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<sup>4</sup> It is important to note that LUMA acquires knowledge of any FEMA approval for a T&D Project once FEMA makes the information available via its grant portal.

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).

7. 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).

8. 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.

9. 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.

10. The Energy Bureau’s Policy on Management of Confidential Information states the following with regard to access to validated Trade Secret Information and CEII:

1. Trade Secret Information  
Any document designated by the [Energy Bureau] as Validated Confidential Information because it is a trade secret under Act 80-2011 may only be accessed by the Producing Party and the [Energy Bureau], unless otherwise set forth by the [Energy Bureau] or any competent court.
2. 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).

11. 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**

12. The FEMA approval with CEII included in **Exhibit 1** contains portions of CEII that, under relevant federal law and regulations, are protected from public disclosure. LUMA stresses that the FEMA approval with CEII warrants 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. In several proceedings, this Energy Bureau has considered and granted requests by PREPA to submit CEII under seal of confidentiality.<sup>5</sup> In at least two proceedings on Data Security,<sup>6</sup> and Physical Security,<sup>7</sup> this Energy Bureau, *motu proprio*, has conducted proceedings confidentially, thereby recognizing the need to protect CEII from public disclosure.

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<sup>5</sup> *See e.g., In re Review of LUMA’s System Operation Principles*, NEPR-MI-2021-0001 (Resolution and Order of May 3, 2021); *In re Review of the Puerto Rico Power Authority’s System Remediation Plan*, NEPR-MI-2020-0019 (order of April 23, 2021); *In re Review of LUMA’s Initial Budgets*, NEPR-MI-2021-0004 (order of April 21, 2021); *In re Implementation of Puerto Rico Electric Power Authority Integrated Resource Plan and Modified Action Plan*, NEPR MI 2020-0012 (Resolution of January 7, 2021, granting partial confidential designation of information submitted by PREPA as CEII); *In re Optimization Proceeding of Minigrad Transmission and Distribution Investments*, NEPR-MI 2020-0016 (where PREPA filed documents under seal of confidentiality invoking, among others, that a filing included confidential information and CEII); *In re Review of the Puerto Rico Electric Power Authority Integrated Resource Plan*, CEPR-AP-2018-0001 (Resolution and Order of July 3, 2019 granting confidential designated and request made by PREPA that included trade secrets and CEII. However, *see* Resolution and Order of February 12, 2021, reversing in part, grant of confidential designation).

<sup>6</sup> *In re Review of the Puerto Rico Electric Power Authority Data Security Plan*, NEPR-MI-2020-0017.

<sup>7</sup> *In re Review of the Puerto Rico Electric Power Authority Physical Security Plan*, NEPR-MI-2020-0018.

13. Additionally, this Energy Bureau has granted requests by LUMA to protect CEII in connection with LUMA's System Operation Principles. *See* Resolution and Order of May 3, 2021, table 2 on page 4, Case No. NEPR-MI-2021-0001 (granting protection to CEII included in LUMA's Responses to Requests for Information). Similarly, in the proceedings on LUMA's proposed Initial Budgets and System Remediation Plan, this Energy Bureau granted confidential designation to several portions of LUMA's Initial Budgets and Responses to Requests for Information. *See* Resolution and Order of April 22, 2021, on Initial Budgets, table 2 on pages 3-4, and Resolution and Order of April 22, 2021, on Responses to Requests for Information, table 2 on pages 8-10, Case No. NEPR-MI-2021-0004; Resolution and Order of April 23, 2021, on Confidential Designation of Portions of LUMA's System Remediation Plan, table 2 on page 5, and Resolution and Order of May 6, 2021, on Confidential Designation of Portions of LUMA's Responses to Requests for Information on System Remediation Plan, table 2 at pages 7-9, Case No. NEPR-MI-2020-0019.

14. 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.

15. Generally, CEII or critical infrastructure information is exempted from public disclosure because it involves assets and information which 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.*

16. 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.*

17. 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>8</sup>

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<sup>8</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



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>9</sup>

18. The FEMA approval with CEII in **Exhibit 1** qualifies as CEII because each of these documents contains the express coordinates to power transmission and distribution facilities (18 C.F.R. § 388.113(iv)), and these specific coordinates could potentially be helpful to a person planning an attack on the energy facilities listed as part of this FEMA approval. The information identified as confidential in this paragraph is not common knowledge and is not made publicly available. Therefore, it is respectfully submitted that, on balance, the public interest in protecting CEII weighs in favor of protecting the relevant portions of the FEMA approval with CEII in

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- (II) to the Comptroller General, or any authorized representative of the Comptroller General, in the course of the performance of the duties of the Government Accountability Office
- (E) shall not, be provided to a State or local government or government agency; of information or records;
- (i) be made available pursuant to any State or local law requiring disclosure of information or records;
- (ii) otherwise be disclosed or distributed to any party by said State or local government or government agency without the written consent of the person or entity submitting such information; or
- (iii) be used other than for the purpose of protecting critical Infrastructure or protected systems, or in furtherance of an investigation or the prosecution of a criminal act.
- (F) does not constitute a waiver of any applicable privilege or protection provided under law, such as trade secret protection.

<sup>9</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.

**Exhibit 1** from disclosure, given the nature and scope of the details included in those portions of the Exhibit.

19. Based on the above, LUMA respectfully submits that the FEMA approval with CEII should be designated as CEII. This designation is a reasonable and necessary measure to protect the specific location of the energy facilities listed or discussed in this FEMA approval 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**

20. 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 that FEMA approval 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 Substation Minor Repairs - Group B (Substation) | Pages 1, 2, 3, 6, 8, 11, 14, 17, 19, 22, 24, 27, 34, 35, 36, and 37    | Critical Energy Infrastructure Information, 18 C.F.R. § 388.113; 6 U.S.C. §§ 671-674. | July 14, 2023     |

**WHEREFORE**, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned; **accept** the copy of the FEMA approval 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 the attorney for PREPA, Joannely Marrero-Cruz, [jmarrero@diazvaz.law](mailto:jmarrero@diazvaz.law).

In San Juan, Puerto Rico, on this 14<sup>th</sup> day of July 2023.



**DLA Piper (Puerto Rico) LLC**  
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*/s/ Yahaira De la Rosa Algarín*  
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*Exhibit 1*

*FEMA Approval*

## Department of Homeland Security Federal Emergency Management Agency

### General Info

|                                 |  |                            |  |                     |                    |
|---------------------------------|--|----------------------------|--|---------------------|--------------------|
| <b>Project #</b>                | 542758   | <b>PW #</b>                | 11385                                      | <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 Substation Minor Repairs -Group B (Substation) |                            |  | <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 #918154; FAASt Factor Sectionalizer 8011, 8014 (Substations)

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:** Factor Sectionalizer 8011, 8014 (Substations)
- **Facility Description:** The substation are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The 8011 substation 4.16Kv has a capacity of 7.50/10.50 MVA with 4 feeders and the 8014 substation 13.2 kv has a capacity of 12.00/22/40 MVA with 4 feeders.
- **Approx. Year Built:** 1970
- **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

#### Damage #918155; FAASt Isabela Pueblo Substation 7503 (Substations)

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:** Isabela Pueblo Substation 7503
- **Facility Description:** The substation are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The 7503 substation 4.16Kv has a capacity of 7.50/11.30 MVA with 5 feeders
- **Approx. Year Built:** 1970
- **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

#### Damage #918158; FAASt Jayuya Substation 8301 (Substations)

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:** Jayuya Substation 8301
- **Facility Description:** The substation are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The 8301 substation 4.16Kv has a capacity of 7.50/10.50 MVA with 5 feeders
- **Approx. Year Built:** 1970
- **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

#### Damage #918162; FAASt Morovis Substation 8801 (Subsatations)

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:** Morovis Substation 8801
- **Facility Description:** The substation are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The 8801 substation 8.32Kv has a capacity of 10.80/14.00 MVA with 1 feeder.
- **Approx. Year Built:** 1970
- **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

#### Damage #918163; FAASt Quebradillas Substation 7402 (Sustations)

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:** Quebradillas Substation 7402
- **Facility Description:** The substation are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The 7402 substation 4.16Kv has a capacity of 7.50/11.30 MVA with 5 feeders.
- **Approx. Year Built:** 1970
- **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

## 918154 FAASt Factor Sectionalizer 8011, 80

### Introduction

The purpose of this document is to submit for approval the Detailed Scope of Work (SOW) to COR3 and FEMA for Substation Minor Repair Group B under DR-4339-PR Public Assistance. The document provides a description of the project including scope, schedule, and cost estimates as well as Environmental & Historic Preservation ("EHP") requirements and proposed 406 hazard mitigation work. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair the substations submitted as part of the Substation Minor Repair Group B (Arecibo Region). This project is part of the Substation Minor Repair Program which has been broken down by regions.

LUMA submits this Detailed SOW pursuant to the T&D O&M Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A") and LUMA Energy, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A and provided herein as Appendix A which collectively provides the necessary consent for LUMA Energy, as the agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.

### Facilities

Island wide substations experienced substantial damage due to Hurricane Maria in September 2017. This project is part of the Substation Minor Repair Program which will be impacting multiple assets through numerous municipalities. Similar documentation will be submitted for each respective program groups. The purpose of this project is to repair damages, mitigate flooding issues and harden the substation to improve the reliability and resiliency of the Puerto Rico electrical grid.

This project includes the following Group B substation located in the Arecibo region:

| Name              | Substation Number | Physical Address           | GPS Coordinate | Date of Construction |
|-------------------|-------------------|----------------------------|----------------|----------------------|
| Factor Substation | 8011, 8014        | CARR 2, KM 65.0<br>ARECIBO | [REDACTED]     | April 1984           |

### Project Scope of Work

Substation:

Factor Substation 8011, 8014

Proposed 428 Public Assistance Scope of Work:

- Remove debris from the site and buildings, including damaged fencing, windows, doors, and other items as site preparation measure for construction works. Vegetative debris to be removed extend along the east side, 150 ft long x 3 ft wide x 3 ft height, and to the south side, 50 ft long x 3 ft wide x 3 ft height, of the existing perimeter
- Apply safety yellow painting for structure foundations, driveways, and sidewalks.
- Design and construct a secondary containment to comply with Spill Prevention Control and Countermeasure (SPCC) for the 8011 and 8014 transformers on site.
- Install new safety signage around the substation site.
  
- Install approximately 505 ft of perimeter fence and gates.
  
- Perform control building repairs:
  - i. Paint control room including roof treatment cement plaster for ceiling where water damage is presented.
  - ii. Replace doors and windows.

- iii. Install smoke detector, exhaust fan equipment, epoxy floor paint and fire extinguisher for the battery room.
- iv. Replace interior and exterior building lighting fixtures.
- v. Repair bathroom including replacement of toilet, sink, and plumbing.
- o Paint existing aluminum louvers
- o Install 1ea control room interior single doors with 90 minutes fire rated
- o Install 1ea new control house exterior double door (6ft x 7ft) 90-minutes fire-proof.
- o Install 3ea new control house exterior single doors (3ft x 7ft) 90-minutes fire-proof.
- o Replace eyewash and shower station.
- o Install new exterior security lights.
- o Repair substation driveway.
- o Install new manhole covers.
- o Perform an integrity test on grounding connections and perform electrical soil resistivity measurements to analyze the existing grid layout using CDEGS software.
- o Install within substation footprint new closed-circuit television (CCTV) system, including 8ea cameras, with their respective poles, allowing real-time site monitoring to evaluate critical substation integrity during and after a major event. This measure reduces public safety concerns, potential electric system downtime and improves resiliency. It also will prevent outages caused by possible physical security breaches
  - o Conduits for closed-circuit television (CCTV) system will be installed to a maximum depth of 42" below final grade from the control room to each pole with CCTV for power and communication.
- o Remove existing gravel, regrade terrain to ensure proper drainage, and replace gravel within substation.
  - o Replace one 125VDC battery bank and associated equipment.
  - o Replace one 48VDC battery bank and associated equipment.

Proposed 406 Hazard Mitigation Grant Program Scope of Work: (Please refer to Hazard Mitigation Section)

#### Structure Age

- Factor Substation 8011 (38/4.16kV), was built in April 1984. Along the time major apparatus were installed within the existing substation footprint considered as system improvements:
  - ? Factor 8014 (38/13.2kV) built on September 2009

#### Debris Removal

- The type of debris that may be found in the process of demolition are batteries, battery charges, concrete, metal scrap, domestic waste, wood, etc. The debris will be separated and taken to an approved waste disposal facility per LUMA Waste Management Plan.

#### Staging Area

- The main staging area will be located inside the premises of the substation and will serve as an assembly point for all the materials to be installed. See Appendix H

#### Equipment to be used.

- Skid Steer, Excavator, Dump trucks, Manlifts, Boom Trucks 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, Flatbed platform, portable generators, and gas small tools.
- All equipment used will comply with Tier 4 EPA Emission Standards, if available

#### Fill, gravel, sand, etc.

- Fill, Gravel, and Sand materials will be obtained from an approved supplier as referenced in Appendix M.

#### Hazardous Material:



- The identified hazardous materials that can be found in the substation are asbestos and lead. If the presence of asbestos and lead is confirmed in the structures to be demolished, LUMA will follow all permits protocols required by law to properly remove and dispose of the hazardous materials from the premises.
- Material amounts will be provided by a certified management contractor performing a site evaluation calculation for asbestos and lead paint.

Ground disturbance:

- All project construction activities will take place within the existing substation boundary that has been previously disturbed 30” below the surface for construction of the existing substation ground grid.

Specific List of Permits Required

- Municipalities Endorsement
- Department of Transportation and Public Works Agency (DTOP) Endorsement
- Department of Transportation and Public Works Agency – (DTOP)- Excavation and Demolition Notification
- Erosion Control and Sedimentation Prevention Plan (Plan CES) - EQB / DNR (if exceed 40 cubic meters in an area of more than 900 meters)
- Asbestos Certification
- Lead Certification
- Waste Disposal Permit
- Spill Prevention Countermeasure Control Plan (SPCC)

For detailed information, please refer to APPENDIX C – Factor Substation Engineering & Asset Management-Site Report and APPENDIX B Class III Estimate.

**Project Estimate**

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the below table. The cost estimate was developed utilizing preliminary site detail assessment using LUMA engineering department and may be subject to change. LUMA has identified risks and allowances for the mitigation of potential known risks.

| COST ESTIMATE                                |            |           |            |
|--|------------|-----------|------------|
| Minor Repair Group B - Factor                | 428        | 406       | Total      |
| PLANNING (FAASt 335168)                      | \$ 26,904  | \$ -      | \$ 26,904  |
| ENGINEERING SERVICES & DESIGN (FAASt 335168) | \$ 74,918  | \$ 8,385  | \$ 83,303  |
| MANAGEMENT (FAASt 335168)                    | \$ 45,245  | \$ 5,064  | \$ 50,309  |
| SUBSTATION                                   | \$ 499,451 | \$ 55,901 | \$ 555,352 |
| GENERAL CONDITIONS                           | \$ 63,156  | \$ 7,069  | \$ 70,225  |
| CONTINGENCY                                  | \$ 41,880  | \$ 4,687  | \$ 46,568  |
| TOTAL PROJECT COST ESTIMATE                  | \$ 751,554 | \$ 81,106 | \$ 832,660 |
| FAASt Factor Total                           | \$ 604,487 | \$ 67,657 | \$ 672,144 |

|                        |         |        |         |
|------------------------|---------|--------|---------|
| FAASt Factor A&E Total | \$      | \$     | \$      |
|                        | 147,067 | 13,449 | 160,516 |

**Work To Be Completed (WTBC): \$751,554**

**A&E Deduction (Global A&E FAASt 335168) - \$147,067**

**Project Total Cost: \$751,554 - \$147,067 (Global A&E FAASt 335168) = \$604,487**

**Project Total Cost (All Dis): \$2,973,035**

1. Refer to the SOW provided in document named: 542758-DR4339PR- 0 FEMA DSOW Group B Minor Repairs (43001-CP-SOW-0012\_Rev5) (2023-05-03) - signed.pdf
2. For EHP Requirements, refer to pages 8 to 9 of the detailed SOW and reference documents: 178503-DR4339PR- Detail SOW-Aguirre TC - BKRS - (10104-CP-SOW-0002\_Rev1).pdf.
3. For detailed cost estimate, please refer to document named: 542758-DR4339PR- Appendix B - LPCE Substation Minor Repair (Rev. 04-20-2023).xlsx
4. Architectural and Engineering (A&E) costs are deducted given previously obligated Global A&E Project for the subject FAASt PREPA work (see project: 335168 - FAASt A&E PREPA).

## 406 HMP Scope

**Project number:** 542758 FAASt Substation Minor Repairs -Group B (Substation)

**Damage #918154; FAASt Factor Substation [8011, 8014]**

**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 "loss of power" from Hurricane Maria. The incident caused damage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The FAASt Substation Minor Repairs -Group B (Substation) consists of five (5) facilities (sites) which are distributed as follows: Factor Substation [8011, 8014], Isabela Pueblo Substation [7503], Jayuya Substation [8301, 8302], Morovis Substation 8801, and Quebradillas Substation [7402, 7404].

The substation facilities minor repairs are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The minor repair practices include facilities security upgrades (locks, fencing upgrade, CCTV), repair drainage, grading, and restoration of gravel, repair and replace the grounding grid, replace broken perimeter fence and gates, clean, and paint control room, replace lights, doors, and windows of the control room, replace battery charger and batteries, replace leaning or broken poles, among others. According to the information provided by the Applicant, due to the high hurricane winds, wind-borne debris, and prolonged heavy rain was the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the sub-applicant is proposing as a mitigation measure, reduce the spacing of the chain-link fence posts from 10ft to 8ft, raise an additional 12" above grade for erosion control (and prevent the gravel from becoming contaminated with soil and/or dirt), strengthen the posts and fence foundation, replace the aluminum jalousie window by wind-resistant aluminum-louver windows, replace the exterior fire rated steel doors by 16ga. fire rated steel door, correct the roof slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing

system and water infiltration, install new back-up power generator to provide continuous power to the circuits breakers that allow PREPA to operate the system remotely in the event of a distribution line failure, and increase the strength of the CCTV (cameras) poles from 90mph to +160mph sustained winds material. The above mitigation measures will protect and make the affected elements more resistant to similar hazards.

**Hazard Mitigation Proposal (HMP) Scope of Work:**

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

Mitigation Measures *(Supplement)*

- Chain-link fence [8ft(H) plus barbed wire, 6 ga. 2" mesh, sch-40 1-5/8" top rail, 2.5" line post and 3" end post installed in a concrete footing (LUMA/PREPA Standard for Fencing)], instead of 10ft spacing between post, provide and install **(13ea)** new 2.5" x 11ft(H) sch-40 line post with barbed wire extension arm to reduce the spacing from 10ft to 8ft to increase the resistance against wind-borne debris, and high hurricane winds impacts and/or effects, **143LF**.

**Note:** To comply with LUMA/PREPA codes and standards, each alternate pole is required to be grounded to the existing substation grounding grid:

- Exothermic weld, 4/0 wire to 1" ground rod = **7EA**.
  - Pipe ground clamps, heavy duty, bronze, 1-1/4" to 2" diameter = **7EA**.
  - Pipe ground clamps, heavy duty, bronze, 2-1/2" to 3" diameter = **14EA**.
  - Crimp 2-way connectors, copper, or aluminum, 600 volt, #4 = **21EA**.
  - Ground wire, copper wire, bare stranded, #4 = **21LF**.
  - Ground wire, copper wire, bare stranded, 4/0 = **140LF**
- Chain-link fence foundation wall will be raised an additional 12" [**505ft(L) x 1ft(H) x 0.5ft(W)**] above grade for erosion control, strengthen the posts and fence foundation, and prevent the gravel from becoming contaminated with soil and/or dirt, **9.3CY**.
  - Install insulation roof fill for correction of low slope roof. This measure will correct the slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, **1,157SF**.
  - To avoid damage to the battery bank by the discharge drainage effect, the sub-applicant is proposing as a mitigation measure, the installation of a **(1ea)** new Standby Emergency Power Generator [30KW, 120/240V, aluminum enclosure, with an Automatic Transfer Switch (ATS)] that will provide continuous power to the circuits breakers that allow PREPA remotely operate the system in the event of a distribution line failure. This mitigation measures have the ability of recharge the batteries avoiding the battery discharge drainage effect and loss of function of the communication and control systems. **Note:** Prior to the purchase of the generator, the Applicant must consider that the substation is located less than a mile from the sea, so the exposed equipment and materials must be resilient to the environmental conditions.

Mitigation Measures *(Replacement)*

- Replace **(1ea)** control house exterior double door (6ft x 7ft) by 90-minutes fire-proof 16-gauge doors designed to reduce the wind-borne debris, wind driven rain, water intrusion and high hurricane winds impact and/or effects.
- Replace **(3ea)** control house exterior single doors (3ft x 7ft) by 90-minutes fire-proof 16-gauge doors designed to reduce the wind-borne debris, wind driven rain, water intrusion and high hurricane winds impact and/or effects.
- Replace **(8ea)** poles for closed-circuit television (CCTV) system. This measure will increase the strength of the poles by increasing the wind tolerance from 90mph to +160mph.

**CCTV System** - The installation of the cameras will help in the response phase. Hazard Mitigation funds are to eliminate, avoid or prevent a damage due to a natural hazard event such as hurricane winds, flooding, wind borne debris and others. HM funds are not intended for response improvement. Nevertheless, HM funds can be provided to harden the elements of the equipment installed through the recovery solution. At the meeting with the Applicant held on 7/12/22, it was agreed that the CCTV System (cameras) will be included in the 428 PA portion and not in 406 HM as initially proposed by the sub-applicant.

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

|   |                    |
|---|--------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =          | \$ 55,901.00       |
| + HM (Applicant A&E, Management & General Conditions) = | <u>\$25,205.00</u> |
| Hazard Mitigation Total Cost =                          | <b>\$81,106.00</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 applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects.". Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **\$81,106.00 (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).**

## 918155 **FAAST Isabela Pueblo Substation 7503 (Substations)**

### Introduction


The purpose of this document is to submit for approval the Detailed Scope of Work (SOW) to COR3 and FEMA for Substation Minor Repair Group B under DR-4339-PR Public Assistance. The document provides a description of the project including scope, schedule, and cost estimates as well as Environmental & Historic Preservation ("EHP") requirements and proposed 406 hazard mitigation work. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair the substations submitted as part of the Substation Minor Repair Group B (Arecibo Region). This project is part of the Substation Minor Repair Program which has been broken down by regions.

LUMA submits this Detailed SOW pursuant to the T&D O&M Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A") and LUMA Energy, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A and provided herein as Appendix A which collectively provides the necessary consent for LUMA Energy, as the agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.

### Facilities

Island wide substations experienced substantial damage due to Hurricane Maria in September 2017. This project is part of the Substation Minor Repair Program which will be impacting multiple assets through numerous municipalities. Similar documentation will be submitted for each respective program groups. The purpose of this project is to repair damages, mitigate flooding issues and harden the substation to improve the reliability and resiliency of the Puerto Rico electrical grid.

This project includes the following Group B substation located in the Arecibo region:

| Name           | Substation Number | Physical Address                   | GPS Coordinate   | Date of Construction |
|----------------|-------------------|------------------------------------|--|----------------------|
| Isabela Pueblo | 7503              | CARR 113 PASO NIVEL, KM 1, ISABELA |  | May 1968             |

## Project Scope of Work

Substation:

Isabela Pueblo Substation 7503:

Proposed 428 Public Assistance Scope of Work:

- Remove debris from the site and buildings, including damaged fencing, windows, doors, and other items as site preparation measure for construction works. Vegetative debris to be removed extend along the north side, 50 ft long x 3 ft wide x 3 ft height, and to the south side, 70 ft long x 3 ft wide x 3 ft height, of the existing perimeter
  - Apply safety yellow painting for structure foundations, driveways, and sidewalks
- Design and construct a secondary containment to comply with Spill Prevention Control and Countermeasure (SPCC) for the transformer on site.
  - Design and construct a transformer oil containment wall transformer on site.
  - Install new safety signage around the substation site.
  - Install approximately 624 ft of perimeter fence and gates.
  - Perform control building repairs:
    - i. Paint control room including roof treatment cement plaster for ceiling where water damage is presented.
    - ii. Replace doors and windows.
    - iii. Install smoke detector, exhaust fan equipment, epoxy floor paint and fire extinguisher for the battery room.
    - iv. Replace interior and exterior building lighting fixtures.
    - v. Repair bathroom including replacement of toilet, sink, and plumbing.
    - vi. Install new eyewash and shower station.
  - Install 7ea new aluminum jalousie windows (36" x 48").
  - Install 4ea new control house exterior single doors (3ft x 7ft) 90-minutes fire-proof
  - Install new exterior security lights.
  - Construct a driveway for the substation.
  - Construct a curb wall to prevent gravel loss and erosion.
- Perform an integrity test on grounding connections and perform electrical soil resistivity measurements to analyze the existing grid layout using CDEGS software.
- Install within substation footprint new closed-circuit television (CCTV) system, including 8ea cameras, with their respective poles, allowing real-time site monitoring to evaluate critical substation integrity during and after a major event. This measure reduces public safety concerns, potential electric system downtime and improves resiliency. It also will prevent outages caused by possible physical security breaches
  - Conduits for closed-circuit television (CCTV) system will be installed to a maximum depth of 42" below final grade from the control room to each pole with CCTV for power and communication.
- Remove existing gravel, regrade terrain to ensure good drainage, and replace gravel within substation.
  - Replace one 125VDC battery a bank and associated equipment

Proposed 406 Hazard Mitigation Grant Program Scope of Work: (Please refer to Hazard Mitigation Section)

### Structure Age

- Isabela Pueblo Substation 7503 (38/4.16kV) was built in May 1968. Over time no major apparatus was installed within the existing substation footprint.

### Debris Removal

- The type of debris that may be found in the process of demolition are batteries, battery charges, concrete, metal scrap,

domestic waste, wood, etc. The debris will be separated and taken to an approved waste disposal facility per LUMA Waste Management Plan

#### Staging Area

- The main staging area will be located inside the premises of the substation and will serve as an assembly point for all the materials to be installed. See Appendix I

#### Equipment to be used.

- Skid Steer, Excavator, Dump trucks, Manlifts, Boom Trucks 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, Flatbed platform, portable generators, and gas small tools.
- All equipment used will comply with Tier 4 EPA Emission Standards, if available

#### Fill, gravel, sand, etc.

- Fill, Gravel, and Sand materials will be obtained from an approved supplier as referenced in Appendix P.

#### Hazardous Material

- The identified hazardous materials that can be found in the substation are asbestos and lead. If the presence of asbestos and lead is confirmed in the structures to be demolished, LUMA will follow all permits protocols required by law to properly remove and dispose of the hazardous materials from the premises.
- Material amounts will be provided by a certified management contractor performing a site evaluation calculation for asbestos and lead paint.

#### Ground disturbance:

- All project construction activities will take place within the existing substation boundary that has been previously disturbed 30" below the surface for construction of the existing substation ground grid.

#### Specific List of Permits Required

- Municipalities Endorsement
- Department of Transportation and Public Works Agency (DTOP) Endorsement
- Department of Transportation and Public Works Agency – (DTOP)- Excavation and Demolition Notification
- Erosion Control and Sedimentation Prevention Plan (Plan CES) - EQB / DNR (if exceed 40 cubic meters in an area of more than 900 meters)
- Asbestos Certification
- Lead Certification
- Waste Disposal Permit
- Spill Prevention Countermeasure Control Plan (SPCC)

For detailed information, please refer to APPENDIX D – Isabela Pueblo Engineering & Asset Management-Site Report and APPENDIX B Class III Estimate

#### **Project Estimate**

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the below table. The cost estimate was developed utilizing preliminary site detail assessment using LUMA engineering department and may be subject to change. LUMA has identified risks and allowances for the mitigation of potential known risks.

| COST ESTIMATE                                |            |           |            |
|--|------------|-----------|------------|
| Minor Repair Group B - Isabela Pueblo        | 428        | 406       | Total      |
| PLANNING (FAASt 335168)                      | \$ 24,375  | \$ -      | \$ 24,375  |
| ENGINEERING SERVICES & DESIGN (FAASt 335168) | \$ 67,876  | \$ 9,720  | \$ 77,597  |
| MANAGEMENT (FAASt 335168)                    | \$ 40,993  | \$ 5,870  | \$ 46,863  |
| SUBSTATION                                   | \$ 452,510 | \$ 64,802 | \$ 517,312 |
| GENERAL CONDITIONS                           | \$ 57,220  | \$ 8,194  | \$ 65,415  |
| CONTINGENCY                                  | \$ 37,944  | \$ 5,434  | \$ 43,378  |
| TOTAL PROJECT COST ESTIMATE                  | \$ 680,919 | \$ 94,021 | \$ 774,939 |
| FAASt Isabela Pueblo Total                   | \$ 547,674 | \$ 78,430 | \$ 626,104 |
| FAASt Isabela Pueblo A&E Total               | \$ 133,245 | \$ 15,591 | \$ 148,835 |

**Work To Be Completed (WTBC): \$680,919**

**A&E Deduction (Global A&E FAASt 335168) - \$133,245**

**Project Total Cost: \$680,919 - \$133,245 (Global A&E FAASt 335168) = \$547,674**

## 406 HMP Scope

**Project number:** 542758 FAASt Substation Minor Repairs -Group B (Substation)

**Damage #918155; FAASt Isabela Pueblo Substation [7503]**

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

**Location:** Isabela, 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 "loss of power" from Hurricane Maria. The incident caused damage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained

by the Puerto Rico Electric Power Authority (PREPA).

The FAASt Substation Minor Repairs -Group B (Substation) consists of five (5) facilities (sites) which are distributed as follows: Factor Substation [8011, 8014], Isabela Pueblo Substation [7503], Jayuya Substation [8301, 8302], Morovis Substation 8801, and Quebradillas Substation [7402, 7404].

The substation facilities minor repairs are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The minor repair practices include facilities security upgrades (locks, fencing upgrade, CCTV), repair drainage, grading, and restoration of gravel, repair and replace the grounding grid, replace broken perimeter fence and gates, clean, and paint control room, replace lights, doors, and windows of the control room, replace battery charger and batteries, replace leaning or broken poles, among others. According to the information provided by the Applicant, due to the high hurricane winds, wind-borne debris, and prolonged heavy rain was the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the sub-applicant is proposing as a mitigation measure, reduce the spacing of the chain-link fence posts from 10ft to 8ft, raise an additional 12" above grade for erosion control (and prevent the gravel from becoming contaminated with soil and/or dirt), strengthen the posts and fence foundation, replace the aluminum jalousie window by wind-resistant aluminum-louver windows, replace the exterior fire rated steel doors by 16ga. fire rated steel door, correct the roof slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, install new back-up power generator to provide continuous power to the circuits breakers that allow PREPA to operate the system remotely in the event of a distribution line failure, and increase the strength of the CCTV (cameras) poles from 90mph to +160mph sustained winds material. The above mitigation measures will protect and make the affected elements more resistant to similar hazards.

#### **Hazard Mitigation Proposal (HMP) Scope of Work:**

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

##### **Mitigation Measures (*Supplement*)**

- Chain-link fence [8ft(H) plus barbed wire, 6 ga. 2" mesh, sch-40 1-5/8" top rail, 2.5" line post and 3" end post installed in a concrete footing (LUMA/PREPA Standard for Fencing)], instead of 10ft spacing between post, provide and install **(16ea)** new 2.5" x 11ft(H) sch-40 line post with barbed wire extension arm to reduce the spacing from 10ft to 8ft to increase the resistance against wind-borne debris, and high hurricane winds impacts and/or effects, **176LF**.

**Note:** To comply with LUMA/PREPA codes and standards, each alternate pole is required to be grounded to the existing substation grounding grid:

- Exothermic weld, 4/0 wire to 1" ground rod = **8EA**.
  - Pipe ground clamps, heavy duty, bronze, 1-1/4" to 2" diameter = **8EA**.
  - Pipe ground clamps, heavy duty, bronze, 2-1/2" to 3" diameter = **16EA**.
  - Crimp 2-way connectors, copper, or aluminum, 600 volt, #4 = **24EA**.
  - Ground wire, copper wire, bare stranded, #4 = **24LF**.
  - Ground wire, copper wire, bare stranded, 4/0 = **160LF**
- Chain-link fence foundation wall will be raised an additional 12" [**624ft(L) x 1ft(H) x 0.5ft(W)**] above grade for erosion control, strengthen the posts and fence foundation, and prevent the gravel from becoming contaminated with soil and/or dirt, **11.5CY**.
  - Install insulation roof fill for correction of low slope roof. This measure will correct the slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, **1,597SF**.
  - To avoid damage to the battery bank by the discharge drainage effect, the sub-applicant is proposing as a mitigation measure, the installation of a **(1ea)** new Standby Emergency Power Generator [30KW, 120/240V, aluminum enclosure, with an Automatic Transfer Switch (ATS)] that will provide continuous power to the circuits breakers that allow PREPA remotely operate the system in the event of a distribution line failure. This mitigation measures have the ability of recharge the batteries avoiding the battery discharge drainage effect and loss of function of the communication and control systems. **Note:** Prior to the purchase of the generator, the Applicant must consider that the substation is located less than a mile from the sea, so the exposed equipment and materials must be resilient to the environmental conditions.

##### **Mitigation Measures (*Replacement*)**

- Replace **(7ea)** aluminum jalousie windows (36" x 48") by wind-resistant aluminum-louver windows to reduce the wind-borne debris, wind driven rain and high hurricane winds impact and/or effects, **84SF**.
- Replace **(4ea)** control house exterior single doors (3ft x 7ft) by 90-minutes fire-proof 16-gauge doors designed to reduce the wind-borne debris, wind driven rain, water intrusion and high hurricane winds impact and/or effects.
- Replace **(8ea)** poles for closed-circuit television (CCTV) system. This measure will increase the strength of the poles by increasing the wind tolerance from 90mph to +160mph.



**CCTV System** - The installation of the cameras will help in the response phase. Hazard Mitigation funds are to eliminate, avoid or prevent a damage due to a natural hazard event such as hurricane winds, flooding, wind borne debris and others. HM funds are not intended for response improvement. Nevertheless, HM funds can be provided to harden the elements of the equipment installed through the recovery solution. At the meeting with the Applicant held on 7/12/22, it was agreed that the CCTV System (cameras) will be included in the 428 PA portion and not in 406 HM as initially proposed by the sub-applicant.

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

|   |                    |
|---|--------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =          | \$64,802.00        |
| + HM (Applicant A&E, Management & General Conditions) = | <u>\$29,219.00</u> |
| Hazard Mitigation Total Cost =                          | <b>\$94,021.00</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 applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects." Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **\$94,021.00 (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).**

**918158 FAASt Jayuya Substation 8301 (Substations)**

**Introduction**


The purpose of this document is to submit for approval the Detailed Scope of Work (SOW) to COR3 and FEMA for Substation Minor Repair Group B under DR-4339-PR Public Assistance. The document provides a description of the project including scope, schedule, and cost estimates as well as Environmental & Historic Preservation ("EHP") requirements and proposed 406 hazard mitigation work. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair the substations submitted as part of the Substation Minor Repair Group B (Arecibo Region). This project is part of the Substation Minor Repair Program which has been broken down by regions.

LUMA submits this Detailed SOW pursuant to the T&D O&M Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A") and LUMA Energy, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A and provided herein as Appendix A which collectively provides the necessary consent for LUMA Energy, as the agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.

## Facilities

Island wide substations experienced substantial damage due to Hurricane Maria in September 2017. This project is part of the Substation Minor Repair Program which will be impacting multiple assets through numerous municipalities. Similar documentation will be submitted for each respective program groups. The purpose of this project is to repair damages, mitigate flooding issues and harden the substation to improve the reliability and resiliency of the Puerto Rico electrical grid.

This project includes the following Group B substation located in the Arecibo region:

| Name              | Substation Number | Physical Address                             | GPS Coordinate   | Date of Construction |
|-------------------|-------------------|--|--|----------------------|
| Jayuya Substation | 8301, 8302        | CARR 144, KM 19.0<br>JAYUYA ABAJO,<br>JAYUYA |  | June 1965            |

## Project Scope of Work

Substation:

Jayuya Substation 8301, 8302

Proposed 428 Public Assistance Scope of Work:

- Remove debris from the site and buildings, including damaged fencing, windows, doors, and other items as site preparation measure for construction works. Vegetative debris to be removed extend along the north side, 135 ft long x 3 ft wide x 3 ft height, and to the east side, 125 ft long x 3 ft wide x 3 ft height, of the existing perimeter
  - Apply safety yellow painting for structure foundations, driveways, and sidewalks.
- Design and construct a secondary containment to comply with Spill Prevention Control and Countermeasure (SPCC) for the 8301 and 8302 transformers on site.
  - Install new safety signage around the substation site.
  - Install approximately 714 ft of perimeter fence and gates.
  - Perform control building repairs:
    - i. Paint control room including roof treatment cement plaster for ceiling where water damage is presented.
    - ii. Replace doors and windows.
    - iii. Install smoke detector, exhaust fan equipment, epoxy floor paint and fire extinguisher for the battery room.
    - iv. Replace interior and exterior building lighting fixtures.
    - v. Repair bathroom including replacement of toilet, sink, and plumbing.
    - vi. Replace eyewash and shower station.
  - Install 3ea new aluminum jalousie windows (36" x 48").
  - Install 2ea new control house exterior single doors (3ft x 7ft) 90-minutes fire-proof
  - Install new exterior and interior security lights.
  - Construct a driveway for the substation.
  - Construct a curb wall to prevent gravel loss and erosion.
  - Install new manhole covers.
  - Repair 2 leaned distribution/transmission poles around the substation yard.
  - Perform an integrity test on grounding connections and perform electrical soil resistivity measurements to analyze the existing grid layout using CDEGS software.
- Install within substation footprint new closed-circuit television (CCTV) system, including 8ea cameras, with their

respective poles, allowing real-time site monitoring to evaluate critical substation integrity during and after a major event. This measure reduces public safety concerns, potential electric system downtime and improves resiliency. It also will prevent outages caused by possible physical security breaches

- Conduits for closed-circuit television (CCTV) system will be installed to a maximum depth of 42" below final grade from the control room to each pole with CCTV for power and communication.
- Remove existing gravel, regrade terrain to ensure good drainage, and replace gravel within substation.
- Replace one 48VDC battery bank and associated equipment.

Proposed 406 Hazard Mitigation Grant Program Scope of Work: (Please refer to Hazard Mitigation Section)

#### Structure Age

- Jayuya Substation 8301/8302 (115/4.16kV) was built in June 1975. Over time no major apparatus was installed within the existing substation footprint.

#### Debris Removal

- The type of debris that may be found in the process of demolition are batteries, battery charges, concrete, metal scrap, domestic waste, wood, etc. The debris will be separated and taken to an approved waste disposal facility per LUMA Waste Management Plan.

#### Staging Area

- The main staging area will be located inside the premises of the substation and will serve as an assembly point for all the materials to be installed. See Appendix J

#### Equipment to be used.

- Skid Steer, Excavator, Dump trucks, Manlifts, Boom Trucks 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, Flatbed platform, portable generators, and gas small tools.
- All equipment used will comply with Tier 4 EPA Emission Standards, if available

#### Fill, gravel, sand, etc.

- Fill, Gravel, and Sand materials will be obtained from an approved supplier as referenced in Appendix P.

#### Hazardous Material:

- The identified hazardous materials that can be found in the substation are asbestos and lead. If the presence of asbestos and lead is confirmed in the structures to be demolished, LUMA will follow all permits protocols required by law to properly remove and dispose of the hazardous materials from the premises.
- Material amounts will be provided by a certified management contractor performing a site evaluation calculation for asbestos and lead paint.

#### Ground disturbance:

- All project construction activities will take place within the existing substation boundary that has been previously disturbed 30" below the surface for construction of the existing substation ground grid.

#### Specific List of Permits Required

- Municipalities Endorsement
- Department of Transportation and Public Works Agency (DTOP) Endorsement
- Department of Transportation and Public Works Agency – (DTOP)- Excavation and Demolition Notification
- Erosion Control and Sedimentation Prevention Plan (Plan CES) - EQB / DNR (if exceed 40 cubic meters in an area of

more than 900 meters)

- Asbestos Certification
- Lead Certification
- Waste Disposal Permit
- Spill Prevention Countermeasure Control Plan (SPCC)
- Regulation 13 Permit

For detailed information, please refer to APPENDIX E – Jayuya Substation Engineering & Asset Management-Site Report and APPENDIX B Class III Estimate

### Project Estimate

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the below table. The cost estimate was developed utilizing preliminary site detail assessment using LUMA engineering department and may be subject to change. LUMA has identified risks and allowances for the mitigation of potential known risks.

| COST ESTIMATE                                |            |           |            |
|--|------------|-----------|------------|
| Minor Repair Group B - Jayuya                | 428        | 406       | Total      |
| PLANNING (FAASt 335168)                      | \$ 29,002  | \$ -      | \$ 29,002  |
| ENGINEERING SERVICES & DESIGN (FAASt 335168) | \$ 80,760  | \$ 9,227  | \$ 89,986  |
| MANAGEMENT (FAASt 335168)                    | \$ 48,774  | \$ 5,572  | \$ 54,346  |
| SUBSTATION                                   | \$ 538,398 | \$ 61,511 | \$ 599,909 |
| GENERAL CONDITIONS                           | \$ 68,081  | \$ 7,778  | \$ 75,859  |
| CONTINGENCY                                  | \$ 45,146  | \$ 5,158  | \$ 50,304  |
| TOTAL PROJECT COST ESTIMATE                  | \$ 810,161 | \$ 89,245 | \$ 899,406 |
| FAASt Jayuya Total                           | \$ 651,626 | \$ 74,447 | \$ 726,072 |
| FAASt Jayuya A&E Total                       | \$ 158,535 | \$ 14,799 | \$ 173,334 |

Work To Be Completed (WTBC): \$ 810,161

A&E Deduction (Global A&E FAASt 335168) - \$158,535

Project Total Cost: \$ 810,161 - \$158,535 (Global A&E FAASt 335168) = \$651,626

### 406 HMP Scope

Project number: 542758 FAASt Substation Minor Repairs -Group B (Substation)

Damage #918158; FAASt Jayuya Substation [8301, 8302]

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

**Location:** Jayuya, 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 "loss of power" from Hurricane Maria. The incident caused damage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The FAASt Substation Minor Repairs -Group B (Substation) consists of five (5) facilities (sites) which are distributed as follows: Factor Substation [8011, 8014], Isabela Pueblo Substation [7503], Jayuya Substation [8301, 8302], Morovis Substation 8801, and Quebradillas Substation [7402, 7404].

The substation facilities minor repairs are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The minor repair practices include facilities security upgrades (locks, fencing upgrade, CCTV), repair drainage, grading, and restoration of gravel, repair and replace the grounding grid, replace broken perimeter fence and gates, clean, and paint control room, replace lights, doors, and windows of the control room, replace battery charger and batteries, replace leaning or broken poles, among others. According to the information provided by the Applicant, due to the high hurricane winds, wind-borne debris, and prolonged heavy rain was the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the sub-applicant is proposing as a mitigation measure, reduce the spacing of the chain-link fence posts from 10ft to 8ft, raise an additional 12" above grade for erosion control (and prevent the gravel from becoming contaminated with soil and/or dirt), strengthen the posts and fence foundation, replace the aluminum jalousie window by wind-resistant aluminum-louver windows, replace the exterior fire rated steel doors by 16ga. fire rated steel door, correct the roof slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, install new back-up power generator to provide continuous power to the circuits breakers that allow PREPA to operate the system remotely in the event of a distribution line failure, and increase the strength of the CCTV (cameras) poles from 90mph to +160mph sustained winds material. The above mitigation measures will protect and make the affected elements more resistant to similar hazards.

### Hazard Mitigation Proposal (HMP) Scope of Work:

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

#### Mitigation Measures (*Supplement*)

- Chain-link fence [8ft(H) plus barbed wire, 6 ga. 2" mesh, sch-40 1-5/8" top rail, 2.5" line post and 3" end post installed in a concrete footing (LUMA/PREPA Standard for Fencing)], instead of 10ft spacing between post, provide and install **(18ea)** new 2.5" x 11ft(H) sch-40 line post with barbed wire extension arm to reduce the spacing from 10ft to 8ft to increase the resistance against wind-borne debris, and high hurricane winds impacts and/or effects, **198LF**.

**Note:** To comply with LUMA/PREPA codes and standards, each alternate pole is required to be grounded to the existing substation grounding grid:

- Exothermic weld, 4/0 wire to 1" ground rod = **9EA**.
  - Pipe ground clamps, heavy duty, bronze, 1-1/4" to 2" diameter = **9EA**.
  - Pipe ground clamps, heavy duty, bronze, 2-1/2" to 3" diameter = **18EA**.
  - Crimp 2-way connectors, copper, or aluminum, 600 volt, #4 = **27EA**.
  - Ground wire, copper wire, bare stranded, #4 = **27LF**.
  - Ground wire, copper wire, bare stranded, 4/0 = **180LF**
- Chain-link fence foundation wall will be raised an additional 12" [**714ft(L) x 1ft(H) x 0.5ft(W)**] above grade for erosion control, strengthen the posts and fence foundation, and prevent the gravel from becoming contaminated with soil and/or dirt, **13.2CY**.
  - Install insulation roof fill for correction of low slope roof. This measure will correct the slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, **405SF**.
  - To avoid damage to the battery bank by the discharge drainage effect, the sub-applicant is proposing as a mitigation measure, the installation of a **(1ea)** new Standby Emergency Power Generator [30KW, 120/240V, aluminum enclosure, with an Automatic Transfer Switch (ATS)] that will provide continuous power to the circuits breakers that allow PREPA remotely operate the system in the event of a distribution line failure. This mitigation measures have the ability of recharge the batteries avoiding the battery discharge drainage effect and loss of function of the communication and control systems. **Note:** Prior to the purchase of the generator, the Applicant must consider that the substation is located less than a mile from the sea, so the exposed

equipment and materials must be resilient to the environmental conditions.

Mitigation Measures (Replacement)

- Replace (3ea) aluminum jalousie windows (36" x 48") by wind-resistant aluminum-louver windows to reduce the wind-borne debris, wind driven rain and high hurricane winds impact and/or effects, 36SF.
- Replace (2ea) control house exterior single doors (3ft x 7ft) by 90-minutes fire-proof 16-gauge doors designed to reduce the wind-borne debris, wind driven rain, water intrusion and high hurricane winds impact and/or effects.
- Replace (8ea) poles for closed-circuit television (CCTV) system. This measure will increase the strength of the poles by increasing the wind tolerance from 90mph to +160mph.

**CCTV System** - The installation of the cameras will help in the response phase. Hazard Mitigation funds are to eliminate, avoid or prevent a damage due to a natural hazard event such as hurricane winds, flooding, wind borne debris and others. HM funds are not intended for response improvement. Nevertheless, HM funds can be provided to harden the elements of the equipment installed through the recovery solution. At the meeting with the Applicant held on 7/12/22, it was agreed that the CCTV System (cameras) will be included in the 428 PA portion and not in 406 HM as initially proposed by the sub-applicant.

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

|   |                    |
|---|--------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =          | \$761,511.00       |
| + HM (Applicant A&E, Management & General Conditions) = | <u>\$27,734.00</u> |
| Hazard Mitigation Total Cost =                          | <b>\$89,245.00</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 applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects." Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **\$89,245.00 (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).**

**918162 FAASt Morovis Substation 8801 (Substations)**

**Introduction**

The purpose of this document is to submit for approval the Detailed Scope of Work (SOW) to COR3 and FEMA for Substation Minor Repair Group B under DR-4339-PR Public Assistance. The document provides a description of the project including

scope, schedule, and cost estimates as well as Environmental & Historic Preservation ("EHP") requirements and proposed 406 hazard mitigation work. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair the substations submitted as part of the Substation Minor Repair Group B (Arecibo Region). This project is part of the Substation Minor Repair Program which has been broken down by regions.

LUMA submits this Detailed SOW pursuant to the T&D O&M Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A") and LUMA Energy, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A and provided herein as Appendix A which collectively provides the necessary consent for LUMA Energy, as the agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.

**Facilities**

Island wide substations experienced substantial damage due to Hurricane Maria in September 2017. This project is part of the Substation Minor Repair Program which will be impacting multiple assets through numerous municipalities. Similar documentation will be submitted for each respective program groups. The purpose of this project is to repair damages, mitigate flooding issues and harden the substation to improve the reliability and resiliency of the Puerto Rico electrical grid.

This project includes the following Group B substation located in the Arecibo region:

| Name               | Substation Number | Physical Address                    | GPS Coordinate | Date of Construction |
|--------------------|-------------------|-------------------------------------|----------------|----------------------|
| Morovis Substation | 8801              | CARR 155, KM 12.3 (URBANO), MOROVIS | [REDACTED]     | April 1990           |

**Project Scope of Work**

Substation:

Morovis Substation 8801:

Proposed 428 Public Assistance Scope of Work:

- o Remove debris from the site and buildings, including damaged fencing, windows, doors, and other items as site preparation measure for construction works. No vegetative debris is to be removed outside existing perimeter.
  - o Apply safety yellow painting for structure foundations, driveways, and sidewalks.
- o Design and construct a secondary containment to comply with Spill Prevention Control and Countermeasure (SPCC) for the transformer on site.
  - o Install new safety signage around the substation site.
  - o Install approximately 553 ft of perimeter fence and gates.
  - o Perform control building repairs:
    - i. Paint control room including roof treatment cement plaster for ceiling where water damage is presented.
    - ii. Replace doors and windows.
    - iii. Install smoke detector, exhaust fan equipment, epoxy floor paint and fire extinguisher for the battery room.
    - iv. Replace interior and exterior building lighting fixtures.
    - v. Repair bathroom including replacement of toilet, sink, and plumbing.

- vi. Replace eyewash and shower station.
- o Install 1ea control room interior single doors with 90 minutes fire rated
- o Install 6ea new aluminum jalousie windows (36" x 48").
- o Install 3ea new control house exterior single doors (3ft x 7ft) 90-minutes fire-proof
- o Install new exterior security lights.
- o Repair substation driveway.
- o Construct a curb wall to prevent gravel loss and erosion.
- o Install new drainage system for the substation site.
- o Perform an integrity test on grounding connections and perform electrical soil resistivity measurements to analyze the existing grid layout using CDEGS software.
- o Install within substation footprint new closed-circuit television (CCTV) system, including 8ea cameras, with their respective poles, allowing real-time site monitoring to evaluate critical substation integrity during and after a major event. This measure reduces public safety concerns, potential electric system downtime and improves resiliency. It also will prevent outages caused by possible physical security breaches
  - o Conduits for closed-circuit television (CCTV) system will be installed to a maximum depth of 42" below final grade from the control room to each pole with CCTV for power and communication.
- o Remove existing gravel, regrade terrain to ensure good drainage, and replace gravel within substation.
  - o Replace one 48VDC battery bank and associated.

Proposed 406 Hazard Mitigation Grant Program Scope of Work: (Please refer to Hazard Mitigation Section)

#### Structure Age

- o Morovis Substation 8801 (115/8.32kV) was built in April 1990. Over time no major apparatus was installed within the existing substation footprint.

#### Debris Removal

- The type of debris that may be found in the process of demolition are batteries, battery charges, concrete, metal scrap, domestic waste, wood, etc. The debris will be separated and taken to an approved waste disposal facility per LUMA Waste Management Plan.

#### Staging Area

- The main staging area will be located inside the premises of the substation and will serve as an assembly point for all the materials to be installed. See Appendix K

#### Equipment to be used.

- Skid Steer, Excavator, Dump trucks, Manlifts, Boom Trucks 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, Flatbed platform, portable generators, and gas small tools.
- All equipment used will comply with Tier 4 EPA Emission Standards, if available

#### Fill, gravel, sand, etc.

- Fill, Gravel, and Sand materials will be obtained from an approved supplier as referenced in Appendix P.



Hazardous Material:

- The identified hazardous materials that can be found in the substation are asbestos and lead. If the presence of asbestos and lead is confirmed in the structures to be demolished, LUMA will follow all permits protocols required by law to properly remove and dispose of the hazardous materials from the premises.
- Material amounts will be provided by a certified management contractor performing a site evaluation calculation for asbestos and lead paint.

Ground disturbance:

- All project construction activities will take place within the existing substation boundary that has been previously disturbed 30" below the surface for construction of the existing substation ground grid.

Specific List of Permits Required

- Municipalities Endorsement
- Department of Transportation and Public Works Agency (DTOP) Endorsement
- Department of Transportation and Public Works Agency – (DTOP)- Excavation and Demolition Notification
- Erosion Control and Sedimentation Prevention Plan (Plan CES) - EQB / DNR (if exceed 40 cubic meters in an area of more than 900 meters)
- Asbestos Certification
- Lead Certification
- Waste Disposal Permit
  
- Spill Prevention Countermeasure Control Plan (SPCC)

For detailed information, please refer to APPENDIX F – Morovis Substation Engineering & Asset Management-Site Report and APPENDIX B Class III Estimate

**Project Estimate**

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the below table. The cost estimate was developed utilizing preliminary site detail assessment using LUMA engineering department and may be subject to change. LUMA has identified risks and allowances for the mitigation of potential known risks.

| COST ESTIMATE                                |            |           |            |
|--|------------|-----------|------------|
| Minor Repair Group B - Morovis               | 428        | 406       | Total      |
| PLANNING (FAASt 335168)                      | \$ 24,086  | \$ -      | \$ 24,086  |
| ENGINEERING SERVICES & DESIGN (FAASt 335168) | \$ 67,070  | \$ 9,090  | \$ 76,160  |
| MANAGEMENT (FAASt 335168)                    | \$ 40,506  | \$ 5,490  | \$ 45,996  |
| SUBSTATION                                   | \$ 447,136 | \$ 60,600 | \$ 507,736 |
| GENERAL CONDITIONS                           | \$ 56,541  | \$ 7,663  | \$ 64,204  |
| CONTINGENCY                                  | \$ 37,494  | \$ 5,081  | \$ 42,575  |
| TOTAL PROJECT COST ESTIMATE                  | \$ 672,833 | \$ 87,924 | \$ 760,757 |

|                         |               |              |               |
|-------------------------|---------------|--------------|---------------|
| FAASt Morovis Total     | \$<br>541,171 | \$<br>73,344 | \$<br>614,515 |
| FAASt Morovis A&E Total | \$<br>131,662 | \$<br>14,580 | \$<br>146,242 |

**Work To Be Completed (WTBC): \$672,833**

**A&E Deduction (Global A&E FAASt 335168) - \$131,662**

**Project Total Cost: \$672,833 - \$131,662 (Global A&E FAASt 335168) = \$541,171**

## 406 HMP Scope

Project number: 542758 FAASt Substation Minor Repairs -Group B (Substation)

Damage #918162; FAASt Morovis Substation [8801]

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

Location: Morovis, 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 "loss of power" from Hurricane Maria. The incident caused damage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained by the Puerto Rico Electric Power Authority (PREPA).

The FAASt Substation Minor Repairs -Group B (Substation) consists of five (5) facilities (sites) which are distributed as follows: Factor Substation [8011, 8014], Isabela Pueblo Substation [7503], Jayuya Substation [8301, 8302], Morovis Substation 8801, and Quebradillas Substation [7402, 7404].

The substation facilities minor repairs are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The minor repair practices include facilities security upgrades (locks, fencing upgrade, CCTV), repair drainage, grading, and restoration of gravel, repair and replace the grounding grid, replace broken perimeter fence and gates, clean, and paint control room, replace lights, doors, and windows of the control room, replace battery charger and batteries, replace leaning or broken poles, among others. According to the information provided by the Applicant, due to the high hurricane winds, wind-borne debris, and prolonged heavy rain was the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the sub-applicant is proposing as a mitigation measure, reduce the spacing of the chain-link fence posts from 10ft to 8ft, raise an additional 12" above grade for erosion control (and prevent the gravel from becoming contaminated with soil and/or dirt), strengthen the posts and fence foundation, replace the aluminum jalousie window by wind-resistant aluminum-louver windows, replace the exterior fire rated steel doors by 16ga. fire rated steel door, correct the roof slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, install new back-up power generator to provide continuous power to the circuits breakers that allow PREPA to operate the system remotely in the event of a distribution line failure, and increase the strength of the CCTV (cameras) poles from 90mph to +160mph sustained winds material. The above mitigation measures will protect and make the affected elements more resistant to similar hazards.

### Hazard Mitigation Proposal (HMP) Scope of Work:

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

Mitigation Measures (*Supplement*)

- Chain-link fence [8ft(H) plus barbed wire, 6 ga. 2" mesh, sch-40 1-5/8" top rail, 2.5" line post and 3" end post installed in a concrete footing (LUMA/PREPA Standard for Fencing)], instead of 10ft spacing between post, provide and install **(14ea)** new 2.5" x 11ft(H) sch-40 line post with barbed wire extension arm to reduce the spacing from 10ft to 8ft to increase the resistance against wind-borne debris, and high hurricane winds impacts and/or effects, **154LF**.

**Note:** To comply with LUMA/PREPA codes and standards, each alternate pole is required to be grounded to the existing substation grounding grid:

- Exothermic weld, 4/0 wire to 1" ground rod = **7EA**.
  - Pipe ground clamps, heavy duty, bronze, 1-1/4" to 2" diameter = **7EA**.
  - Pipe ground clamps, heavy duty, bronze, 2-1/2" to 3" diameter = **14EA**.
  - Crimp 2-way connectors, copper, or aluminum, 600 volt, #4 = **21EA**.
  - Ground wire, copper wire, bare stranded, #4 = **21LF**.
  - Ground wire, copper wire, bare stranded, 4/0 = **140LF**
- Chain-link fence foundation wall will be raised an additional 12" [**553ft(L) x 1ft(H) x 0.5ft(W)**] above grade for erosion control, strengthen the posts and fence foundation, and prevent the gravel from becoming contaminated with soil and/or dirt, **10.2CY**.
  - Install insulation roof fill for correction of low slope roof. This measure will correct the slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, **1,424SF**.
  - To avoid damage to the battery bank by the discharge drainage effect, the sub-applicant is proposing as a mitigation measure, the installation of a **(1ea)** new Standby Emergency Power Generator [30KW, 120/240V, aluminum enclosure, with an Automatic Transfer Switch (ATS)] that will provide continuous power to the circuits breakers that allow PREPA remotely operate the system in the event of a distribution line failure. This mitigation measures have the ability of recharge the batteries avoiding the battery discharge drainage effect and loss of function of the communication and control systems. **Note:** Prior to the purchase of the generator, the Applicant must consider that the substation is located less than a mile from the sea, so the exposed equipment and materials must be resilient to the environmental conditions.

Mitigation Measures (*Replacement*)

- Replace **(6ea)** aluminum jalousie windows (36" x 48") by wind-resistant aluminum-louver windows to reduce the wind-borne debris, wind driven rain and high hurricane winds impact and/or effects, **72SF**.
- Replace **(3ea)** control house exterior single doors (3ft x 7ft) by 90-minutes fire-proof 16-gauge doors designed to reduce the wind-borne debris, wind driven rain, water intrusion and high hurricane winds impact and/or effects.
- Replace **(8ea)** poles for closed-circuit television (CCTV) system. This measure will increase the strength of the poles by increasing the wind tolerance from 90mph to +160mph.

**CCTV System** - The installation of the cameras will help in the response phase. Hazard Mitigation funds are to eliminate, avoid or prevent a damage due to a natural hazard event such as hurricane winds, flooding, wind borne debris and others. HM funds are not intended for response improvement. Nevertheless, HM funds can be provided to harden the elements of the equipment installed through the recovery solution. At the meeting with the Applicant held on 7/12/22, it was agreed that the CCTV System (cameras) will be included in the 428 PA portion and not in 406 HM as initially proposed by the sub-applicant.

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

|   |                    |
|---|--------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =          | \$60,600.00        |
| + HM (Applicant A&E, Management & General Conditions) = | <u>\$27,324.00</u> |
| Hazard Mitigation Total Cost =                          | <b>\$87,924.00</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 applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects." Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **\$87,924.00 (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).**

**918163 FAASt Quebradillas Substation 7402 (Sustations)**

**Introduction**


The purpose of this document is to submit for approval the Detailed Scope of Work (SOW) to COR3 and FEMA for Substation Minor Repair Group B under DR-4339-PR Public Assistance. The document provides a description of the project including scope, schedule, and cost estimates as well as Environmental & Historic Preservation ("EHP") requirements and proposed 406 hazard mitigation work. LUMA Energy is seeking approval from COR3 and FEMA for project funding to repair the substations submitted as part of the Substation Minor Repair Group B (Arecibo Region). This project is part of the Substation Minor Repair Program which has been broken down by regions.

LUMA submits this Detailed SOW pursuant to the T&D O&M Agreement between the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A") and LUMA Energy, and in accordance with the Consent to Federal Funding Letter issued by PREPA and P3A and provided herein as Appendix A which collectively provides the necessary consent for LUMA Energy, as the agent of PREPA, to undertake work in connection with any Federal Funding requests related to the T&D System submitted to FEMA.

**Facilities**

Island wide substations experienced substantial damage due to Hurricane Maria in September 2017. This project is part of the Substation Minor Repair Program which will be impacting multiple assets through numerous municipalities. Similar documentation will be submitted for each respective program groups. The purpose of this project is to repair damages, mitigate flooding issues and harden the substation to improve the reliability and resiliency of the Puerto Rico electrical grid.

This project includes the following Group B substation located in the Arecibo region:

| Name                       | Substation Number | Physical Address                    | GPS Coordinate   | Date of Construction |
|----------------------------|-------------------|-------------------------------------|--|----------------------|
| Quebradillas Sectionalizer | 7402, 7404        | CALLE SOCORRO, KM 0.4, QUEBRADILLAS |  | Dec 1970             |

## Project Scope of Work

Substation:

Quebradillas Sectionalizer 7402, 7404:

Proposed 428 Public Assistance Scope of Work:

- Remove debris from the site and buildings, including damaged fencing, windows, doors, and other items as site preparation measure for construction works. No vegetative debris to be removed extend along the existing perimeter.
  - Apply safety yellow painting for structure foundations, driveways, and sidewalks.
- Design and construct a secondary containment to comply with Spill Prevention Control and Countermeasure (SPCC) for the 7402 and 7404 transformers on site.
  - Install new safety signage around the substation site.
  - Install approximately 472 ft of perimeter fence and gates.
  - Perform control building repairs:
    - i. Paint control room including roof treatment cement plaster for ceiling where water damage is presented.
    - ii. Replace doors and windows.
    - iii. Install smoke detector, exhaust fan equipment, epoxy floor paint and fire extinguisher for the battery room.
    - iv. Replace interior and exterior building lighting fixtures.
    - v. Repair bathroom including replacement of toilet, sink, and plumbing.
    - vi. Replace eyewash and shower station.
  - Install 5ea new aluminum jalousie windows (36" x 48").
  - Install 3ea new control house exterior single doors (3ft x 7ft) 90-minutes fire-proof.
  - Install new exterior security lights.
  - Construct a curb wall to prevent gravel loss and erosion.
  - Install new manhole covers needed.
- Perform an integrity test on grounding connections and perform electrical soil resistivity measurements to analyze the existing grid layout using CDEGS software.
  - Install within substation footprint new closed-circuit television (CCTV) system, including 8es cameras, with their respective poles, allowing real-time site monitoring to evaluate critical substation integrity during and after a major event. This measure reduces public safety concerns, potential electric system downtime and improves resiliency. It also will prevent outages caused by possible physical security breaches
    - Conduits for closed-circuit television (CCTV) system will be installed to a maximum depth of 42" below final grade from the control room to each pole with CCTV for power and communication.
  - Remove existing gravel, regrade terrain to ensure good drainage, and replace gravel within substation.
    - Replace one 125VDC battery bank and associated equipment.

Proposed 406 Hazard Mitigation Grant Program Scope of Work: (Please refer to Hazard Mitigation Section)

### Structure Age

- Quebradillas Sectionalizer 7402 (38/4.16kV) was built in December 1970. Over time no major apparatus was installed within the existing substation footprint.

### Debris Removal

- The type of debris that may be found in the process of demolition are batteries, battery charges, concrete, metal scrap, domestic waste, wood, etc. The debris will be separated and taken to an approved waste disposal facility per LUMA Waste Management Plan.

### Staging Area

- The main staging area will be located inside the premises of the substation and will serve as an assembly point for all the materials to be installed. See Appendix L

### Equipment to be used.

- Skid Steer, Excavator, Dump trucks, Manlifts, Boom Trucks 45-ton Crane, Zoom Boom, Air compressor, Truck Digger, Water truck, Pump Truck, Concrete Vibrator, Oil Tanker, Filtering Machine, Flatbed platform, portable generators, and gas small tools.
- All equipment used will comply with Tier 4 EPA Emission Standards, if available

### Fill, gravel, sand, etc.

- Fill, Gravel, and Sand materials will be obtained from an approved supplier as referenced in Appendix P.

### Hazardous Material:

- The identified hazardous materials that can be found in the substation are asbestos and lead. If the presence of asbestos and lead is confirmed in the structures to be demolished, LUMA will follow all permits protocols required by law to properly remove and dispose of the hazardous materials from the premises.
- Material amounts will be provided by a certified management contractor performing a site evaluation calculation for asbestos and lead paint.

### Ground disturbance:

- All project construction activities will take place within the existing substation boundary that has been previously disturbed 30" below the surface for construction of the existing substation ground grid.

### Specific List of Permits Required

- Municipalities Endorsement
- Department of Transportation and Public Works Agency (DTOP) Endorsement
- Department of Transportation and Public Works Agency – (DTOP)- Excavation and Demolition Notification
- Erosion Control and Sedimentation Prevention Plan (Plan CES) - EQB / DNR (if exceed 40 cubic meters in an area of more than 900 meters)
- Asbestos Certification
- Lead Certification
- Waste Disposal Permit
  
- Spill Prevention Countermeasure Control Plan (SPCC)

For detailed information, please refer to APPENDIX G – Quebradillas Sectionalizer Engineering & Asset Management-Site Report and APPENDIX B Class III Estimate

## **Project Estimate**

The estimated costs (Class 3 Accuracy +/-30%) to complete the project are captured in the below table. The cost estimate was

developed utilizing preliminary site detail assessment using LUMA engineering department and may be subject to change. LUMA has identified risks and allowances for the mitigation of potential known risks.

| COST ESTIMATE                                |            |           |            |
|--|------------|-----------|------------|
| Minor Repair Group B - Morovis               | 428        | 406       | Total      |
| PLANNING (FAASt 335168)                      | \$ 27,954  | \$ -      | \$ 27,954  |
| ENGINEERING SERVICES & DESIGN (FAASt 335168) | \$ 77,841  | \$ 9,020  | \$ 86,861  |
| MANAGEMENT (FAASt 335168)                    | \$ 47,011  | \$ 5,447  | \$ 52,458  |
| SUBSTATION                                   | \$ 518,942 | \$ 60,132 | \$ 579,074 |
| GENERAL CONDITIONS                           | \$ 65,621  | \$ 7,604  | \$ 73,225  |
| CONTINGENCY                                  | \$ 43,515  | \$ 5,042  | \$ 48,557  |
| TOTAL PROJECT COST ESTIMATE                  | \$ 780,883 | \$ 87,245 | \$ 868,128 |
| FAASt Quebradillas Total                     | \$ 628,077 | \$ 72,778 | \$ 700,855 |
| FAASt Quebradillas A&E Total                 | \$ 152,806 | \$ 14,467 | \$ 167,273 |

**Work To Be Completed (WTBC): \$ 780,883**

**A&E Deduction (Global A&E FAASt 335168) - \$152,806**

**Project Total Cost: \$780,883 - \$152,806 (Global A&E FAASt 335168) = \$628,077**

## 406 HMP Scope

Project number: 542758 FAASt Substation Minor Repairs -Group B (Substation)

Damage #918163; FAASt Quebradillas Substation [7402, 7404]

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

Location: Quebradillas, Puerto Rico

GPS Latitude/Longitude: XXXXXXXXXX

### 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 "loss of power" from Hurricane Maria. The incident caused damage to the electrical system, such as the power generation plants, transmission and distribution lines, substations, communication systems, buildings, among other damages to the infrastructures owned, operated, and maintained

by the Puerto Rico Electric Power Authority (PREPA).

The FAASt Substation Minor Repairs -Group B (Substation) consists of five (5) facilities (sites) which are distributed as follows: Factor Substation [8011, 8014], Isabela Pueblo Substation [7503], Jayuya Substation [8301, 8302], Morovis Substation 8801, and Quebradillas Substation [7402, 7404].

The substation facilities minor repairs are typically composed of transformers, circuit breakers, disconnect switches, a control house, steel structures, poles, lights, and other components enclosed with a perimeter fence. The minor repair practices include facilities security upgrades (locks, fencing upgrade, CCTV), repair drainage, grading, and restoration of gravel, repair and replace the grounding grid, replace broken perimeter fence and gates, clean, and paint control room, replace lights, doors, and windows of the control room, replace battery charger and batteries, replace leaning or broken poles, among others. According to the information provided by the Applicant, due to the high hurricane winds, wind-borne debris, and prolonged heavy rain was the main cause of the damages of the facilities.

In order to minimize the damages in a future event, the sub-applicant is proposing as a mitigation measure, reduce the spacing of the chain-link fence posts from 10ft to 8ft, raise an additional 12" above grade for erosion control (and prevent the gravel from becoming contaminated with soil and/or dirt), strengthen the posts and fence foundation, replace the aluminum jalousie window by wind-resistant aluminum-louver windows, replace the exterior fire rated steel doors by 16ga. fire rated steel door, correct the roof slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, install new back-up power generator to provide continuous power to the circuits breakers that allow PREPA to operate the system remotely in the event of a distribution line failure, and increase the strength of the CCTV (cameras) poles from 90mph to +160mph sustained winds material. The above mitigation measures will protect and make the affected elements more resistant to similar hazards.

#### **Hazard Mitigation Proposal (HMP) Scope of Work:**

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

##### *Mitigation Measures (Supplement)*

- Chain-link fence [8ft(H) plus barbed wire, 6 ga. 2" mesh, sch-40 1-5/8" top rail, 2.5" line post and 3" end post installed in a concrete footing (LUMA/PREPA Standard for Fencing)], instead of 10ft spacing between post, provide and install **(12ea)** new 2.5" x 11ft(H) sch-40 line post with barbed wire extension arm to reduce the spacing from 10ft to 8ft to increase the resistance against wind-borne debris, and high hurricane winds impacts and/or effects, **132LF**.

**Note:** To comply with LUMA/PREPA codes and standards, each alternate pole is required to be grounded to the existing substation grounding grid:

- Exothermic weld, 4/0 wire to 1" ground rod = **6EA**.
  - Pipe ground clamps, heavy duty, bronze, 1-1/4" to 2" diameter = **6EA**.
  - Pipe ground clamps, heavy duty, bronze, 2-1/2" to 3" diameter = **12EA**.
  - Crimp 2-way connectors, copper, or aluminum, 600 volt, #4 = **18EA**.
  - Ground wire, copper wire, bare stranded, #4 = **18LF**.
  - Ground wire, copper wire, bare stranded, 4/0 = **120LF**
- Chain-link fence foundation wall will be raised an additional 12" [**472ft(L) x 1ft(H) x 0.5ft(W)**] above grade for erosion control, strengthen the posts and fence foundation, and prevent the gravel from becoming contaminated with soil and/or dirt, **8.7CY**.
  - Install insulation roof fill for correction of low slope roof. This measure will correct the slope using tapered lightweight concrete to improve drainage and prevent water damages to the roof waterproofing system and water infiltration, **651SF**.
  - To avoid damage to the battery bank by the discharge drainage effect, the sub-applicant is proposing as a mitigation measure, the installation of a **(1ea)** new Standby Emergency Power Generator [30KW, 120/240V, aluminum enclosure, with an Automatic Transfer Switch (ATS)] that will provide continuous power to the circuits breakers that allow PREPA remotely operate the system in the event of a distribution line failure. This mitigation measures have the ability of recharge the batteries avoiding the battery discharge drainage effect and loss of function of the communication and control systems. **Note:** Prior to the purchase of the generator, the Applicant must consider that the substation is located less than a mile from the sea, so the exposed equipment and materials must be resilient to the environmental conditions.

##### *Mitigation Measures (Replacement)*

- Replace **(5ea)** aluminum jalousie windows (36" x 48") by wind-resistant aluminum-louver windows to reduce the wind-borne debris, wind driven rain and high hurricane winds impact and/or effects, **605F**.
- Replace **(3ea)** control house exterior single doors (3ft x 7ft) by 90-minutes fire-proof 16-gauge doors designed to reduce the wind-borne debris, wind driven rain, water intrusion and high hurricane winds impact and/or effects.
- Replace **(15ea)** poles for closed-circuit television (CCTV) system. This measure will increase the strength of the poles by increasing the wind tolerance from 90mph to +160mph.



**CCTV System** - The installation of the cameras will help in the response phase. Hazard Mitigation funds are to eliminate, avoid or prevent a damage due to a natural hazard event such as hurricane winds, flooding, wind borne debris and others. HM funds are not intended for response improvement. Nevertheless, HM funds can be provided to harden the elements of the equipment installed through the recovery solution. At the meeting with the Applicant held on 7/12/22, it was agreed that the CCTV System (cameras) will be included in the 428 PA portion and not in 406 HM as initially proposed by the sub-applicant.

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

|   |                    |
|---|--------------------|
| Total Net Hazard Mitigation Cost (Base Cost) =          | \$60,132.00        |
| + HM (Applicant A&E, Management & General Conditions) = | <u>\$27,113.00</u> |
| Hazard Mitigation Total Cost =                          | <b>\$87,245.00</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 applicant's responsibility to maintain a record of approved IWBCA related projects to avoid running out of funds for their Mitigation portion projects". Please see attached IWBCA Package

The cost of the Hazard Mitigation Proposal (HMP) described herein is **\$87,245.00 (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     |
|--|----------|----------|----------------|-------------|
| 3510 (Engineering And Design Services)                         | 1.00     | Lump Sum | (\$147,067.00) | Uncompleted |
| 9201 (PAAP Fixed Estimate (No Value - Tracking Purposes Only)) | 1.00     | Lump Sum | \$0.00         | Completed   |
| 9001 (Contract)  | 1.00     | Lump Sum | \$751,554.00   | Uncompleted |
| 3510 (Engineering And Design Services)                         | 1.00     | Lump Sum | (\$133,245.00) | Uncompleted |
| 9201 (PAAP Fixed Estimate (No Value - Tracking Purposes Only)) | 1.00     | Lump Sum | \$0.00         | Completed   |
| 9001 (Contract)  | 1.00     | Lump Sum | \$680,919.00   | Uncompleted |
| 3510 (Engineering And Design Services)                         | 1.00     | Lump Sum | (\$158,535.00) | Uncompleted |
| 9201 (PAAP Fixed Estimate (No Value - Tracking Purposes Only)) | 1.00     | Lump Sum | \$0.00         | Completed   |
| 9001 (Contract)  | 1.00     | Lump Sum | \$810,161.00   | Uncompleted |
| 3510 (Engineering And Design Services)                         | 1.00     | Lump Sum | (\$131,662.00) | Uncompleted |
| 9201 (PAAP Fixed Estimate (No Value - Tracking Purposes Only)) | 1.00     | Lump Sum | \$0.00         | Completed   |
| 9001 (Contract)  | 1.00     | Lump Sum | \$672,833.00   | Uncompleted |
| 3510 (Engineering And Design Services)                         | 1.00     | Lump Sum | (\$152,806.00) | Uncompleted |
| 9201 (PAAP Fixed Estimate (No Value - Tracking Purposes Only)) | 1.00     | Lump Sum | \$0.00         | Completed   |
| 9001 (Contract)  | 1.00     | Lump Sum | \$780,883.00   | Uncompleted |

CRC Gross Cost \$2,973,035.00

Total 406 HMP Cost \$439,541.00

Total Insurance Reductions \$0.00

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CRC Net Cost \$3,412,576.00

Federal Share (90.00%) \$3,071,318.40

Non-Federal Share (10.00%) \$341,257.60

## Award Information

### Version Information

| Version # | Eligibility Status | Current Location | Bundle Number                 | Project Amount | Cost Share | Federal Share Obligated | Date Obligated |
|-----------|--------------------|------------------|-------------------------------|----------------|------------|-------------------------|----------------|
| 0         | Eligible           | Awarded          | PA-02-PR-4339-PW-11385(13879) | \$3,412,576.00 | 90 %       | \$3,071,318.40          | 7/6/2023       |

### 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 # |
|-----------|----------------|----------------|------------|--------------|--------------------|
|-----------|----------------|----------------|------------|--------------|--------------------|

## 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

**5/17/2023**

**GENERAL INFORMATION**

Event: DR4339-PR

Project: SP 542758

Category of Work: Cat F - Utilities

Applicant: PR Electric Power Authority

Event Type: Hurricane / Hurricane Maria

Cause of Loss: Wind / Wind Driven Rain

Incident Period: 9/17/2017 to 11/15/2017

Total Public Assistance Amount: \$3,412,576.00 (CRC Gross Cost \$2,973,035.00 + Mitigation Amount \$439,541.00)

**COMMERCIAL INSURANCE INFORMATION**

Does the applicant have a Commercial Policy that extends coverage for this facility: Yes

Policies Issued by: Willis Towers Watson, Multinational Insurance Company and Mapfre

Policy Numbers: Willis Towers Watson (B0804Q1966F17, B0804Q14312F17, B0804Q19673F17, B0804Q19672F17, B0804Q18529F17, B0804Q14312F17, B0804Q19674F17, B0804Q18411F17, B0804Q14310F17, B0804Q11038F17, B0804Q14507F17, B0804Q14312F17)

Mapfre Praico Insurance Company (1398178000644)

Multinational Insurance Company (88-CP-000307831-2, 88-CP-000318673-0, 88-CP000318674-0, 88-CP-000318675-0, 88-CP-000318676-0, 88-CP-000318677-0)

Policy Period: From: 5/15/2017 To: 5/15/2018

Policy Limits: \$300,000,000.00

RCV or ACV: Replacement Cost Value

Deductible Amount \$25,000,000.00 each and every occurrence property damage and 30 days each and every occurrence business interruption in respect of Named Windstorm.

Does the Applicant's Commercial Policy extend coverage for the damage described in this project: Yes

The amount of the deductible being funded in this project is \$0.00

The amount of the deductible previously funded in other projects is \$25,000,000.00

Final Insurance Settlement Status: Insurance proceeds for this project are anticipated

The amount of Anticipated Insurance Reduction applied for Project: \$0.00

**NUMBER OF DAMAGED LOCATIONS INCLUDED IN THIS PROJECT:** (5)

**Damaged Inventory (DI) #918154:**

**FAASt Factor Sectionalizer 8011, 8014 (Substations)**

Location Description: Factor Sectionalizer 8011, 8014 (Substations)

GPS Coordinates: [REDACTED]

Cause of Loss: Wind / Wind Driven Rain

SOV / Schedule #: "Sub-Stations"

SOV / Schedule Amount: \$1,345,700,000.00

Applicable Deductible Amount: \$25,000,000.00

Damage Inventory Amount: \$685,593.00 (CRC Gross Cost \$604,487.00 + Mitigation Amount \$81,106.00)

-

Prior Obtain and Maintain Requirement:

No prior insurance requirements were found for this facility. \_

-

Reduction(s):

No insurance reduction will be applied to this project. An anticipated insurance reduction of \$193,746,436.00 was applied to FFAST project # 136271 for anticipated insurance proceeds for Hurricane Maria losses. For ease of reference, please see table of insurance allocations: "PREPA Allocation Plan – All Disasters" file.

-

Obtain and Maintain Requirement:

An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FFAST Factor Sectionalizer 8011, 8014 (Substations) in the amount of \$189,067.14 (CRC Gross Cost \$604,487.00 – Uninsurable Items \$274,462.68 – Equipment Items \$172,162.67 – Contents Items \$608.26 + Insurable Mitigation Amount \$31,813.75). Please see "SP542758 – Cost Estimate – Insurance" file.

An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FFAST Factor Sectionalizer 8011, 8014 (Substations) Equipment in the amount of \$194,629.00 (Equipment \$172,162.67 + Insurable Mitigation Equipment \$22,466.33). Please see "SP542758 – Cost Estimate – Insurance" file.

No Obtain & Maintain Requirement is being mandated for the FFAST Factor Sectionalizer 8011, 8014 (Substations) Contents because insurable damages do not exceed \$5,000.00.

**Damaged Inventory (DI) #918155:**

**FAAST Isabela Pueblo Substation 7503 (Substations)**

Location Description: Isabela Pueblo Substation 7503

GPS Coordinates: [REDACTED]

Cause of Loss: Wind / Wind Driven Rain

SOV / Schedule #: "Sub-Stations"

SOV / Schedule Amount: \$1,345,700,000.00

Applicable Deductible Amount: \$25,000,000.00

Damage Inventory Amount: \$641,695.00 (CRC Gross Cost \$547,674.00 + Mitigation Amount \$94,021.00)

-

Prior Obtain and Maintain Requirement:

No prior insurance requirements were found for this facility.

-

Reduction(s):

No insurance reduction will be applied to this project. An anticipated insurance reduction of \$193,746,436.00 was applied to FAAST project # 136271 for anticipated insurance proceeds for Hurricane Maria losses. For ease of reference, please see table of insurance allocations: "PREPA Allocation Plan – All Disasters" file.

-

Obtain and Maintain Requirement:

An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Isabela Pueblo Substation 7503 (Substations) in the amount of \$192,568.20 (CRC Gross Cost \$547,674.00 – Uninsurable Items \$300,311.73 – Equipment Items \$94,207.67 – Contents Items \$608.26 + Insurable Mitigation Amount \$40,021.86). Please see "SP542758 – Cost Estimate – Insurance" file.

An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Isabela Pueblo Substation 7503 (Substations) Equipment in the amount of \$116,674.00 (Equipment \$94,207.67 + Insurable Mitigation Equipment \$22,466.33). Please see "SP542758 – Cost Estimate – Insurance" file.

No Obtain & Maintain Requirement is being mandated for the FAASt Isabela Pueblo Substation 7503 (Substations) Contents because insurable damages do not exceed \$5,000.00.

**Damaged Inventory (DI) #918158:**

**FAASt Jayuya Substation 8301 (Substations)**

Location Description: Jayuya Substation 8301

GPS Coordinates: [REDACTED]

Cause of Loss: Wind / Wind Driven Rain

SOV / Schedule #: "Sub-Stations"

SOV / Schedule Amount: \$1,345,700,000.00

Applicable Deductible Amount: \$25,000,000.00

Damage Inventory Amount: \$740,871.00 (CRC Gross Cost \$651,626.00 + Mitigation Amount \$89,245.00)

-

Prior Obtain and Maintain Requirement:

No prior insurance requirements were found for this facility.

-

Reduction(s):

No insurance reduction will be applied to this project. An anticipated insurance reduction of \$193,746,436.00 was applied to FFAST project # 136271 for anticipated insurance proceeds for Hurricane Maria losses. For ease of reference, please see table of insurance allocations: "PREPA Allocation Plan – All Disasters" file.

-

Obtain and Maintain Requirement:

An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FFAST Jayuya Substation 8301 (Substations) in the amount of \$174,687.70 (CRC Gross Cost \$651,626.00 – Uninsurable Items \$364,362.17 – Equipment Items \$142,611.67 – Contents Items \$529.13 + Insurable Mitigation Amount \$30,564.67). Please see "SP542758 – Cost Estimate – Insurance" file.

An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FFAST Jayuya Substation 8301 (Substations) Equipment in the amount of \$165,078.00 (Equipment \$142,611.67 + Insurable Mitigation Equipment \$22,466.33). Please see "SP542758 – Cost Estimate – Insurance" file.

No Obtain & Maintain Requirement is being mandated for the FFAST Jayuya Substation 8301 (Substations) Contents because insurable damages do not exceed \$5,000.00.

**Damaged Inventory (DI) #918162:**

**FAAST Morovis Substation 8801 (Substations)**

Location Description: Morovis Substation 8801

GPS Coordinates: XXXXXXXXXX

Cause of Loss: Wind / Wind Driven Rain

SOV / Schedule #: "Sub-Stations"

SOV / Schedule Amount: \$1,345,700,000.00

Applicable Deductible Amount: \$25,000,000.00

Damage Inventory Amount: \$629,095.00 (CRC Gross Cost \$541,171.00 + Mitigation Amount \$87,924.00)

-

Prior Obtain and Maintain Requirement:

No prior insurance requirements were found for this facility.

-

Reduction(s):

No insurance reduction will be applied to this project. An anticipated insurance reduction of \$193,746,436.00 was applied to FFAST project # 136271 for anticipated insurance proceeds for Hurricane Maria losses. For ease of reference, please see table of insurance allocations: "PREPA Allocation Plan – All Disasters" file.

-

Obtain and Maintain Requirement:



An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Morovis Substation 8801 (Substations) in the amount of \$193,064.69 (CRC Gross Cost \$541,171.00 – Uninsurable Items \$286,918.01 – Equipment Items \$97,370.17 – Contents Items \$608.26 + Insurable Mitigation Amount \$36,790.13). Please see "SP542758 – Cost Estimate – Insurance" file.

An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Morovis Substation 8801 (Substations) Equipment in the amount of \$119,836.50 (Equipment \$97,370.17 + Insurable Mitigation Equipment \$22,466.33). Please see "SP542758 – Cost Estimate – Insurance" file.

No Obtain & Maintain Requirement is being mandated for the FAASt Morovis Substation 8801 (Substations) Contents because insurable damages do not exceed \$5,000.00.

**Damaged Inventory (DI) #918163:**

**FAASt Quebradillas Substation 7402 (Substations)**

Location Description: Quebradillas Substation 7402

GPS Coordinates: [REDACTED]

Cause of Loss: Wind / Wind Driven Rain

SOV / Schedule #: "Sub-Stations"

SOV / Schedule Amount: \$1,345,700,000.00

Applicable Deductible Amount: \$25,000,000.00

Damage Inventory Amount: \$715,322.00 (CRC Gross Cost \$628,077.00 + Mitigation Amount \$87,245.00)

-

**Prior Obtain and Maintain Requirement:**

No prior insurance requirements were found for this facility.

-

**Reduction(s):**

No insurance reduction will be applied to this project. An anticipated insurance reduction of \$193,746,436.00 was applied to FAASt project # 136271 for anticipated insurance proceeds for Hurricane Maria losses. For ease of reference, please see table of insurance allocations: "PREPA Allocation Plan – All Disasters" file.

-

**Obtain and Maintain Requirement:**

An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Quebradillas Substation 7402 (Substations) in the amount of \$180,662.63 (CRC Gross Cost \$628,077.00 – Uninsurable Items \$300,527.44 – Equipment Items \$180,518.17 – Contents Items \$608.26 + Insurable Mitigation Amount \$34,239.50). Please see "SP542758 – Cost Estimate – Insurance" file.

An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Quebradillas Substation 7402 (Substations) Equipment in the amount of \$202,984.50 (Equipment \$180,518.17 + Insurable Mitigation Equipment \$22,466.33). Please see "SP542758 – Cost Estimate – Insurance" file.

No Obtain & Maintain Requirement is being mandated for the FFAST Quebradillas Substation 7402 (Substations) Contents because insurable damages do not exceed \$5,000.00.

**Insurance Proceeds Statement:**

FEMA acknowledges that the Applicant is in negotiations with their insurance carrier at the time of the FEMA insurance review and might have received partial settlements. In accordance with 44 CFR §206.250-253, in the absence of an actual settlement, anticipated insurance recoveries will be deducted from this project based on Applicant's insurance policy limits. FEMA subsequently adjusts the eligible costs based on the actual amount of insurance proceeds the Applicant receives after a final settlement.

FEMA's Recovery Policy FP 206-086-1, Public Assistance Policy on Insurance (June 29, 2015), requires applicants to take reasonable efforts to recover insurance proceeds that it is entitled to receive from its insurers. FEMA will consider final insurance settlements that may be less than the insurance policy limits when an applicant demonstrates that it has taken reasonable efforts to recover insurance proceeds that it is entitled on a case-by-case basis.

**Standard Insurance Comments**

**FEMA Policy 206-086-1**

**PART 2: Other Insurance-Related Provisions. (Sections 312 and 406(d) of the Stafford Act)**

**A. Duplication of Benefits.** FEMA cannot provide assistance for disaster-related losses that duplicate benefits available to an applicant from another source, including insurance.

1. Before FEMA approves assistance for a property, an applicant must provide FEMA with information about any actual or anticipated insurance settlement or recovery it is entitled to for that property.
2. FEMA will reduce assistance to an applicant by the amount of its actual or anticipated insurance proceeds.
3. Applicants must take reasonable efforts to recover insurance proceeds that they are entitled to receive from their insurer(s).

**FEMA Policy 206-086-1**

**H. Subsequent Assistance.** When a facility that received assistance is damaged by the same hazard in a subsequent disaster:

1. If the applicant failed to maintain the required insurance from the previous disaster, then the facility is not eligible for assistance in any subsequent disaster.
2. Upon proof that the applicant maintained its required insurance, FEMA will reduce assistance in the subsequent disaster by the amount of insurance required in the previous disaster regardless of:
  - a. The amount of any deductible or self-insured retention the applicant assumed (i.e., "retained risk").

**Obtain and Maintain Requirements:**

**44 CFR § 206.253 Insurance requirements for facilities damaged by disasters other than flood.**

**(a)** Prior to approval of a Federal grant for the restoration of a facility and its contents which were damaged by a disaster other than flood, the recipient shall notify the Regional Administrator of any entitlement to insurance settlement or recovery for such facility and its contents. The Regional Administrator shall reduce the eligible costs by the actual amount of insurance proceeds relating to the eligible costs.

- (b)**
- (1)** Assistance under section 406 of the Stafford Act will be approved only on the condition that the recipient obtain and maintain such types and amounts of insurance as are reasonable and necessary to protect against future loss to such property from the types of hazard which caused the major disaster. The extent of insurance to be required will be based on the eligible damage that was incurred to the damaged facility as a result of the major disaster. The Regional Administrator shall not require greater types and extent of insurance than are certified as reasonable by the State Insurance Commissioner.
  - (2)** Due to the high cost of insurance, some applicants may request to insure the damaged facilities under a blanket insurance policy covering all their facilities, an insurance pool arrangement, or some combination of these options. Such an arrangement may be accepted for other than flood damages. However, if the same facility is damaged in a similar future disaster, eligible costs will be reduced by the amount of eligible damage sustained on the previous disaster.

(c) The Regional Administrator shall notify the recipient of the type and amount of insurance required. The recipient may request that the State Insurance Commissioner review the type and extent of insurance required to protect against future loss to a disaster-damaged facility, the Regional Administrator shall not require greater types and extent of insurance than are certified as reasonable by the State Insurance Commissioner.

(d) The requirements of section 311 of the Stafford Act are waived when eligible costs for an insurable facility do not exceed \$5,000.00. The Regional Administrator may establish a higher waiver amount based on hazard mitigation initiatives which reduce the risk of future damages by a disaster similar to the one which resulted in the major disaster declaration which is the basis for the application for disaster assistance.

(e) The recipient shall provide assurances that the required insurance coverage will be maintained for the anticipated life of the restorative work or the insured facility, whichever is the lesser.

(f) No assistance shall be provided under section 406 of the Stafford Act for any facility for which assistance was provided as a result of a previous major disaster unless all insurance required by FEMA as a condition of the previous assistance has been obtained and maintained.

Final Obtain and Maintain requirement amount will be determined during the closeout process after the final actual eligible costs to repair or replace the insurable facility have been determined.

**FEMA Policy 206-086-1**

**F. Timeframes for Obtaining Insurance.** FEMA will only approve assistance under the condition that an applicant obtains and maintains the required insurance.

The applicant must document its commitment to comply with the insurance requirement with proof of insurance.

If an applicant cannot insure a facility prior to grant approval (for example, if a building is being reconstructed), the applicant may provide a letter of commitment stating that they agree to the insurance requirement and will obtain the types and extent of insurance required, followed at a later date by proof of insurance once it is obtained. In these cases, the applicant should insure the property:

1. When the applicant resumes use of or legal responsibility for the property (for example, per terms of construction contract or at beneficial use of the property); or
2. When the scope of work is complete.

FEMA and the recipient will verify proof of insurance prior to grant closeout to ensure the applicant has complied with the insurance requirement.

An applicant should notify FEMA—in writing through the recipient—of changes to their insurance which impact their ability to satisfy the insurance requirement after it provides proof of insurance to FEMA. This includes changes related to self-insurance. If an applicant fails to do this, FEMA may de-obligate assistance and not provide assistance in a future disaster.

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

**O&M Requirements**

| Insured Peril | Item Type | Description   | Required Coverage Amount |
|---------------|-----------|---|--------------------------|
| Wind          | Building  | An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Factor Sectionalizer 8011, 8014 (Substations) in the amount of \$189,067.14.            | \$189,067.14             |
| Wind          | Equipment | An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Factor Sectionalizer 8011, 8014 (Substations) Equipment in the amount of \$194,629.00. | \$194,629.00             |
| Wind          | Building  | An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Isabela Pueblo Substation 7503 (Substations) in the amount of \$192,568.20.             | \$192,568.20             |
| Wind          | Equipment | An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Isabela Pueblo Substation 7503 (Substations) Equipment in the amount of \$116,674.00.  | \$116,674.00             |

| Insured Peril | Item Type | Description  | Required Coverage Amount |
|---------------|-----------|--|--------------------------|
| Wind          | Building  | An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Jayuya Substation 8301 (Substations) in the amount of \$174,687.70.                  | \$174,687.70             |
| Wind          | Equipment | An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Jayuya Substation 8301 (Substations) Equipment in the amount of \$165,078.00.       | \$165,078.00             |
| Wind          | Building  | An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Morovis Substation 8801 (Substations) in the amount of \$193,064.69.                 | \$193,064.69             |
| Wind          | Equipment | An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Morovis Substation 8801 (Substations) Equipment in the amount of \$119,836.50.      | \$119,836.50             |
| Wind          | Building  | An Obtain & Maintain Requirement is being required for Building, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Quebradillas Substation 7402 (Substations) in the amount of \$180,662.63.            | \$180,662.63             |
| Wind          | Equipment | An Obtain & Maintain Requirement is being required for Equipment, for the peril of Wind (all wind associated losses including "wind driven rain" for the FAASt Quebradillas Substation 7402 (Substations) Equipment in the amount of \$202,984.50. | \$202,984.50             |

## 406 Mitigation

There is no additional mitigation information on **FAASt Substation Minor Repairs -Group B (Substation)**.

## 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.
- Endangered Species Act (ESA) - The Applicant must provide documentation at close-out that proves completion of required Conservation Measures.
- Endangered Species Act (ESA) - Conditions for Amazona vittata applicable to D# 918158: 8. During breeding seasons (see below), nest surveys shall be conducted if a project occurs in a species' range. Nest searches must be conducted by qualified personnel with the appropriate DNER permits prior to start of work. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 200-meter buffer to the closest nest. This avoidance strategy must be kept until fledglings successfully leave the nest permanently. Outside the nesting season, if a nest is encountered, work shall not interfere with the species until they have left the site. If nesting activity is detected, all construction activities or human disturbance must be avoided within a 200-meter buffer to the closest nest. This avoidance strategy must be kept until

juvenile birds fledge the nest and are permanently gone. Nesting season: Puerto Rican parrot (*Amazona vittata*): February to June; Puerto Rican plain pigeon (*Patagioenas inornata wetmorei* [*Columba inornata*]): April-September; Puerto Rican broad-winged hawk (*Buteo platypterus*): December-June; Puerto Rican sharp shinned hawk (*Accipiter striatus venator*): December-June; Puerto Rican nightjar (*Antrostomus noctitherus*): February-August; Elfin-woods warbler (*Setophaga angelae*): March-June; yellow-shouldered blackbird (*Agelaius xanthomus*): February through November. For all nest sightings, the Applicant must record the time and date of the sighting and the specific location where it was found. Data should also include a photo of the nest and eggs, relocation site GPS coordinates, and the time and date of the relocation. All sightings and incidental lethal take reports should be sent to the USFWS Caribbean Ecological Services Field Office, Marelisa Rivera - Deputy Field Supervisor, 787-851-7297 extension 206, 787-510-5207, marelisa\_rivera@fws.gov.

- Endangered Species Act (ESA) - Conditions for *Epicrates inornatus* and applicable to D# 918154 1. Inform all personnel about the potential presence of the PR boa and the VI boa in areas where the proposed work will be conducted. Photographs of the PR and VI Boa are to be prominently displayed at the site. The recipient must ensure that project personnel is able to correctly identify a PR or VI boa. For information on PR boa, please visit: <https://ecos.fws.gov/ecp/species/6628>. 2. Prior to any construction activity, including removal of vegetation and earth movement, the boundaries of the project area must be delineated, buffer zones, and areas to be excluded and protected, should be clearly marked in the project plan and in the field to avoid further habitat degradation into forested areas. Once areas are clearly marked, and prior to any construction activity, including site preparation, project personnel able to correctly identify a PR or VI boa must survey the areas to be cleared to ensure that no boas are present within the work area. Vehicle and equipment operation must remain on designated access roads/paths and within rights-of way. 3. If a PR boa is found within any of the working or construction areas, activities should stop in the area where the boa was found. Do not capture the boa. If boas need to be moved out of harm's way, project personnel designated by the recipient shall immediately contact the Puerto Rico Department of Natural and Environmental Resources (PRDNER) Rangers for safe capture and relocation of the animal (PRDNER phone #: 787-724-5700, 787-230-5550, 787-771-1124). If immediate relocation is not an option, project-related activities at this 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. 4. 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 boa (PRDNER phone #: 787-724-5700, 787-230-5550, 787-771-1124). If not possible, the animal should be left alone until it leaves the vehicle on its own. 5. 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 PR boas are, found within debris piles, do not capture the animal and let it move on its own or call PRDNER Rangers for safe capture and relocation of the animal. If debris piles will be left on site, we recommend they be placed in areas that will not be disturbed in the future. 6. For all boa sightings (dead or alive), personnel designated by the recipient must record the time and date of the sighting and the specific location where the boa was found. Data should also include a photo of the animal dead or alive, and site GPS coordinates, and comments on how the animal was detected and its behavior. 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. All boa sighting reports should be sent to the USFWS Caribbean Ecological Services Field Office, Marelisa Rivera - Deputy Field Supervisor, 787- 851-7297 extension 206, 787-510-5207, marelisa\_rivera@fws.gov.
- Executive Order 11988 - Floodplains - Condition applicable to D# 918158: 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.
- National Historic Preservation Act (NHPA) - a. The Subrecipient and/or Subrecipient's contractor shall follow the Low Impact Debris Removal Stipulations (LIDRS) as stated in Appendix E of the Project-Specific Programmatic Agreement Among FEMA, the SHPO, ACHP, COR3, and PREPA (PSPA), executed on August 2, 2022. b. Unexpected Discoveries: Pursuant to Stipulation III.B of the PSPA, if, in the course of implementing this Individual Undertaking(s), previously unidentified structures, sites, buildings, objects, districts, or archaeological deposits, that may be eligible for listing in the National Register, or human remains are uncovered, or if it appears that an Individual Undertaking has affected or will affect a previously identified historic property in an unanticipated manner, the contractor must notify Subrecipient who will immediately notify the Recipient. Work must stop in the vicinity of the discovery and measures must be taken to protect the discovery and avoid additional harm. c. Additional staging areas and/or work pads within work site area haven't been identified yet. The Recipient/Subrecipient and/or private operator must provide the information of any additional staging areas or work pads for EHP evaluation as soon as available specially if any construction activity will be necessary to prepare the site(s). Information for staging areas and/or work pads confined to hardened surfaces can be provided at

closeout.

- Resource Conservation and Recovery Act, aka Solid Waste Disposal Act (RCRA) 1. The Applicant shall handle, manage, and dispose of all types of hazardous waste in accordance with requirements of local, state, and federal laws, regulations, and ordinances. In addition, the Applicant shall ensure that all debris is separated and disposed of in a manner consistent with the PR DNER guidelines at a permitted site or landfill. The contractor/applicant will be responsible for the proper disposition of construction debris in authorized landfills providing the name, location, coordinates and permits of the facility to the corresponding authorities. 2. All construction material and debris deposited in eroded embankments must be removed before start of work. Final disposal of bituminous and any non-recyclable debris materials resulting from the restoration and demolition activities must take place at an authorized sanitary landfill. Noncompliance with these requirements may jeopardize receipt of federal funds. 3. 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.
- NEPA Determination - Fill condition: 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.

## EHP Additional Info

There is no additional environmental historical preservation on **FAASt Substation Minor Repairs -Group B (Substation)**.

## Final Reviews

### Final Review

**Reviewed By** MARTINEZ SANTIAGO, ISRAEL

**Reviewed On** 05/31/2023 3:12 PM AST

#### Review Comments

FEMA Final Review completed. Project ready for Recipient Review.

### Recipient Review

**Reviewed By** Salgado, Gabriel

**Reviewed On** 05/31/2023 4:54 PM AST

#### Review Comments

Recipient review completed. Project is ready for applicant review.

## 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 \$3,412,576.00 for subaward number 11385 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** 06/06/2023