FEMA Project Scope of Work

Project Name: Cybersecurity Program Implementation

Revision: 0

Date: January 5, 2022

APPROVALS

The signatures below formally approve the FEMA Project Scope of Work Template.

Grant Manager's Name	Signature	Date
Hernando Gee	Hernando Gee Digitally signed by Hernando Gee Date: 2022.01.05 10:55:17 -04'00'	
Department VP's Name	**Signature**	**Date**
Greg Sarich Chief Information Officer		01/05/2022

Document Change Control

This table contains a history of the revisions made to this document

Rev.	Date of Issue	Brief Description of Change
A	14 SEP 2021	Initial LUMA draft
B	24 NOV 2021	Review by LUMA and IEM
C	15 DEC 2021	Revised Introduction
0	5 JAN 2022	Issued for Used

Contents

Overview

Project Name:	Cybersecurity Implementation Program
Project Type:	*DR-4339-PR Public Assistance*
Region:	[redacted]
Damage Number:	[redacted]
Damaged Inventory/Asset Category:	[redacted]
FEMA Project Number: *(formerly Project Worksheet)*	<Provided by FEMA>

Introduction

[redacted]

[redacted]

LUMA submits this detailed SOW pursuant to the T&D Agreement between Puerto Rico, Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships 3Authority ("P3A") and LUMA Energy, and In accordance with the Consent to Federal Funding Letter Issued by PREPA and P3A and provided herein as Appendix K which collectively provides the necessary consent for LUMA Energy, as agent of PREPA, to undertake work In connection with any Federal Funding requests related to the T&D System submitted to FEMA.

This document will be updated with information developed during the initial design and engineering phase through the construction phase.

Facilities

Facilities List

Name	Number	GPS Start	GPS End	Voltage (kV)
[redacted]	N/A	N/A	N/A	N/A
[redacted]	N/A	N/A	N/A	N/A
[redacted]	N/A	N/A	N/A	N/A
[redacted]	N/A	N/A	N/A	N/A
[redacted]	N/A	N/A	N/A	N/A
[redacted]	N/A	N/A	N/A	N/A
[redacted]	N/A	N/A	N/A	N/A

Note: GPS coordinates are required for all facilities.

Facilities Description

[redacted]

Project Scope

Scope of Work Description (e.g., Plan for Repair)

[redacted]

- [redacted]
- [redacted]
- [redacted]

[redacted]

Scope

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

[redacted]

Type of Project

Choose One (Restoration, Improved or Alternate) If improved, provide the changes in facility size, capacity, dimension, or footprint. If alternate, provide rationale for recommendation.
[redacted]
[redacted]
This work will be in compliance with FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020)

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

Preliminary Engineering

Is architectural and engineering funding required to help define the intended scope of work?

No

Codes and Standards

Which of the following types of codes, specifications, and standards apply to the restoration, replacement, relocation, or alternate scope of work?

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

1. Consensus-based codes, per FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020).
2. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
3. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
4. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations of the vast majority of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

Codes, Specifications, and Standards

Yes
Applicable codes and standards will be identified and incorporated into the plans and specifications.

Industry Standards

Yes • [redacted] • [redacted] • [redacted]
Applicable industry standards will be identified and incorporated into the plans and specifications.

Estimate

Cost estimates to complete the work have been generated at a class 5 level, which is between -50% and +100% of the final project cost. The estimate includes materials, construction labor and equipment, engineering, management, and contingencies.

Estimated Budget for Architectural & Engineering Design:	$0
Estimated Budget for Procurement & Construction:	$0
Estimated Overall Budget for the Project:	$24.5 M

406 Hazard Mitigation Proposal

406 Mitigation Opportunity Scope of Work

[redacted]

406 Mitigation Opportunity Cost Estimate

Estimated Budget for Architectural & Engineering to Design:	**Unknown at this time**
Estimated Budget for Procurement:	**Unknown at this time**
Estimated Budget for Construction:	**Unknown at this time**
Estimated Overall Budget for the Project:	**Unknown at this time**

Note: If available, detailed engineering cost estimates will be included as an attachment.

Environmental & Historic Preservation Requirements

There are no known Environmental & Historic Preservation impacts. However, if EHP considerations are identified those will be evaluated during the preliminary design phase and submitted to FEMA for review. Requirements will be incorporated into the final design to be approved by FEMA.

Attachments

N/A

FEMA Project Scope of Work

Project Name: Field Area Network (FAN)

IT/OT Telecom

Revision: 3

Date: December 10, 2021

APPROVALS

The signatures below formally approve the FEMA Project Scope of Work Template.

Grant Manager's Name	Signature	Date
Hernando Gee, IEM	Hernando Gee Digitally signed by Hernando Gee Date: 2021.12.21 16:16:43 -04'00'	
Department SVP's Name	**Signature**	**Date**
Shay Bahramirad	Shay Bahramirad Digitally signed by Shay Bahramirad Date: 2021.12.17 16:17:12 -04'00'	

Document Change Control

This table contains a history of the revisions made to this document

Rev.	Date of Issue	Brief Description of Change
0	30Sept2021	Initial draft
1	26Oct2021	Revised version incorporating comments
2	29Nov2021	Revised version incorporating information for standard document SOW.
3	10Dec2021	Revised version incorporating comments provided by CP.

Contents

Overview

Project Name:	Field Area Network (FAN)
Region:	[redacted]
Damage Number:	[redacted]
Damaged Inventory/Asset Category:	[redacted]
FEMA Project Number: *(formerly Project Worksheet)*	<Provided by FEMA>

Introduction

The purpose of this document is to present and update a Project Scope of Work (SOW) with a Cost Estimate to be submitted to COR3 and FEMA for projects under DR-4339-PR Public Assistance. COR3 and FEMA will review the completed document to create and version a specific project worksheet and post fixed-cost estimates to repair, restore, or replace the eligible facility, including Section 406 hazard mitigation for a specific project.

LUMA Energy provides the Operations and Maintenance of the electric service to the entire island of Puerto Rico. Puerto Rico Electric Power Authority (PREPA) is the agency that owns the facility, sites, and systems identified in this Scope of Work that is eligible as a critical services facility as defined in the PAAP (Section 428) and BBA 2018 guidance documents.

This document will be updated with information developed during the initial design and engineering phase through the construction phase.

Facilities

Facilities List

Name	Number	GPS Start	GPS End
[redacted]	[redacted]	*provided in Attachment 1*	*provided in Attachment 1*
[redacted]	*TBD (see note)*		

Note: *A listing of the Field Area Network facilities with their coordinates will be confirmed during initial assessment*

Facilities Description

[redacted]

[redacted]

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
  - [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]s
- [redacted]

[redacted]

Project Scope

Scope of Work Description

The overall proposed statement of work includes the following:

1. [redacted]

2. [redacted]

   - [redacted]

- [redacted]

3. [redacted]

4. [redacted]
   - [redacted]

5. [redacted]
   - [redacted]
   - [redacted]
   - [redacted]
   - [redacted]
   - [redacted]

6. Work with LUMA stakeholders to develop scoring criteria for each RFP, support evaluation of RFP responses, and subsequent contract negotiation and formation.

7. [redacted]

8. Provide Program Management support as required to reach successful completion of the following contracts:
   - [redacted]
   - [redacted]
   - [redacted]

[redacted]

Type of Project

Indicate whether the intended plan is a(n):

1. [redacted]
2. [redacted]

b. [redacted]

3. [redacted]

Choose One (Restoration, Improved or Alternate) If improved, provide the changes in facility size, capacity, dimension, or footprint. If alternate, provide rationale for recommendation.
[redacted]
This work will be in compliance with FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020)

[redacted]

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

Preliminary Engineering

Is architectural and engineering funding required to help define the intended scope of work?

Yes

Codes and Standards

Which of the following types of codes, specifications, and standards apply to the restoration, replacement, relocation, or alternate scope of work?

Codes, Specifications, and Standards

Yes **If yes, describe how incorporated below.**
Applicable codes and standards will be identified and incorporated into the plans and specifications The following will be referenced when applying specific codes, specifications, and standards to the project design: • Consensus-based codes, per FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020). • Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program. • FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance. • LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations of the vast majority of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

Industry Standards

Yes **If yes, describe how incorporated below.**
Applicable industry standards will be identified and incorporated into the plans and specifications.

Estimate

Cost estimates to complete the work have been generated at a class 5 level, which is between -50% and +100% of the final project cost. The estimate includes materials, construction labor and equipment, engineering, permitting, management, and contingencies. For the engineering estimates provided, the 30% Engineering estimate is a subset of the Engineering Total, which is a subset of the Total Cost

Estimated Budget for Architectural & Engineering to Design	30.0M
Estimated Budget for Procurement and Construction	300.0M
Estimated Overall Budget for the Project:	330.0M

406 Hazard Mitigation Proposal

406 Mitigation Opportunity Scope of Work

LUMA/IEM will develop 406 Hazard Mitigation proposals consistent with the damages. These proposals will be supported with BCAs.

406 Mitigation Opportunity Cost Estimate

LUMA will provide cost information and BCAs for 406 Hazard Mitigation proposals submitted for this project.

Estimated Budget for Architectural & Engineering to Design:	**Unknown at this time**
Estimated Budget for Procurement:	**Unknown at this time**
Estimated Budget for Construction:	**Unknown at this time**
Estimated Overall Budget for the Project:	**Unknown at this time**

Note: If available, detailed engineering cost estimates will be included as an attachment.

Environmental & Historic Preservation Requirements

EHP considerations will be identified and evaluated during the preliminary design phase and submitted to FEMA for review. Requirements will be incorporated into the final design and construction documents to be approved by FEMA prior to construction activities.

Attachments

Document Name	Description
ATTACHMENT 1 [redacted] GPS Coordinates	[redacted]
	Location Maps and Site Picture [redacted]

FEMA Project Scope of Work

Project Name: Isla Grande 1101

Revision: 0

Date: 27OCT2021

APPROVALS

The signatures below formally approve the FEMA Project Scope of Work Template.

Grant Manager's Name	Signature	Date
Hernando Gee, IEM		11/15/2021
Department VP's Name	**Signature**	**Date**
Don Cortez		11/17/2021

Document Change Control

This table contains a history of the revisions made to this document

Rev.	Date of Issue	Brief Description of Change
A	26OCT2021	INITIAL DRAFT
B	26OCT2021	Revised by Planning
C	27OCT2021	Revise with comments
0	10NOV2021	Issue for use

Contents

Overview

Project Name:	Isla Grande 1101
Project Type:	Alternate Project
Region:	San Juan
Damage Number:	223189
Damaged Inventory/Asset Category:	Island Wide Substations
FEMA Project Number: *(Formerly Project Worksheet)*	<Provided by FEMA>

Introduction

The purpose of this document is to present and update a Project Scope of Work (SOW) with Cost Estimates to be submitted to COR3 and FEMA for projects under DR-4339-PR Public Assistance. The completed document will be reviewed by COR3 and FEMA to create and version a specific project worksheet and post fixed-cost estimates to repair, restore, or replace eligible facilities including Section 406 hazard mitigation for a specific project.

LUMA Energy provides the Operations and Maintenance of the electric service to the entire island of Puerto Rico. Puerto Rico Electric Power Authority (PREPA) is the agency that owns the facilities, sites, and systems identified in this Scope of Work that are eligible as critical services facilities as defined in the PAAP (Section 428) and BBA 2018 guidance documents.

This document will be updated with information developed during the initial design and engineering phase through the construction phase.

Facilities

Facilities List

Name	Number	GPS Start	GPS End
Isla Grande	1101	18.454163, -66.086781	18.454163, -66.086781

Note: GPS coordinates are required for all facilities.

Facilities Description

The above substation facilities are composed of transformers, circuit breakers, disconnect switches, control houses, steel structures, poles, lights, and other minor components, all enclosed with a perimeter fence.
Hurricane Maria's flood currents, high force winds, and flying debris damaged the existing control house, structures, lighting fixtures, and other components. The objective is to replace the control house with a new one for the entire site, based on LUMA and industry standards, improve system resiliency, and mitigate safety hazards and environmental concerns.

This substation includes two 38kV OCB's (Oil Circuit Breakers) configuration that feed Line 5000 which goes to Miramar and Covadonga Sectionalizers (See picture attached). On the medium voltage side (4.16kV) it includes a metal clad switchgear with (1) main breaker cubicle, (2) Service Transformer cubicles, (2) feeder positions cubicles (Feeder 1(1101-1, 02 & 1101-1, 1107-3 to Elliot J. Marti & Miramar Place) & Feeder 2 (1101-2 & 1107-4 Fez. Juncos, Miramar & Las Palmas).

Project Scope

Scope of Work Description (e.g., Plan for Repair)

Scope of work includes the following:

The objective is to conform this substation facility to applicable federal statues/standards adopted by FEMA, that will improve resilience, alleviate safety hazards, and environmental concerns.

This Substation is no longer functional. This Substation has been out of service since September 2018, because of distribution bus problems in the existing Metalclad Unit Substation, that have not been able to be repaired. After doing some initial studies and by recommendation of Planning Department, this substation will be eliminated. The existing 38 kV Line Sectionalizer with two Oil Circuit Breakers will also be eliminated since there is no need for it anymore after removing the substation.

The load of the substation has been transferred to Miramar Substation 1107. Some of this load will be transferred to 13.2 kV substation 1119 at Isla Grande TC GIS. A 13.2/4.16 kV, 3 MVA Voltage Converter (Step Down Transformer) will be installed inside the existing location, to transfer this load to the newer substation. For this, a structure will need to be constructed to accommodate the Voltage Converter.

The voltage converter can be fed from Feeder 1119-02, but this will require some additional work, including:

1. Verify if existing OH and UG feeder 1101-02 is rated 15 kV; if not, some segments will need to be replaced.
2. Connect feeder 1119-02 to feeder 1101-02 and replace one existing 4.16 kVA 75 kVA pole mounted transformer.

The existing Unit Substation (1101) will be removed and disposed of. Part of the work will be to inspect and Test (1) 38/4.16kV 4.0MVA transformer, (2) OCB (Oil Circuit Breaker), (9) Instrument Transformers and (9) Surge Arresters to determine if they can be used as spare for another substation or for spare parts.

The existing equipment in the Control Room will be evaluated to be used as spare or discarded, depending on the condition.

Replace existing chain link fence and entrance swing gate with (approximately 150ft) of concrete wall (flood wall) and (20ft) flood swing gate to help divert water/waste coming from adjacent communities. Evaluate and re-design stormwater management as per latest LUMA standard. The 38kV structure should include hardening for minor material replacement as jumpers, insulators, grounding, damaged structure, etc. Build necessary infrastructure to install the voltage converter including but not limited to concrete pad and any additional equipment required for connection.

The final SOW (plans and specifications) will be completed by Q2 2023, and construction will be completed by Q3 2024. Dates will be finalized upon the preparation of detailed project schedules.

Type of Project

1. **Restoration to Codes/Standards**: Restores the facility(s) to pre-disaster function and to approved codes/standards
2. **Improved Project**: Restores the pre-disaster function of the facility(s) and incorporates improvements including any:
    a. Other improvements, not required by codes and standards
    b. Changes in facility size, capacity, dimension, or footprint
3. **Alternate Project:** Does not restore the pre-disaster function of the damaged facility(s)]

Choose One (Restoration, Improved or Alternate) If improved, provide the changes in facility size, capacity, dimension, or footprint. If alternate, provide rationale for recommendation.
Alternate Project
Improves reliability in the area by transferring loads to a newer substation and eliminating components in the system which can be failure points. Results in a simpler and more economical project.
This work will be in compliance with FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020)

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

Preliminary Engineering

Is architectural and engineering funding required to help define the intended scope of work?

Yes

Codes and Standards

Which of the following types of codes, specifications, and standards apply to the restoration, replacement, relocation, or alternate scope of work?

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

1. Consensus-based codes, per FEMA (Public Assistance Alternative Procedures (Section 428) Guide for Permanent Work FEMA-4339-DR-PR February 2020).
2. Industry standards per FEMA Recovery Policy FP-104-009-5, Version 2, Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program.
3. FEMA Recovery Interim Policy FP-104-009-11 Version 2.1, Consensus-Based Codes, Specifications, and Standards for Public Assistance.
4. LUMA's latest Design Criteria Document (DCD) which aggregates the design considerations of the vast majority of the consensus-based codes, specifications, and standards listed in FEMA Recovery Interim Policy 104-009-11 Version 2.1 (December 20, 2019).

Codes, Specifications, and Standards

Yes
Applicable codes and standards will be identified and incorporated into the plans and specifications.

Industry Standards

Yes
Applicable industry standards will be identified and incorporated into the plans and specifications.

Estimate

Cost estimates to complete the work have been generated at a class 5 level, which is between -50% and +100% of the final project cost. The estimate includes materials, construction labor and equipment, engineering, management, and contingencies.

Estimated Budget for Architectural & Engineering Design:	**$0.10M**
Estimated Budget for Procurement & Construction:	$0.50M
Estimated Overall Budget for the Project:	$0.60M

406 Hazard Mitigation Proposal

406 Mitigation Opportunity Scope of Work

LUMA will develop and propose 406 Hazard Mitigation proposals consistent with the damages during the base design phase. These proposals will be documented with BCAs.

406 Mitigation Opportunity Cost Estimate

Estimated Budget for Architectural & Engineering to Design:	**Unknown at this time**
Estimated Budget for Procurement:	**Unknown at this time**
Estimated Budget for Construction:	**Unknown at this time**
Estimated Overall Budget for the Project:	**Unknown at this time**

Note: If available, detailed engineering cost estimates will be included as an attachment.

Environmental & Historic Preservation Requirements

EHP considerations will be identified and evaluated during the base design phase and submitted to FEMA for review. Requirements will be incorporated into the final design and construction documents to be approved by FEMA prior to construction activities.

Attachments

Document Name	Description
<N/A>	Project Cost Estimates
<N/A>	Engineering Studies and Designs
Referenced Below	Location Maps and Site Picture

Aerial view