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

IN RE: PUERTO RICO ELECTRIC POWER AUTHORITY'S EMERGENCY RESPONSE PLAN	**CASE NO.:** NEPR-MI-2019-0006 SUBJECT: Submittal of Annual Report pursuant to Section 6(m) of Act 83 of May 12, 1941, as Amended

MOTION SUBMITTING LUMA'S ANNUAL REPORT UNDER SECTION 6(m) OF ACT 83 OF MAY 12, 1941, AS AMENDED

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COME NOW LUMA Energy, LLC ("ManagementCo"), and **LUMA Energy Servco, LLC** ("ServCo") (jointly referred to as the "Operator" or "LUMA"), and, through the undersigned legal counsel, respectfully states and submits:

I. Submittal of Annual Report

Pursuant to Section 6(m) of Act 83 of May 2, 1941, as amended ("Act 83")[1], LUMA herein submits to this Honorable Puerto Rico Energy Bureau of the Public Service Regulatory Board

[1] Section 6 (m) of Act 83 requires the Puerto Rico Electric Power Authority ("PREPA") to submit, no later than May 31 of every year, to the Governor, both Houses of the Legislative Assembly and the Energy Bureau a report:

> […] stating the measures taken during the preceding calendar year to address the emergencies that may arise with respect to the upcoming hurricane season and other atmospheric disturbances, including floods that may affect the electrical system of the Island. Likewise, said report shall present the adopted plans or protocols to be followed in case of fires in facilities and establishments of [PREPA]. It shall also include any preventive measure identified for the conservation of the power lines in the event of an earthquake. The report shall include, but not be limited to, the following information:
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> i. Improvements to the [PREPA's] Revised Operating Plan for Emergencies due to Atmospheric Disturbances;
> ii. development of an emergency plan to face a possible earthquake;
> iii. Adopted plans or protocols to be followed in case of fire in [PREPA's] facilities and establishments;
> iv. Status of the tree trimming program in order to protect power transmission lines, while protecting our trees and preventing them from being damaged;
> v. Dcision-making protocol to enforce the shutting down of the electrical system;

("Energy Bureau"), in *Exhibits 1 and 2*, LUMA's 2024 annual report on emergency response preparedness for the Puerto Rico transmission and distribution system ("T&D System") (*Exhibits 1* and *2*, the "2024 LUMA Emergency Response Preparedness Report").

In accordance with Section 6(m) of Act 83, LUMA's 2024 Annual T&D Emergency Preparedness Report describes the measures taken by LUMA during the preceding calendar year, to address emergencies such as storms, atmospheric disturbances, fires, or earthquakes that could affect the T&D System. The 2024 T&D Emergency Preparedness Report summarizes the changes made to LUMA's Emergency Response Plan ("T&D ERP") (in *Exhibit 2*) to address emergencies, a description of the emergency plan to face possible earthquakes; the plans and protocols to address fires in the T&D System facilities; the status of the T&D System tree trimming program to protect the power transmission lines and trees; the training offered to essential LUMA personnel to ensure they are qualified to follow the procedures to address the aforementioned emergencies; and the contingency plans to normalize or re-establish T&D System operations after severe weather, fire, earthquake, cyber-attack, or other emergencies.

As per Section 6 (m) of Act 83, LUMA is also submitting on this date a copy of LUMA's 2024 Annual T&D Emergency Preparedness Report, including *Exhibits 1 and 2*, to the Governor and both Houses of the Legislative Assembly.

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vi. Trainings offered to [PREPA's] essential personnel to qualify it on the procedure to be followed in case of emergencies arising from atmospheric disturbances, fire in [PREPA's] facilities or establishments, or earthquakes, as well as a certification attesting that all the personnel performing supervisory functions in the operating areas has been duly advised on the norms of the operating emergency plan in effect; and

vii. Contingency plans to address the situation after a storm, a hurricane, a fire in [PREPA's] facilities or establishments, or an earthquake, directed to normalizing or reestablishing the electrical system as soon as possible.

Act 83, Section 6(m), 22 LPRA §196(m).

II. Request for Confidentiality

LUMA is submitting herein a redacted public version of *Exhibit 2* protecting confidential information associated with Critical Energy Infrastructure Information included in the T&D ERP and an unredacted confidential version thereof. LUMA respectfully requests the Energy Bureau to maintain the unredacted version under seal of confidentiality pursuant to the Energy Bureau's Policy on Management of Confidential Information, CEPR-MI-2016-0009, issued on August 31, 2016, and partially amended on September 16, 2016. LUMA includes its Memorandum of Law below in support of this confidentiality request.

III. Memorandum of Law in Support of Request for Confidentiality

A. Applicable Legal Provisions

The bedrock provision for the management of confidential information is Section 6.15 of Act 57-2014, as amended, known as the "Puerto Rico Energy Transformation and Relief Act" ("Act 57-2014"). It provides, in its pertinent part, that: "[i]f any person who is required to submit information to the Energy Commission [now Energy Bureau] believes that the information to be submitted has any confidentiality privilege, such person may request the Commission 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 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.* Section 6.15 (a).

Relatedly, in connection with the duties of electric power service companies, Section 1.10 (i) of the Energy Public Policy Act of Puerto Rico, Act 17 of April 11, 2019 ("Act 17-2019") establishes that an electric power service company shall "provide documents and information as

requested by customers, except for: (i) confidential information in accordance with the Rules of Evidence of Puerto Rico; . . . and (ix) matters of public security involving threats against PREPA, its property or employees."

Per Act 57-2014, 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.* Section 6.15(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 [Bureau] who needs to know such information under nondisclosure agreements. However, the [Bureau] shall direct that a non-confidential copy be furnished for public review". *Id.* Section 6.15 (c).

The Bureau's Policy on Confidential Information details the procedures that 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 16, 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 a summary of the reasons why each claim or designation conforms to the applicable legal basis of confidentiality. *Id.* paragraph 3. The party who seeks confidential treatment of information filed with the Bureau must also file both "redacted" or "public version" and an "unredacted" or "confidential" version of the document that contains confidential information. *Id.* paragraph 6.

The Bureau's Policy on Confidential Information also provides the following rules with regards to access to validated 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. Section D (2).

Generally, CEII or critical infrastructure information is exempted from public disclosure because it involves assets and information, the disclosure of which poses 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.

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.*

The Critical Infrastructure Information Act of 2002, 6 U.S.C. §§ 671-674 (2020), a part of the Homeland Security Act of 2002, protects from disclosure of critical infrastructure information ("CII").[2]

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)[3]

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

(A) shall be exempt from disclosure under the Freedom of Information Act;

(B) shall not be subject to any agency rules or judicial doctrine regarding ex parte communications with a decision making official;

(C) shall not, without the written consent of the person or entity submitting such information, be used directly by such agency, any other Federal, State, or local authority, or any third party, in any civil action arising under Federal or State law if such information is submitted in good faith;

(D) shall not, without the written consent of the person or entity submitting such information, be used or disclosed by any officer or employee of the United States for purposes other than the purposes of this part, except—
(i) in furtherance of an investigation or the prosecution of a criminal act; or
(ii) when disclosure of the information would be--
(I) to either House of Congress, or to the extent of matter within its jurisdiction, any committee or subcommittee thereof, any joint committee thereof or subcommittee of any such joint committee; or
(II) to the Comptroller General, or any authorized representative of the Comptroller General, in the course of the performance of the duties of the Government Accountability Office

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

[3] CII includes the following types of information:

B. Request for Confidentiality

LUMA respectfully submits that the entire Appendix C of the T&D ERP's Base Plan in *Exhibit 2* should be protected as containing CEII. This Appendix contains a list of facilities identified as "critical facilities" or "critical infrastructure" classified by priority levels for purposes of restoration after a major outage.

As explained in the T&D ERP, using the guidance of the Cybersecurity and Infrastructure Security Agency ("CISA") under the "Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience", LUMA developed a hierarchy of critical infrastructure and facilities, prioritized as Levels 1, 2 and 3, to categorize various facilities based on the principles of "Community Lifelines". *See* T&D ERP, Base Plan, Section 6.6. Under the T&D ERP, Community Lifelines "enable the continuous operation of critical government and business functions, but [that] are also essentially to human health, safety and economic security." *See id*. Section 5.1. Seven Community Lifelines are established by the Federal Emergency Management Agency (FEMA): Energy (Power & Fuel); Food, Water, Shelter; Transportation; Communications; Health and Medical; Safety and Security; and Hazardous Materials. *See id*.

The T&D ERP explains that "critical infrastructure sectors have assets, systems, and networks, both physical and virtual, that are considered so vital to the United States that their

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> (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.

incapacitation or destruction would have a debilitating effect on security, economic security, national public health or safety, or any combination thereof". *See id*. Section 6.6.1. In addition, "the loss of power to critical infrastructure such as chemical and industrial plants, sewer lines, and water treatment and distribution systems may result in severe environmental and public health hazards to the population". *See id*. Critical facilities, in turn, include hospitals, fire stations, police stations, storage of critical records, and similar facilities. *See id*. Section 6.6.2. The identified critical facilities and infrastructure are listed in Appendix C.

The list of critical facilities and infrastructure in Appendix C of the T&D ERP's Base Plan in *Exhibit 2* is organized by the T&D System region. For each critical facility, the address or location is provided. In addition, the substation, key transmission feeders, and lines serving the critical facilities are identified. The critical facilities include hospitals and other health facilities; Puerto Rico Aqueduct and Sewer Authority water pumps, wells, water treatment plants, and wastewater treatment plants, among others; police stations; fire stations; power generation facilities; manufacturing plants; medical products facilities; fuel distribution facilities; food production and sale facilities; government facilities; nursing homes; and schools, among others.

In sum, Appendix C of the T&D ERP's Base Plan in *Exhibit 2* identifies and describes the transmission and distribution system assets that supply other critical infrastructure facilities and critical facilities for health, safety, and security. In addition, this list identifies the level of prioritization of energy restoration efforts to be applied with respect to these facilities. This information could potentially be used to identify areas of criticality in the T&D System with respect to their effect on the operations of other critical infrastructure facilities (e.g., water) and facilities critical for health, safety, and security. Therefore, Appendix C of the T&D ERP's Base Plan in *Exhibit 2* contains information about critical electric infrastructure, the incapacity or

destruction of which would negatively affect national security, economic security, public health, or safety. As provided in the format, organization, and combination included in Appendix C, this information is not common knowledge nor made publicly available. LUMA takes reasonable measures to protect it from public disclosure. Therefore, it is respectfully submitted that, on balance, the public interest in protecting CEII weighs in favor of protecting Appendix C of the T&D ERP's Base Plan in *Exhibit 2* from disclosure.

The redacted version of *Exhibit 2* submitted with the Motion contains a redacted *Exhibit C* to protect the information contained therein from public view**.**

IV. Identification of Confidential Information.

In compliance with the Bureau's Policy on Management of Confidential Information, CEPR-MI-2016-0009, a table summarizing the hallmarks of this request for confidential treatment:

Document	**Date of Submission**	**Where Confidential Information is Found, if applicable**	**Summary of Legal Basis for Confidentiality Protection, if applicable**	**Summary of Reasons**
Exhibit 2 of Motion Submitting LUMA's Annual Report under Section 6(M) of Act 83	May 31, 2024	Appendix C of Emergency Response Plan's Base Plan	Critical Energy Infrastructure Information 18 C.F.R. §388.113; 6 U.S.C. §§ 671-674	Contains information about critical electric infrastructure, the incapacity or destruction of which would negatively affect national security, economic security, public health, or safety

WHEREFORE, LUMA respectfully requests that the Energy Bureau **consider and accept** LUMA's 2024 Emergency Response Preparedness Report included as *Exhibits 1 and 2* herein and submitted pursuant to Section 6(m) of Act 83 of May 12, 1941, as amended and **maintain** under seal of confidentiality the unredacted version of *Exhibit 2* herein.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 31st day of May 2024.

We hereby certify that we filed this Motion using the electronic filing system of this Energy Bureau and that we will send an electronic copy of this Motion to PREPA's Counsel Alexis Rivera, arivera@gmlex.net, and Mirelis Valle, mvalle@gmlex.net, and counsel for GeneraPR LLC, Jorge Fernández, jfr@sbgblaw.com, and Alejandro López, alopez@sbgblaw.com.

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Exhibit 1

Summary of Annual T&D Emergency Preparedness Report
forming part of LUMA's 2024 Emergency Response Preparedness Report

Exhibit 1

2024 T&D Emergency Preparedness Report

May 31, 2024

EXHIBIT 1

T&D Emergency Preparedness Report

1.0 Introduction

Preparing for emergencies is a daily and year-round priority for the men and women of LUMA. As part of this commitment to emergency preparedness, LUMA has performed a number of key actions throughout the year to help prepare and respond to natural disasters and major emergency events, including:

- Conducting mock emergency exercises to practice response coordination with external partners, including the Puerto Rico Emergency Management Bureau (PREMB), the Federal Emergency Management Agency (FEMA), the Puerto Rico Electric Power Authority (PREPA) and the Central Office for Recovery, Reconstruction and Resiliency (COR3),
- Completing over 44,000 employee hours of FEMA training and having over 1,100 field workers who are trained and prepared to respond and restore power to customers as quickly and safely as possible,
- Acquiring more than $227 million in on-hand transmission and distribution materials for storm response,
- Maintaining regular outreach to hospitals and critical facilities and contacting lifeline customers directly and proactively during emergencies,
- Establishing mutual aid agreements for cooperative response support to critical events if additional resources are needed to assist with our response and restoration efforts.

In addition to the actions to prepare and respond to emergencies, LUMA continues to make significant progress strengthening the resiliency of the electric grid to better withstand storms and hurricanes. To date, LUMA has:

- Replaced over 12,500 broken and failing utility poles with infrastructure that can withstand 160 mph winds,
- Cleared vegetation from over 4,500 miles of powerlines to mitigate threats to safety and reliability,
- Installed over 8,200 automation devices to reduce the impact and duration of outages, and
- Started or completed upgrade work at 22 substations and reduced large-scale substation outages by more than 60% through LUMA's Substation Modernization Initiative.

As part of our emergency preparedness efforts, LUMA, as an agent of the PREPA in connection with the operation and maintenance of the Puerto Rico Transmission and Distribution System (T&D System), is also charged with preparing the annual report on emergency preparedness in connection with the T&D System required under Section 6(m) of Act 83 of May 12, 1941, as amended (Act 83). Act 83 requires that this report be submitted to the Governor, the Puerto Rico Energy Bureau (PREB), and both Houses of the Legislative Assembly no later than May 31st of each year. This document and the LUMA Emergency Response Plan dated May 29, 2024 (ERP) constitute LUMA's 2024 Emergency Response Preparedness Report in compliance with Section 6(m) of Act 83.

The ERP, outlined below, describes the procedures and actions and establishes the structure, processes, and protocols for preparing for, managing, and responding to major electric outages, emergencies, and other incidents that may disrupt the T&D System's operations and services, including those resulting from hurricanes, storms, other atmospheric disturbances, floods, earthquakes, and fires. The ERP is composed of a Base Plan establishing the basic framework, protocols, processes, and procedures applicable to all types of hazards, covering additional response functions for major outage restoration (Annex A), fires (Annex B), earthquakes (Annex C), severe weather (Annex D), cybersecurity and terrorism (Annex E), activation guide (Annex F), communication guidelines (Annex G), and preparedness training (Annex H).

The subject areas required by Section 6(m) of Act 83 are identified below and discussed in detail in this document and/or the attached ERP, as indicated below.

2.0 Emergency Preparedness and Training

LUMA's Emergency Preparedness Department has been focused on implementing and maintaining the ERP, maintaining the LUMA Emergency Operations Center (LEOC) and supporting field response centers, and developing the plans, processes, procedures, and resources to be utilized prior to, during, and after an emergency event. Due to the efforts undertaken to date, LUMA is prepared to execute a rapid response to any emergency, ensuring service is restored to customers as quickly as possible.

Since last June to this date, LUMA has conducted numerous emergency preparedness and readiness activities and trainings across the organization to prepare our people, our facilities, and our operations in the event of a natural disaster and/or other emergencies. These activities include, but are not limited to:

Employee Training and Emergency Response Activities

- **Responding to several storms and system outages**, including Tropical Storm Franklin and Hurricane Lee, by activating LUMA's Emergency Roster and enabling our employees to gain firsthand experience working through an emergency.
- **Conducting three (3) major emergency preparedness exercises** in 2024 (January, February, and May) with external emergency response partners, including a tabletop exercise with the Puerto Rico Aqueduct and Sewer Authority (PRASA), and one mock drill with Puerto Rico and federal agencies focusing on response to a major hurricane.
- **Conducting two (2) tabletop exercises with regional field teams** focusing on mobilizing resources in response to hurricane damages.
- **Carrying out the development and publication of mandatory training** policy to certify all LUMA employees and contractors with basic (ICS 100 and 200) emergency management courses through the FEMA National Incident Management System (NIMS) and Incident Command System (ICS). As of April 30, 2024, 90% of employees have completed both ICS-100 and ICS-200 trainings.
- **Facilitating six (6) ICS 300 courses to ensure key personnel are trained** to enhance their ability to effectively manage complex incidents, improve coordination among various agencies, and strengthen overall emergency response capabilities.
- **Carrying out the development and publication of a family emergency plan** Workday course (in English and Spanish) for our employees and contractors to prepare their families for activities before, during, and after an emergency.

- **Updating the business continuity plan** with additional preparation checklists.
- **Completing over 44,000 employee hours of FEMA training**, since June 2021 to April 2024 , with over 1,100 field workers who are trained and prepared to respond and restore power to customers as quickly and safely as possible.
- **Preparing warehouses for storm response by acquiring more than $227 million in on-hand T&D materials** and strategically storing materials and moving loose items in yards, continuing to increase levels of critical inventory, and ensuring adequate fuel supply.

Technology Enhancements

- **Continuing to install necessary emergency equipment** in the primary physical LEOC and purchasing necessary supplies for emergency operations.
- **Joining the Bureau of Emergency Management and Disaster Administration** (PREMB) in the use of the WebEOC software to further strengthen the exchange of information during emergencies, which will result in more effective coordination and faster recovery. Additionally, the platform will assist in maintaining operational awareness of the work being done in the field, resulting in greater efficiency in the use and dispatch of available resources.
- **Acquiring a satellite system (1 Compact Rapid Deployable and 30 Mini Compact Rapid deployable) that allows communication** and transmission of digital information through the FirstNet ® system, which will allow LUMA to continue communicating with its regional and subordinate offices and with work teams in remote areas without traditional coverage.

Collaboration & Stakeholder Engagement

- **Participating in the signing of the Memorandum of Understanding with the UPR Campus in Arecibo** for the evacuation of employees and equipment from flood prone areas in Arecibo during an emergency.
- **Engaging with various industry stakeholders regarding our emergency preparedness** and ERP, including holding multiple meetings with the Business Emergency Operations Center, State Government (PREMB, PRASA, Department of Health, PR National Guard), Transportation (Aerostar, Shipowners Association), Health (Fresenius Kidney Care, Health Services Coalition), and Pharmaceuticals (Amgen, Medtronic, Bristol Myers Squibb, C-Axis, among others).
- **Upgrading HVAC systems and fire alarms in mission critical facilities** and developing island-wide preventative maintenance schedules with supplementary inspections and preparations for storm season which includes but is not limited to fire hose upgrades and inspections, adding emergency lighting, generator testing, fuel storage checks, purchases of surplus equipment and parts, and the creation of many on-demand services and materials contracts.
- **Taking a leadership role within Emergency Support Function 12** (ESF-12) and creating a group with the Department of Economic Development and Commerce (DDEC), FEMA, PREMB, PREPA, and GeneraPR that meets biweekly to discuss energy issues in the field of emergency preparedness.
- **Maintaining regular outreach to hospitals and critical facilities** and contacting lifeline customers directly and proactively during emergencies.

- **Securing prepositioned contracts** to ensure appropriate resources are available if needed to support response efforts to any disaster event.
- **Engaging mutual aid partners**, including the Edison Electric Institute (EEI) and the American Public Power Association (APPA), to secure additional resources, beyond prepositioned contracts, if needed.
- **Participating in the annual FEMA and PREMB sponsored "Puerto Rico Readiness Initiative Stakeholder Engagement"** held in May fostering collaboration among agencies, and where LUMA presented its ERP to FEMA Region 2 staff.

The attached ERP is designed to develop and improve the knowledge and skills of personnel assigned to emergency response activities and to support the safe and reasonably prompt completion of all required actions during ERP activations; an exercise program following the guidelines from the Homeland Security Exercise Evaluation Program; and operations-based exercises (including drills and functional exercises) to validate and/or evaluate plans, policies, and procedures, among other things. All LUMA personnel performing key functions in the LEOC have been duly advised and trained on emergency operations.

3.0 Revisions to the ERP

As part of LUMA's continuous improvement, the ERP is reviewed annually and revised as necessary. LUMA leaders and subject matter/technical experts with responsibilities in this ERP review its contents and update the information to keep the ERP effective. The ERP is a living document, and LUMA makes revisions deemed necessary after lessons learned during ERP activations and based upon After-Action Reports and Improvement Plans, training and exercises, and government agencies' requests, along with best practices and industry standards.

In accordance with this practice, several revisions and updates have been incorporated in the ERP since June 2023, to address input from reviewers and information obtained from training exercises and emergency events experienced during this time, resulting in an improved ERP. In conjunction with several minor textual and grammatical changes to provide additional clarity, the following additional revisions were incorporated:

- Updated language on Event Types and Activation Levels to provide additional context (Appendix A of Base Plan – LUMA ICS Principles)
- Updated operational boundaries to reflect current operations within LUMA
- Updated the LUMA Emergency Roster structure to incorporate different roles based on learning from prior activations
- Added Appendix D – Key Contacts, Appendix E – Referenced Documents, and Appendix F – Report Template Samples to Base Plan
- Added Annex F: Activation Guide, Annex G: Communication Guidelines, and Annex H: Emergency Preparedness Training
- Updated language on Estimated Time of Restoration guidelines to provide more clarity
- Updated language on Mutual Aid assistance and included a flowchart of the request process
- Included Genera-PR as a partner for role description
- Updated flowchart to add roles within the CMC
- Added reference to Preparedness Training Protocols and HSE (Health, Safety, and Environment) Safety Manual and associated guidelines pertinent to emergency events

- Updated list of Critical Facilities (Appendix C)
- Modified language on Annex A – Major Outage Restoration
- Added a section to describe contact center procedures during emergencies.
- Revised and clarified the lifeline critical customers process, providing clear definitions, selection process, and methodology prior to emergencies. This process is now grouped under critical customers, which includes the Life Preserving Equipment Dependent Customers (LPE) (Subsidy beneficiaries), ensuring a more concise and effective approach to customer prioritization in emergencies

4.0 Hazards Response

In addition to the provisions of the Base Plan, the attached ERP includes the following: (i) a Fire Response Annex (Annex B), (ii) an Earthquake Response Annex (Annex C), (iii) a Severe Weather Response Annex (Annex D), and (iv) a Cybersecurity and Terrorism Annex (Annex E), each describing key functions and operational and tactical framework to be implemented in response to the type of hazard affecting the T&D System.

5.0 System Operations in an Emergency

The attached ERP establishes the structure, processes, and protocols for LUMA's emergency response and identifies the unit and individual roles directly responsible for those responses and critical support services. This includes specific procedures for emergency response execution and black-start operations, controlling what comes on or off the system, isolating the grid as necessary during system constraints or lack of capacity, and providing system restoration priorities, among other things.

The ERP also contains a comprehensive discussion of contingency plans to address major electric outages, emergencies, and other incidents that may disrupt the T&D System's operations and services from any hazards, including those resulting from hurricanes, storms, other atmospheric disturbances, floods, earthquakes, and fires. Additionally, it includes a Major Outage Restoration Annex (Annex A) that outlines an operational and comprehensive framework to address the restoration of the T&D System from major outages.

Please refer to the attached ERP for a complete discussion of these and other provisions related to decision-making protocols and processes, contingency planning, and electric service restoration.

6.0 Vegetation Management

The Vegetation Management and Capital Clearing Program includes work to abate or mitigate immediate vegetation risk in the most critical locations and an ongoing program to clear and re-establish Rights-of-Way (ROWs) to standard widths. This includes immediate response for the highest risk sites, those that pose hazards to public safety or routinely experience tree-caused service interruptions, and reclaiming ROW corridors (especially those impacting the T&D systems).

Since June 2023 to this date, LUMA's vegetation management activities have included responding to urgent outages, customer requests, and public safety requests. LUMA has also completed the remediation of over 1,150 miles of ROW corridors, including approximately 350 miles of transmission

ROW and more than 800 miles of distribution. In addition, LUMA has completed multiple rounds of preventative maintenance at all previously cleared substation sites.

LUMA continues to use specialized equipment, including Skid Steer Mulchers, Small and Medium-Sized Forest Mulchers, and Mini-Giraffe Saws on ROWs. This use of specialized equipment to complete work has resulted in more effective and efficient vegetation management practices than historically seen in Puerto Rico. This application of specialized equipment has alleviated physically demanding work and, as a result, improved safety. LUMA has utilized this specialized equipment to conduct maintenance vegetation work on distribution lines and transmission lines in various regions across the island.

7.0 T&D System Rebuild and Resiliency

The 2024 Atlantic Hurricane Season begins on June 1. In the preceding twelve months, LUMA has made significant progress in repairing and stabilizing the utility grid, increasing the reliability and resiliency of the T&D system to better withstand impacts from natural disasters. LUMA's grid repair activities have included the following:

- Installed over 5,300 Distribution Automation devices, including 2,700 new feeder protection devices
- Replaced more than 5,000 broken and damaged utility poles
- Activated over 45,000 rooftop solar panel systems representing over 315 MW
- Replaced or repaired over 24,000 streetlight luminaires
- Energized 21 federally funded projects

LUMA's progress is documented in detail at https://progresodelumapr.com/nuestro-progreso/.

LUMA remains committed to making real and measurable progress in our efforts to modernize and transform Puerto Rico's energy grid and Emergency Management is a pillar of the more reliable, more resilient, customer-focused, and cleaner energy service we're working every day to build for all our customers across Puerto Rico.

Exhibit 2

T&D ERP forming part of LUMA's 2024 Emergency Response Preparedness Report

[Unredacted Version Submitted under Seal of Confidentiality]

Emergency Response Plan

Base Plan

LUMA ENERGY

May 31, 2024

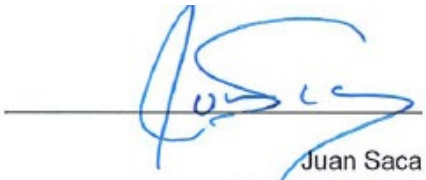
Letter of Promulgation

As the President and CEO of LUMA Energy (LUMA), I hereby authorize the LUMA All-Hazards Emergency Response Plan (ERP or Plan). This Plan provides for LUMA's response, immediate recovery, and restoration of operations to emergency events efficiently and effectively to protect lives, public health, safety, and property; to restore essential services; and to enable and support economic recovery. Threats to the continuity of service to our customers are constantly evolving. LUMA stands prepared to respond to and recover from any threat or hazard.

The ERP has been developed to ensure the safety and reliability of our electric grid during unforeseen events or emergencies. As an electric utility company, we understand the critical importance of reliable and resilient power supply to our customers. Our ERP aims to provide a coordinated and efficient response to emergency situations that may impact on the delivery of services to our customers. The plan has been developed to respond to any emergency event, including natural disasters such as hurricanes, earthquakes, and severe weather conditions, as well as man-made incidents such as cyber- attacks and physical security threats.

The ERP outlines clear roles and responsibilities for all employees, stakeholders, and partners involved in the response efforts, and it provides procedures for assessing and responding to emergencies. We have established communication channels to engage with our customers, emergency response agencies, and other stakeholders quickly and effectively during an emergency. We have also implemented a comprehensive training and testing program to ensure our employees are fully prepared to respond to any potential emergency. Our team is well-equipped with the necessary resources and tools to ensure the safety and reliability of our electric grid.

As we move forward, we will continue to review and improve our ERP to ensure that it remains effective and up to date with the latest best practices and technologies. We are committed to providing safe and reliable electricity to Puerto Rico, and our ERP is a critical component of this commitment.



Juan Saca
President & CEO
LUMA Energy

Executive Summary

The LUMA All-Hazards Emergency Response Plan (ERP) reflects organizational doctrine and policy. It supersedes all previous plans and integrates with all LUMA organizational units. The ERP addresses electric utility emergency response to any disaster and addresses customer outages due to natural causes (e.g., thunderstorms, hurricanes, tornadoes, storm surges, earthquakes, tsunamis, floods etc.), human causes (e.g., major equipment failure, civil unrest, terrorism, wildfire, cyber-attacks, etc.), and technological causes (e.g., nuclear radiation, dam failures, transportation accidents, etc.), resulting in significant customer service interruptions. The ERP is based on knowing and understanding the magnitude of the event. The Major Outage Restoration Annex (Annex A) included in this plan operationalizes the sequence of energy restoration revolving around key infrastructure that supports the protection of life and property.

Emergency Response Plan Description

The ERP is a foundational document that provides the mission and the concept of operations on how to respond to, recover from, and mitigate against both man-made and natural disasters through actions of planning, training, and exercises that are related to the electric utility services and assets operated by LUMA throughout Puerto Rico. It describes LUMA's approach to incident operations and the coordination structure(s) that implement them. It also contains stabilization and restoration end-states as defined by Community Lifelines. The primary objective of Community Lifelines is to ensure the delivery of critical services that alleviate immediate threats to life and property when disasters impact communities. In addition, the ERP provides an incident management structure for coordinating and deploying the essential resources necessary for LUMA's response (see Figure 1).

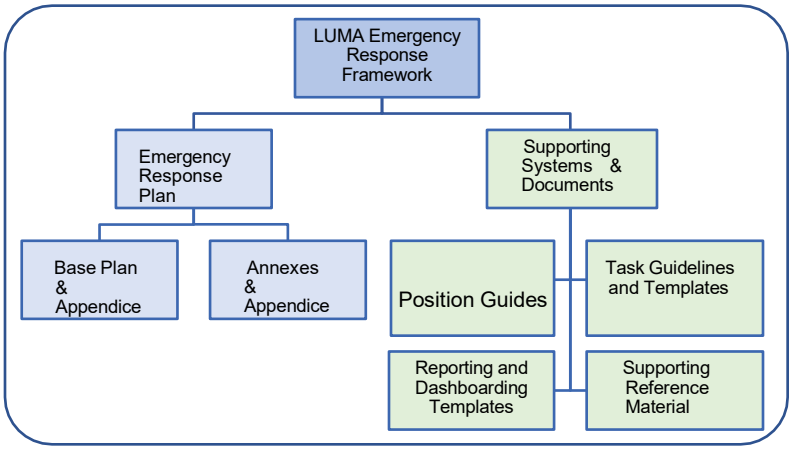


Figure 1: LUMA Emergency Response Framework.

The Annexes and Appendixes to the ERP provide LUMA- specific operations and guidance on how the response and recovery concept of operations, tasks, and responsibilities are achieved. Standard operating guides and checklists facilitate the use of these documents. Annex A details how the organization responds during an emergency, the system of prioritization, and the power restoration strategy, among others. Through exercise and training, LUMA staff obtain awareness of the LUMA Emergency Response Framework, allowing LUMA to achieve incident objectives and successful outcomes of each response.

Senior Leader's Intent

LUMA's ERP establishes a simple but detailed structure for the management of and response to emergency events that affect Puerto Rico's Transmission and Distribution System (T&D System). It provides the structure and mechanism for the coordination of power restoration throughout Puerto Rico.

This ERP adopts guidance from Federal documents such as the National Response Framework (NRF) and Comprehensive Preparedness Guide (CPG) 101. It promotes a common understanding of risk-informed planning and decision-making. Furthermore, it assists planners in examining a threat and developing integrated, coordinated, and synchronized plans, while pursuing the assigned functional responsibilities to ensure effective and efficient incident management.

Vision for Emergency Response

LUMA developed and maintains a comprehensive set of plans to prepare for, respond to, and recover from any major outage, and inform customers, stakeholders, and the public regarding all types of business interruption incidents that might occur.

Corporate Preparedness Strategy

LUMA's approach to emergency management reinforces our commitment to our customers and the communities we serve. LUMA utilizes effective emergency management principles and protocols that enhance our ability to provide safe and reliable energy services. LUMA delivers on its commitments to its customers by:

- Conducting risk assessments
- Developing appropriate prevention or risk mitigation strategies
- Implementing comprehensive emergency preparedness programs
- Communicating timely and accurate information to customers and other stakeholders
- Responding with appropriate resources to address the emergency.
- Recovering from emergencies expeditiously
- Continuously improving

A Living Document

This ERP is published annually and revised as necessary. All LUMA leaders and subject matter/technical experts responsible for this ERP are required to review its contents and update the information to keep the Plan relevant. As shown in Figure 2, the ERP is a living document and LUMA makes revisions deemed necessary after lessons learned during ERP activations and based upon After-Action Reports (AARs) and Improvement Plans (IPs), training and exercises, and government agencies requests, along with best practices and industry standards.

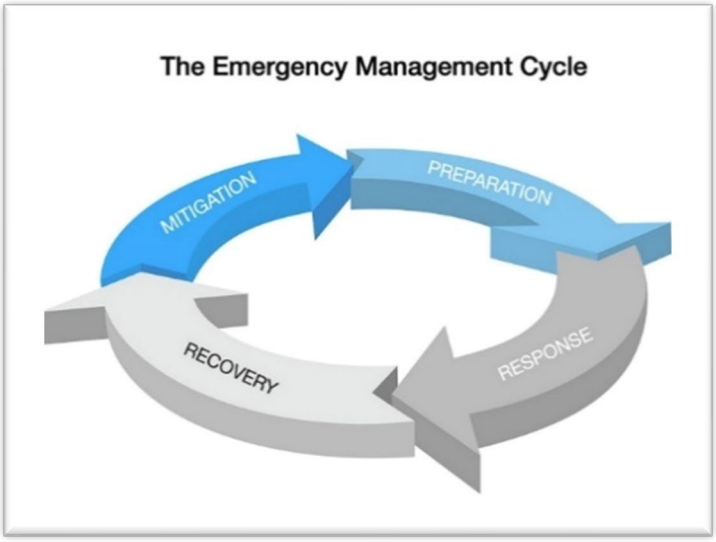


Figure 2: The Emergency Management Continuous Improvement Cycle.

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Tables & Figures

1 Purpose

The purpose of the LUMA Energy All-Hazards ERP is to outline operational concepts and organizational arrangements. The ERP is applicable to all LUMA personnel who are assigned functional responsibilities. One of the features of the ERP is scalability. Many emergencies begin as a local level emergency and can quickly escalate to a system level emergency. LUMA can accommodate local, regional, and system-level emergencies by ensuring that key elements of the Incident Command System (ICS) are implemented at each level within the organization. These key elements are easily replicated using common roles and responsibilities.

The ERP outlines LUMA's philosophy and procedures for managing major outages, emergencies, and other incidents that may disrupt electric service to our customers. They include hurricanes, storms and other atmospheric disturbances, floods, fires to T&D System facilities and earthquakes.

It further establishes the structure, processes, and protocols for LUMA's emergency response. This document identifies unit and individual roles directly responsible for those responses and critical support services. In addition, the ERP provides a management structure for coordinating and deploying the essential resources necessary for LUMA's response. Major Outage Event Metrics may apply during incidents that meet the criteria for a Major Outage Event. The Major Outage Event Metrics can be found in Appendix A of Annex A.

The ERP has been developed to enable LUMA to provide services and effectively carry out its responsibilities pursuant to the Puerto Rico T&D System Operation and Maintenance Agreement dated as of June 22, 2020 (T&D OMA). As part of providing management, operation, maintenance, repair, restoration, and replacement of the T&D System, LUMA's Scope of Services detailed in Annex I of the T&D OMA includes emergency preparedness planning, response, and implementation of the ERP to maintain business continuity and electric service, disaster recovery and emergency response and restoration, and all necessary emergency response, business continuity, reporting, and communication functions relating to the T&D System. LUMA's responsibilities include direct responsibility for media and other communications with public officials, regulators, and municipal representatives regarding storm preparation, management, coordination, and response for the T&D System. LUMA will take actions during an emergency event that LUMA deems in good faith to be reasonable and appropriate under the circumstances and in accordance with the ERP.

The ERP also forms part of LUMA's compliance with the requirements under Section 6 (m) of Act No. 83 of May 2, 1941 (Act No. 83-1941), as amended, which provides for the submission to the Governor, the Puerto Rico Energy Bureau (PREB), and both Houses of the Legislative Assembly, of an annual report on emergency preparedness. In addition, implementation of the ERP furthers Puerto Rico's energy public policy objectives stated in the Puerto Rico Energy Transformation and Relief Act, Act No. 57 of May 27, 2014 (Act No. 57-2014), and the Puerto Rico Energy Public Policy Act, Act No. 17 of April 11, 2019 (Act No. 17-2019), including taking actions to further the reliability, resilience, and safety of the electric power service in Puerto Rico.

2 Scope

This ERP applies to any hazard or threat that results in or could result in a major potential impact on the integrity of the T&D System and/or a disruption of service to LUMA customers. Additionally, the ERP applies to LUMA personnel and staff, affiliate company employees, contractors, mutual aid resources, or any other personnel working at the direction or under the authority of LUMA.

For the ERP, an Emergency or Emergency Event is defined as a Type 3, 2, or 1 event, as described in the Event Type and Activation Levels, found in Appendix A. Non-Emergency Events, or Type 5 and 4 events, are not necessarily governed by this ERP, but are defined nonetheless to provide tools and guidance to teams responding to events.

LUMA's Emergency Operational Boundaries are split geographically into 6 regions and 17 districts, which are made up of 78 municipalities. These are LUMA's Emergency Operational Boundaries (see Figure 3).

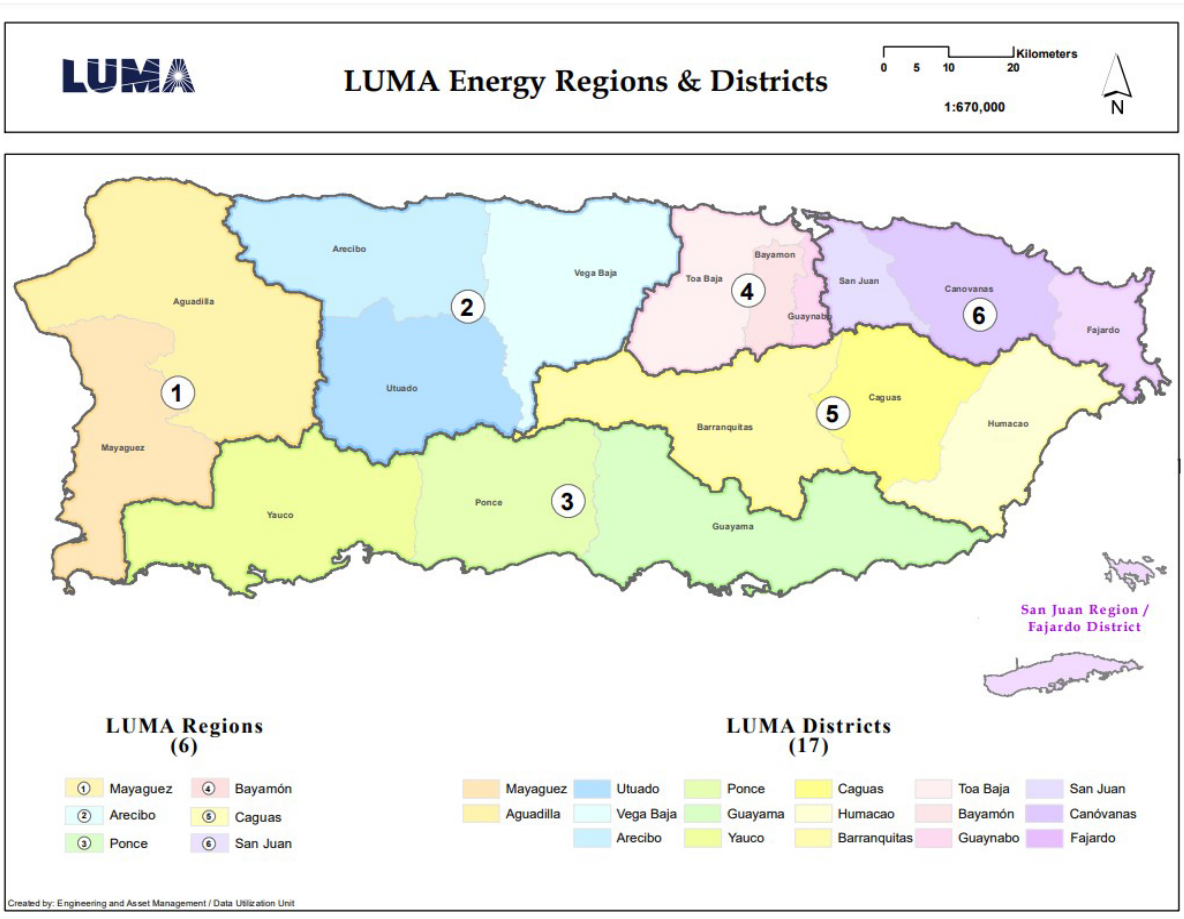

Figure 3: LUMA Emergency Operational Boundaries.

3 Implementation

This ERP utilizes the National Incident Management System (NIMS) as the guide for the comprehensive approach to incident management. It is applicable across functional disciplines and at all levels of the response structural framework. Adopting NIMS improves the effectiveness of emergency response across a wide spectrum of potential incidents and hazards, regardless of cause, size, or complexity. NIMS provides a common framework to achieve common goals and integrate diverse capabilities.

Overall, this approach allows for consistent coordination at all levels of government (federal, state, local, and tribal), the private sector, and non-governmental organizations in a variety of incident management activities. LUMA has shaped its emergency response structure around ICS to provide a consistent all-hazards incident management methodology that allows for integration into a nationally standardized response and recovery structure.

4 Situation and Assumptions

4.1 Situation

Puerto Rico sits between the North Atlantic Ocean and the Caribbean Sea as the smallest and most eastern island of the Greater Antilles. Out of the five geographical regions that make up Puerto Rico, the northern region is the most populated and economically diverse. It is also home to the capital, San Juan. The island is about 9,086 km2 (3,508 mi2), and 60% of it is mountainous terrain. Approximately 3.2 million people called Puerto Rico home in 2022.

A variety of events can adversely impact the integrity of Puerto Rico's energy grid. The chance of a hurricane disrupting the island's electricity service has also increased with the frequency of hurricanes in the Atlantic Ocean. Tropical depressions and storms can be devastating; although hurricanes, and their accompanying storm surges, pose the greatest threat to life and property. Storm surge and flooding can account for many casualties and property damage. Non-weather events, such as earthquakes or fires, can also cause loss of life and extensive damage to infrastructure and critical systems. LUMA has a supporting Earthquake Annex and Fire Annex to support an emergency response of the T&D System for these hazards.

LUMA Energy provides electric service to approximately 1,468,223 customers in 78 municipalities in Puerto Rico (see Figure 4). Since electricity plays a crucial role in our customers' lives, quick restoration of electric service is a customer expectation and a LUMA goal, including the prioritized restoration of power for critical infrastructure. The ERP is grounded in evaluating the extent of the event and resource availability to support the response and restoration process, including:

- Damage prediction modeling.
- Rapid damage assessment.
- Field labor resource predictions and placement on the island.
- Material requirement predictions and actual placement during an event.
- Training, exercises, and drills.
- Effective communication.

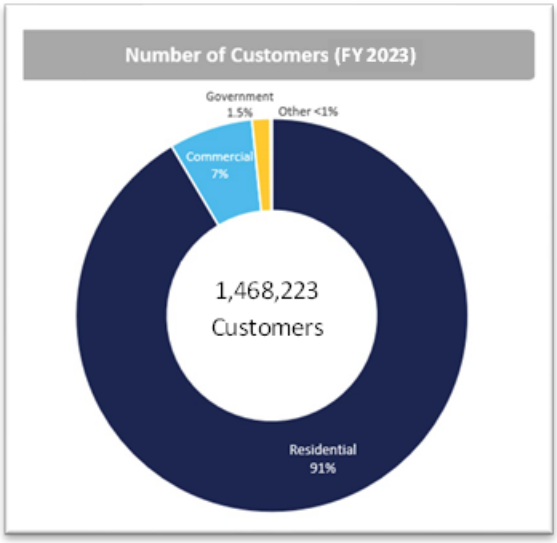

Figure 4: LUMA Customers.

The ERP has been designed to provide a systematic, organized approach to facilitate a safe and efficient response to a major outage caused by any hazard. The ERP is constructed to provide a trained, operationally ready workforce, and effective processes that can be deployed as required to deal with the unique aspects of each major emergency event. The effectiveness of emergency response is based on LUMA's commitment to prepare and implement procedures outlined within this ERP. The development of an After-Action Report (AAR) following exercises, drills, and real-life emergency events further enables improvement in LUMA's response and restoration processes.

Execution of the appropriate responses to effect rapid and safe recovery is dependent upon the scalability of the ERP. The number of customers affected may vary, but the operational concept stays consistent. The level of recovery resources can be adjusted as needed in accordance with the Major Outage Event Metrics in Annex A of Appendix A.

4.2 Assumptions and Considerations

- Puerto Rico is vulnerable to hazards that could, individually or in combination, negatively impact the T&D System infrastructure LUMA operates.
- LUMA customers include government, business, and individual clients throughout the island.
- An emergency event and/or major outage may occur at any time of the day or, night, weekend, or holiday, with little or no warning.
- LUMA is responsible to maintain, disseminate, and implement the ERP.
- Response to all emergency events should be guided by the principles of the NRF, NIMS and ICS.
- The impact of emergency events on the energy infrastructure that LUMA manages varies in scope and severity.
- Because of geography, resources may be limited to what is in Puerto Rico at the time of an emergency event. It may take days or weeks to receive resources from the mainland.
- Mutual Aid partners on and off-island may be limited to the resources they have available at the time of the event. They are also limited to resources that can quickly arrive from the mainland or other locations in the Caribbean.

- LUMA is a member of utility associations and has mutual aid assistance agreements with other utility providers in the Caribbean and the US mainland.
- The ERP is tested through drills and practical exercises to evaluate the effectiveness and the need for changes or revisions. LUMA exercises the ERP on an annual basis.
- LUMA response personnel and their families may be affected by an emergency or disaster situation. That could lower LUMA's available human resources.
- Negative impacts of a major event include, but are not limited to, displaced populations, disruptions in daily activities, essential public services and government infrastructure, and environmental damage.
- Access to disaster areas may be limited because of damaged infrastructure.
- In organizational, geographical, and jurisdictional terms, events are attended to at the lowest possible level.
- The Incident Commander (IC) may declare activation of the ERP either before an emergency event (based on outage projections) or after an emergency event (based on outage and restoration estimates).
- ERP Event Types 1, 2, and sometimes 3, require full activation of ICS. During an ERP activation of a Type 1, 2, or 3 Event, all response functions should be coordinated through the LUMA Emergency Operations Center (LEOC).
- The LUMA facility in Santurce is located at 1110 Avenida Ponce de León, San Juan, Puerto Rico. It serves as the primary LEOC.

5 Mission

LUMA strives to meet customers' needs through risk assessments and continuous communications regarding planning for, responding to, and recovering from major outages to achieve excellence as an industry leader. LUMA consistently emphasizes public and employee safety as a top priority during each response. LUMA's efforts to protect customers and build back stronger – through prevention and mitigation of potential impacts – will drive the overall resilience of maintaining electric utilities throughout Puerto Rico.

NIMS defines Emergency Operation Center (EOC) as a central command and control system responsible for carrying out the principles of emergency preparedness and emergency management, or disaster management at a strategic level during an emergency, and ensuring the continuity of operation of a company, political subdivision, or other organization. An EOC is a location from which leaders of a jurisdiction or organization coordinate information and resources to support incident management activities (on-scene operations). EOC team structure and composition can vary widely. Virtual or hybrid EOCs may be used to expand the EOC when physical space is limited, to create a safer operating environment (e.g., for social distancing measures or if access to the EOC is impeded), to include additional stakeholders from the whole community who may not be able to be physically present or to support coordination during incidents in which conditions do not require in-person coordination to perform EOC functions.

Primary functions of staff in EOCs, whether virtual or physical, include:

- Collecting, analyzing, and sharing information.
- Supporting resource needs and requests, including allocation and tracking.
- Coordinating plans and determining current and future needs.
- In some cases, providing coordination and policy direction.

LUMA follows NIMS' principles in the structure and operation of the LEOC. This facilitates the coordination of LEOC staff with different agencies and organizations during an emergency. More information on the LEOC procedures is available in the SOG titled LEOC Guidebook.

5.1 Community Lifeline

The use and analysis of Community Lifelines enhance LUMA's ability to positively impact Puerto Rico's communities during normal operations and a major outage. Community Lifelines not only enable the continuous operation of critical government and business functions, but they are also essential to human health, safety, and economic security.

The seven Community Lifelines were established by the Federal Emergency Management Agency (FEMA) following Hurricane Maria in 2017. They were tested and validated in the aftermath of five disasters in 2018 and 2019, starting with Hurricane Michael. FEMA wrote an AAR of each disaster to analyze their disaster management. The AAR recommended updating the NRF to prioritize the restoration of seven key lifelines and to emphasize the importance of cross-sectional coordination both ahead of, during, and after a disaster (Kunkel, 2020).

Stabilizing Community Lifelines is a priority. In some cases, the disruption to lifeline services is brief, but it is not uncommon to prioritize the restoration of crucial lifelines in phases. Contingency response solutions (e.g., power generators, emergency communications) are frequently used to stabilize and provide time to accomplish the long-term recovery goal of restoration. Until the Community Lifeline services have been re-established, contingency response solutions should remain in place. The National Preparedness Goal established 32 core capabilities in emergency management to address the greatest risks. Figure 5, on the following page, details each lifeline and the core capabilities addressed by each of them.

The ERP discusses all eight Community Lifelines, as all critical infrastructure sectors rely on their functions (NIPP, 2013). The eight Community Lifelines are:

- Energy (Power & Fuel)
- Food, Hydration, Shelter
- Transportation
- Communications
- Water Systems
- Health and Medical
- Safety and Security
- Hazardous Materials

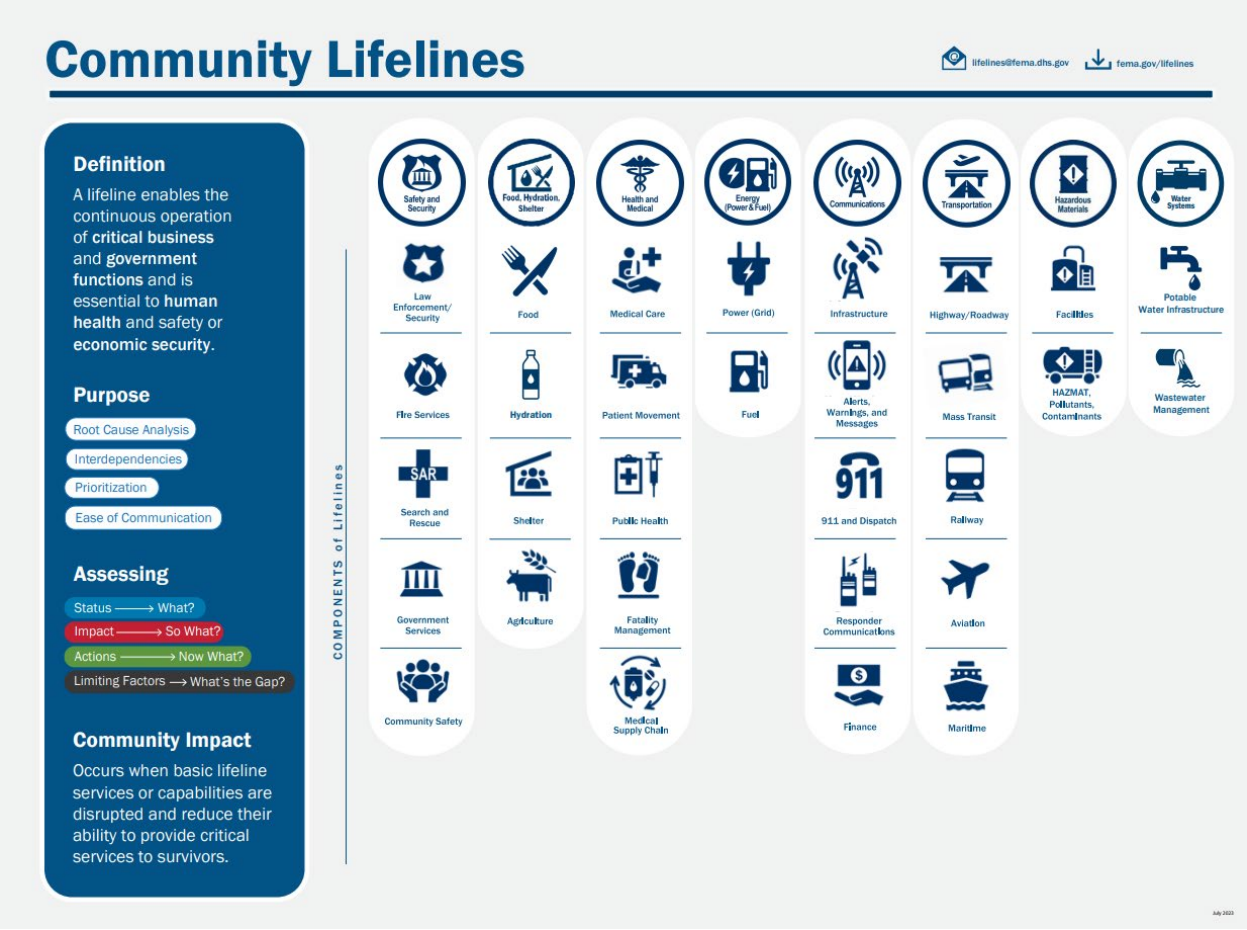

Figure 5: Community Lifelines 1-8, Defined.

The Energy Lifeline (Power and Fuel) provides vital power and/or fuel to all critical infrastructure. Energy is so heavily relied upon that a power interruption would substantially disrupt the security and resilience of other critical infrastructure sectors. In turn, the Energy Sector depends on many other critical infrastructure sectors, such as transportation, water, and communications.

A general outline of the interdependency among the lifeline functions is shown below in Table 1. The subsectors of electricity and fuel provide essential power and fuels to the Communication, Transportation, and Water Sectors. In return, both subsectors rely on them for fuel delivery (transportation), electricity generation (water for production and cooling), as well as control and operation of infrastructure (communication). Communication between these utilities is in accordance with the LUMA Major Outage Event Metrics, found in Appendix A of Annex A.

(Sub)sector Generating the Service	(Sub)sector Receiving the Service				
	Fuel 	Electricity 	Transportation 	Water 	Communication 
Fuel 		Fuel to operate power plant motors and generators.	Fuel to operate transport vehicles.	Fuel to operate pumps and treatment.	Fuel to maintain temperatures for equipment; fuel for backup power.
Electricity 	Electricity for extraction and transport (pumps, generators).		Power for overhead transit lines, traffic signals, and street lighting.	Electric power to operate pumps and treatment.	Energy to run cell towers and other transmission equipment.
Transportation 	Delivery of supplies and workers.	Delivery of supplies and workers.		Delivery of supplies and workers.	Delivery of supplies and workers.
Water 	Production water.	Cooling and production water.	Water for vehicular operation; cleaning.		Water for equipment and cleaning.
Communication 	Breakage and leak detection and remote control of operations.	Detection and maintenance of operations and electric transmission.	Identification and location of disabled vehicles, rails, and roads; the provision of user service information.	Detection and control of water supply and quality.	

Table 1: Interdependencies among Fuel, Electricity, Transportation, Water, and Communication.

5.2 Risk Analysis of Community Lifelines

Community Lifelines are fundamental when stabilized. They integrate services that enable communities and governments to operate effectively and safely. When disaster strikes, it is important to identify the impacted lifelines. We need to determine which lifelines should be restored first. Then, we can decide on the necessary actions to stabilize them.

Assessing these lifelines enables LUMA to identify which lifelines are most vulnerable to prioritize their resilience, ensuring greater life safety and protection of property and the environment, while enhancing the overall resilience of the T&D System. Further analysis and ties to critical loads are located within the Critical Facilities List section of Appendix C.

Information sourced from the Puerto Rico Emergency Management Bureau (PREMB), 2019, identifies each hazard and the anticipated levels of vulnerability, consequences, and probability of the hazard occurring (see Table 2). It assists LUMA in identifying the scale and complexity of a disaster, the lifelines it impacts, and the interdependencies of those impacts. Although it is not a complete gap analysis, this assessment further assists LUMA in developing operational priorities, objectives, response guidance, and public information and communication recommendations. Due to its geographical characteristics, Puerto Rico is familiar with a variety of natural and man-made hazards that have the potential to affect or cause harm to life, property, and the environment.

Hazard	Vulnerability	Consequence	Probability
Flood	High	High	High
Severe Weather*	High	High	High
Earthquake	High	High	High
Tsunami	High	High	Moderate
Windstorm	Moderate	High	Moderate
Wildfire	Moderate	Moderate	Moderate
Lightning	Moderate	Moderate	Moderate
Landslide	Moderate	Moderate	Moderate
Dam/Levee Failure	Moderate	Moderate	Moderate
Infectious Diseases	Moderate	Moderate	Low – Moderate
Tornado	Moderate	Moderate	Low
Terrorism	Moderate	Moderate	Low
Expansive Soils	Low	Moderate	Moderate
Drought	Low	Low	Moderate – High
Extreme Heat	Low	Low	Moderate
Hailstorm	Low	Low	Low

Table 2: Hazards ranked by vulnerability, consequence, and probability from a utility perspective.1

[1] *Includes hurricanes, tropical storms, and tropical depressions.

5.2.1 Energy

The Energy Lifeline is fundamental to maintaining essential services. Storms often interrupt or damage electrical power generation, transmission, distribution infrastructure, and operations. This creates hardship and often life-threatening situations for affected populations. In addition, the cascading impacts of power outages affect other critical response lifelines, causing further deterioration of conditions for survivors and complicating response efforts.

In 2016, the Central Aguirre Power Plant fire was determined to be caused by faulty equipment and inadequate maintenance. This fire left an estimated 1.5 million people without electricity for two and a half days. In 2017, Hurricane Maria caused a complete power outage, and it was not until 11 months after landfall that power was completely restored. It was estimated that, on average, citizens went 84 days without power, 68 days without water, and 41 days without cell phone service (Kishore et al., 2018). In 2018, an excavator working near a fallen 140-foot transmission tower on the southern side of the island caused an electrical fault that caused a blackout across the island in almost every home and business for 36 hours.

In 2020, a series of earthquakes caused power outages across Puerto Rico that lasted approximately 96 hours. These earthquakes also damaged the island's largest power plant, Costa Sur. On July 29, 2020 (one day before Tropical Storm Isaias made landfall in Puerto Rico), 400,000 customers were left without power due to equipment failure. After Isaias made landfall, an additional 400,000 customers lost power (Associated Press, 2020). In September 2022 Hurricane Fiona caused significant damage across the T&D system and resulted in a mainland wide power outage. The generator servicing the island of Culebra, with 3 MW, was the only operational unit solely for the Culebra (1,229) customers.

Each of these incidents demonstrates how vulnerable Puerto Rico's electrical grid is. As shown in Table 1, energy is a prerequisite for every other Community Lifeline to be able to provide the services that are crucial to a community. We analyze several factors in the following sections. These include interdependencies and natural or man-made hazards. These elements could negatively impact LUMA's ability to provide service.

Power Grid

While power is mostly consumed on the north coast of the island, most of the power generated in Puerto Rico originates from the south coast. The electrical grid depends on the aboveground T&D System lines that go through the mountainous central parts of Puerto Rico to deliver power to the rest of the island. Mountainous terrain may require specific actions and resources to provide workers executing repairs or maintenance on the T&D System access to lines and other infrastructure.

Puerto Rico's power generation system comprises fossil fuel and hydroelectric generation sites owned by the Puerto Rico Electric Power Authority (PREPA). While PREPA manages some of these sites, a significant portion is managed by Genera-PR. Additionally, there are privately-owned generation facilities consisting of a combined cycle gas turbine plant, a two-unit conventional thermal coal-fired plant, two wind farms, and seven solar farms. Hurricane season spans from June 1 to November 30, a six-month period where Puerto Rico's electricity grid is most likely to be impacted by tropical storms and hurricanes.

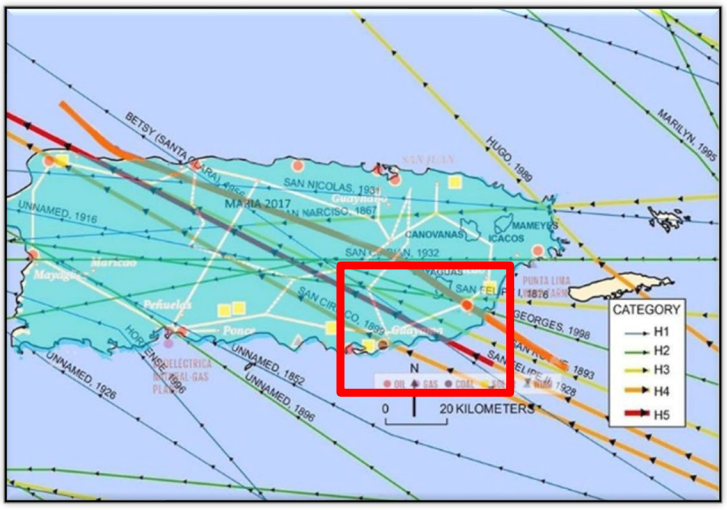

Figure 6: Historical hurricane trajectories over the power generation layout of Puerto Rico.

As shown in Figure 6, most of the hardest-hitting hurricanes have made landfall on the southeast side of the island between the municipalities of Humacao and Guayama. This area is also home to several power generation plants, such as Central Aguirre, AES, Santa Isabel wind farm, and Humacao solar farm.

Puerto Rico is also surrounded by geological faults, and some of them even cross over the island, as shown in Figure 7. Up until February 2024, the Puerto Rico Seismic Network recorded over 12,000 earthquakes in the Puerto Rico region. A handful of earthquakes with a magnitude greater than 7.0 (per the Richter scale) have caused significant destruction to the island's infrastructure. An earthquake can also result in a tsunami. Tsunami waves in the Puerto Rico region could have an average height of 30 feet. A tsunami on the northern coast of the island could affect the Central San Juan, Palo Seco, and Cambalache power plants. A tsunami on the southern coast of the island could affect Costa Sur, Central Aguirre, AES, and EcoEléctrica.

Figure 7: Major geological faults overlapping the power generation layout of Puerto Rico.

Another important part of electric utility maintenance is vegetation management. LUMA's Vegetation Management Plan includes steps to improve and maintain the control of vegetation to achieve a more resilient T&D System and support preparation for emergencies. Vegetation management encompasses a comprehensive tree-trimming program. This program systematically produces quarterly reports known as Vegetation Clearing Filings. These reports provide detailed information regarding the vegetation remediation effort and miles cleared by voltage level while considering leading practices for ecological restoration and debris management.

As the world witnessed in 2020 with the novel coronavirus disease (COVID-19), a pandemic can affect every facet of life. Although this type of hazard does not directly affect the power grid, it has the potential to greatly impact LUMA's workforce. Any disaster event due to an outbreak, epidemic, or pandemic would require the modification or cancellation of staff assistance. The unavailability of personnel due to illness or quarantine could result in changes to operational practices necessitated by a pandemic.

Fuel

Transporting fuel across the island is a challenge in general. However, it becomes an even bigger challenge during a disaster or emergency event either due to a lack of fuel, the inability to import fuel, air/seaports being inoperable, and/or roads being impassable due to debris or flooding.

For a long time, customer-owned generators have been the only option for maintaining power and safety after a disaster, but they are a temporary lifeline at best. Essential businesses have the option to use much larger, diesel-powered backup generators. However, neither of these generators is meant to be used for weeks on end. The larger generators require regular maintenance —on average every 500 hours— as well as continuous refueling. If these two requirements are not met, generators may begin to fail.

Additionally, procuring a large amount of fuel is often impossible when ports are inoperable, and roads are impassable. After Hurricane Maria, some gas stations had a wait time of six hours or more, not because of a gas shortage but because of a transportation/distribution problem regarding the transportation of fuel from the pier to the gas stations. There were few available truck drivers, no fuel for the transport trucks, and impassable roads. As telephone communications systems became inoperable, drivers were unable to be reached, and gas stations could not notify parent corporations of fuel outages.

5.2.2 Food, Hydration, Shelter

The Food, Hydration, Shelter Lifeline is a support system that enables the sustainment of human life, such as food retail and distribution networks, water treatment, transmission and distribution systems, housing, and agriculture resources. This Lifeline is made up of four components: Food, Water, Shelter, and Agriculture. Each of these components contains sub-components, as shown in Table 3.

Food	Hydration	Shelter	Agriculture
• Commercial Food Distribution • Commercial Food Supply Chain	• Drinking Water utilities (intake, treatment, storage, and distribution	• Housing (e.g., homes, shelters) • Commercial Facilities (e.g., hotels)	• Animals and Agriculture

Food	Hydration	Shelter	Agriculture
• Food Distribution Programs (e.g., food banks)			

Table 3: Components and subcomponents of the Food, Water, Shelter Community Lifeline.

Food

Contemporary supply chains are dependent on and usually interdependent with the electrical grid, telecommunications systems, road, and fuel networks. Grocery stores, for example, depend on power systems for lighting, payment processing, climate control, and refrigeration. If the electrical grid is down, the grocery stores need generators and a large amount of fuel. First, the fuel needs to be transported from the port into the cities, and as outlined previously, that may not be possible during an emergency. About 85% of the total food consumed in Puerto Rico is imported, which creates a vulnerable food supply system (Garcia-Lopez, 2018). After Hurricane Maria, imports accounted for 95% of the food consumed on the island (Mares, 2019).

Hydration

Involves ensuring access to safe and sufficient drinking water for individuals affected by disasters or emergencies. This includes setting up water distribution points, providing water purification methods if necessary, and coordinating efforts to meet the hydration needs of the community. It also involves monitoring and addressing potential issues related to water quality and availability to safeguard the well-being of the affected population within shelter environments. Coordination with relevant authorities, relief organizations, and local resources is crucial to effectively manage the hydration component within the broader community lifeline.

Shelter

The FEMA Shelter Inventory Map identifies 365 shelters across the 78 municipalities in Puerto Rico (see Figure 8). During Hurricane Maria, approximately 12,000 people were in shelters across the island (Zorrilla, 2017). At a minimum, shelters need electricity to provide pressurized, clean running water for basic hygiene

needs, climate control, and lighting. Depending on shelter operations, electricity may also be required for the storage or preparation of food.

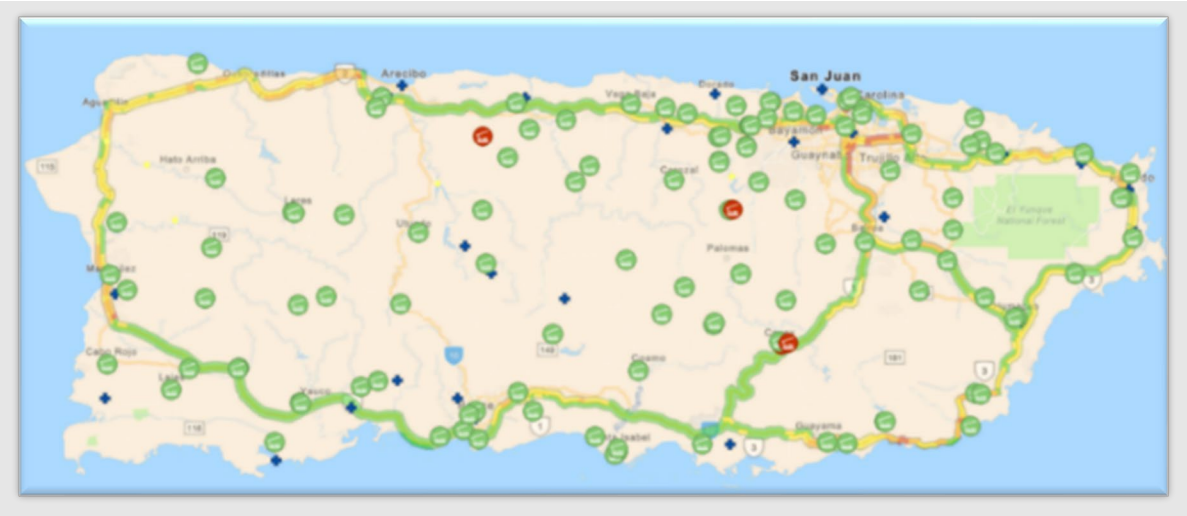

Figure 8: Map of shelters.2

Agriculture

Farms need a multitude of resources to continue operating, most of which are dependent on electricity. Fans and lights for the animals, fans to dry and remove grain dust in silos to prevent grain dust explosions, and machines for milking cows and processing milk are activities that require the power grid to remain operational. Dairy farmers are very important to the economy of Puerto Rico as they account for approximately a third of the total agricultural production on the island (Charles, 2017).

5.2.3 Transportation

The Transportation Lifeline encompasses multiple modes of transportation that often serve complementary functions and create redundancy, adding to the resilience of overall transportation networks. This includes roadway, mass transit, railway, aviation, maritime, and intermodal systems. This Lifeline is made up of five components: Highway/Roadway, Mass Transit, Railway, Aviation, and Maritime. Each of these components contains several sub-components, as shown in Table 4.

[2] Crowd Emergency Disaster Response Digital Corps, 2019

Highway / Roadway	Mass Transit	Railway	Aviation	Maritime
• Roads • Bridges	• Bus • Rail • Ferry	• Passenger	• Commercial (e.g., cargo/ passenger) • General • Military	• Waterways • Ports and Port Facilities

Table 4: Components and subcomponents of the Transportation Community Lifeline.

Reliable transportation is crucial to any economy. There are multiple modes of transportation on the island, all of which were severely affected by Hurricane Irma and Maria. This negatively impacted everyone; those trying to seek emergency assistance and medical care, travel to work or school, and find and reunite with loved ones.

Six million yd^3 (162 million ft^3) of debris were created by Hurricane Maria (Ecola et al., 2020), and at its peak, only 392 miles (630.9 km) of roadway were usable (Build Back Better, 2017). The passable roads did not have working traffic lights because of the nonexistence of power on the island (Ecola et al., 2020). Collectively, this made the immediate transportation of emergency workers, equipment, and other supplies nearly impossible. The lack of trucks, drivers, and fuel is a major logistical challenge in the restoration of power and the Energy Lifeline as a whole.

The “Tren Urbano” is the only active heavy-rail metro system serving the public in Puerto Rico. The system connects the cities of Bayamón, Guaynabo, and San Juan with 16 stations along a 10.7-mile (17.2 km) route (Build America Bureau, 2020). After Maria, this service was suspended for three months, and the public bus service was suspended for several weeks (Ecola et al., 2020).

The busiest airport in the Caribbean region is the Luis Muñoz Marín International Airport in San Juan (which is also used by the military). Other airports include the Rafael Hernandez International Airport on the northwest side of the island, La Mercedita in Ponce, and Fernando Luis Ribas Dominicci, a single-runway airport in San Juan that supports three local airlines and private charters. Commercial airport operations ceased for several days during Hurricane Maria due to destruction and the downed power grid.

There is only one fully logistically operational port in Puerto Rico – the Port of San Juan. If the Port of San Juan is negatively impacted by a disaster, there is no way to receive equipment, supplies, and other mutual aid resources. It could take weeks or months to adequately prepare one or two additional ports like Ponce or Ceiba.

5.2.4 Communications

The Communications Lifeline is comprised of infrastructure owners and operators of broadband internet, cellular and landline telephone networks, cable services, satellite communications services, and broadcast networks (radio/television). These systems encompass diverse modes of delivery, often intertwined but largely operating independently. This Lifeline is made up of five components, as shown in Table 5.

Infrastructure	Responder Communications	Alerts, Warnings, and Messages	Finance	911 and Dispatch
• **Wireless** • **Cable Systems and Wireline** • **Broadcast (TV and Radio)** • **Satellite** • **Data Centers/Internet**	• LMR Networks	• Local Alerts/ Warning Ability • Access to IPAWS (WEA, EAS, NWR) • NAWAS Terminals	• Banking Services • Electronic Payment Processing	• Public Safety Answering Points • Dispatch

Table 5: Components and subcomponents of the Communications Community Lifeline.

During a disaster, all methods of communication can suddenly become non-operational. When the Energy Lifeline is negatively impacted, the infrastructure the public utilizes daily to receive and send information can become practically obsolete. In the aftermath of Hurricane Maria, the only sources of communication the public received information from were two local AM radio stations (Zorrilla, 2017; Bell, 2018). Radio might be the most reliable way of communication during a disaster when the electrical grid, internet, and cell service are all down (Venton, 2019).

It is for this reason that the American Red Cross (ARC) recommends all disaster kits include a battery-powered radio (ARC, 2021). Though often overlooked, AM/FM radio can be a critical channel for transmitting mass messaging in a major disaster. With the preparation of backup power and a reinforced antenna, the radio can become an avenue for the constant flow of up-to-date information. These messages can calm anxieties (Bell, 2018) and help communicate information to the public about LUMA's emergency response.

Communication with the public is a critical component of effective disaster preparedness, mitigation, response, and recovery (Andrade et al., 2020). LUMA maintains communications with the public and local governments regarding outages and estimated times of restoration using customer notification systems, public messaging using media outlets, and other communications resources.

Internal communications are also vital to emergency response and restoration operations. Communication networks are critical to LUMA's operations as the LEOC must have the ability to disseminate information between the contact center, all state Emergency Operations Centers (EOCs), Regional Operation Command Centers (ROCC)s, elected officials, and all other resources deemed necessary.

Being able to call 911 during or after a disaster is nothing less than a necessity. During Hurricane Maria, the emergency communications system failed across the island. Due to landlines and cell service being non-operational, many callers could not reach 911. The dispatchers who were able to connect with the public were not able to communicate with police stations, and therefore, it took a long time for emergency workers to arrive in response to a call. Public Land Mobile Radio (LMRs) systems are used by public safety organizations like police, fire, ambulance services, and other governmental organizations. For detailed information, please refer to the Communication Annex G.

5.2.5 Hazardous Materials

The Hazardous Materials Lifeline is a support system that enables the sustainment of human life, such as food retail and distribution networks, water treatment, transmission and distribution systems, housing, and agriculture resources. This Lifeline is made up of two components: Hazardous materials (HAZMAT) and the facilities that house them. Each of these components contains sub-components, as shown in Table 6.

Facilities	HAZMAT, Pollutants, Contaminants
• Oil/HAZMAT Facilities (e.g., chemical, nuclear) • Oil/HAZMAT/Toxic Incidents from Facilities	• Oil/HAZMAT/Toxic Incidents from Non-Fixed Facilities • Radiological or Nuclear Incidents

Table 6: Components and subcomponents of the Hazardous Materials Community Lifeline.

Following Hurricane Maria, the United States Environmental Protection Agency (EPA) deployed more than 100 community involvement coordinators to assist residents and local municipalities with the collection of household hazardous materials. They collected almost 60 tons of solid hazardous waste and hundreds of gallons of liquid hazardous waste for shipment and off-island disposal. Additionally, they assessed 177 chemical and hazardous waste and oil facilities in Puerto Rico. The EPA did not identify any major spills or releases from these facilities associated with the effects of Hurricane Maria (Environmental Protection Agency, 2018). The Caribbean has only one nuclear reactor which operates in Jamaica (Power Technology, 2020).

5.2.6 Health and Medical

The Health and Medical Community Lifeline is comprised of the Emergency Medical Services (EMS) and acute medical care needed to meet the immediate lifesaving and life-sustaining needs of survivors. As medical care facilities are restored to normal capabilities, behavioral health services, and public health operations support longer-term survivor needs. This Lifeline is made up of five components, as shown in Table 7 below.

Medical Care	Public Health	Patient Movement	Medical Supply Chain	Fatality Management
• Hospitals • Dialysis • Pharmacies • Long-Term Care Facilities • VA Health System • Veterinary Services • Home Care	• Epidemiological Surveillance • Laboratory • Clinical Guidance • Assessment/ Interventions/ Treatments • Human Services • Behavioral Health	• Emergency Medical Services	• Blood/Blood Products • Medical Saline • Medical • Manufacturing (Pharmaceutical, Device, Medical Gases • Distribution • Critical Clinical Research • Sterilization • Raw Materials	• Mortuary and Post-Mortuary Services

Table 7: Components and subcomponents of the Health and Medical Community Lifeline.

A disaster may result in an increase in diseases from the lack of sanitation, increased pressure on the healthcare system, and loss of healthcare facilities due to damage and inoperability. During Hurricane Maria, the majority of the island's 69 hospitals were left without electricity or fuel for generators. A few days after Maria made landfall, only three major hospitals were able to function. Still, as communication systems had not yet been restored, hospitals and staff were unable to communicate with each other (Zorrilla, 2017). FEMA's planning assumption for the percentage of hospitals in Puerto Rico that would be impacted by hurricanes in 2017 was 56%, but the actual percentage of hospitals impacted was 92% (FEMA, 2018).

Stabilization of the Health and Medical Community Lifeline after a disaster is dependent on the stabilization of the other lifelines. Hospitals are dependent on power, potable water, operable wastewater systems, and adequate communications to support an affected population. Hospitals require various chemicals and the ability to remove waste to maintain their core operations.

This lifeline is considered stabilized after all survivors, along with their pets and service animals, can access medical and veterinary care. Movement of patients, access to public health services, fatality management support (even if temporary), and stable medical supply chains are all signs of stabilization of the Health and Medical Lifeline.

5.2.7 Safety and Security

The Safety and Security Lifeline is a support system that enables the sustainment of human life through first responder and government services, law enforcement, and community safety programs. This Lifeline is made up of five components: Law Enforcement Safety, Fire Services, Search and Rescue, Government Service, and Community Safety. Each of these components contains sub-components, as shown in Table 8.

Law Enforcement/ Security	Fire Service	Search and Rescue	Government Service	Community Safety
• Police Stations • Law Enforcement • Site Security • Correctional Facilities	• Fire Stations • Firefighting Resources	• Local Search and Rescue	• Emergency Operation Centers • Essential Government Functions • Government Offices • Schools • Public Records • Historic/Cultural Resources	• Flood Control • Other Hazards • Protective Actions

Table 8: Components and subcomponents of the Safety and Security Community Lifeline.

In the Communications Lifeline section, we discussed the necessity of being able to contact response personnel. This becomes even more crucial during an emergency event. However, before response personnel can be contacted, they must be available, correctly equipped, and ready to deploy. Search and rescue assets should be sufficient to assist all survivors. Fire suppression resources and personnel may be called upon in emergencies that extend beyond fire-related incidents.

Threats to life or safety are concerns for all response personnel and impacted communities. Each of these subcomponents of the safety and security lifeline is imperative. When essential government functions can operate, immediate and long-term recovery from an emergency event are easier.

To help mitigate safety incidents during an event, as well as during regular operations, LUMA encourages and supports educational and continuous learning. It recognizes that this is a shared responsibility between each employee and management. All employees will be required to adhere to the Safety Training policy and to any law and regulation of the Puerto Rico Government public spending.

Safety manuals and guidelines followed during regular operations and in emergency events are contained in the HSE manual, particularly the health and occupational safety folder. It includes the following: General Safety, Job Hazard Analysis, Personal Protective Equipment, Respiratory Protection, Minimum Approach Distances, Hazzard Communication, Welding and Cutting, Helicopter Safety, Confined Space Entry, Fall Prevention and Protection, Ladders and Scaffolds, Hearing conservation, Lockout and Tagout, Working with Electricity, Motor Vehicle Safety, Trenching and Excavating, Contractor Safety, Maintenance of Traffic, Mobile Equipment Safety. The Manual also features several safety checklists and forms: Crane-Suspended Personnel Platform Pre-Lift Meeting Checklist, Job Hazard Analysis Form, Confined Space Entry Permit, Scaffold Inspection Checklist, Driver Tailboard Form, Trenching and Excavating Form, Critical Lift Checklist, Crane Suspended Personnel Platform Trial Form and Checklist.

The Health and Safety Training Plan mandates that LUMA will allocate necessary resources to ensure that health and safety training is provided to all employees upon hiring. This includes a general safety orientation, which covers an overview of LUMA's HSE/EP Manual and emphasizes the importance of HSE/EP programs and procedures. This orientation is given whenever an employee is assigned a new job.

Training is also updated and provided when new work procedures are introduced, new equipment is installed, or new hazards are identified. Additionally, if new substances are introduced (where hazard communication requirements may apply), a new hazard emerges, or if an incident occurs, new safety procedure training is introduced.

All safety incidents are included in a safety report per LUMA Health, Safety & Environment (HSE) standards and in accordance with the LUMA Major Outage Event Metrics found in Appendix A of Annex A.

5.2.8 Water Systems

The Puerto Rico Aqueduct and Sewer Authority (PRASA) owns and operates the island-wide public water and wastewater systems. There are approximately 50 wastewater and 100 drinking water treatment facilities located in Puerto Rico. Over 97 percent of Puerto Rico's population is served by PRASA's water system, and approximately 59 percent of the population receives service from PRASA's wastewater system (AAFAF, 2018). Those who do not receive their water services from PRASA still rely on power to utilize water. Several surface water and groundwater resources across the island provide residents with fresh water and are also used for agricultural, industrial, and energy-based purposes. The North Coast Karst Aquifer System of Puerto Rico is the island's most productive aquifer.

Approximately 30 days after Hurricane Maria, 36% of those connected to PRASA's water system were still without access to water, which equates to nearly one million people (Garcia-Lopez, 2018). The loss of electricity affects water pumping stations and lift stations, cutting off the water supply to residents. When water treatment plants lose power and/or do not function properly, drinking water becomes contaminated, and it is difficult to comply with water boiling notices without electricity.

6 Concept of Operation

6.1 General

In the event of an emergency, LUMA assesses the impacts on the T&D infrastructure. After the assessment, LUMA takes the necessary actions to restore Community Lifelines as rapidly as possible and minimize the impact on the citizens of Puerto Rico. LUMA utilizes Event Types (Appendix A) for major events and phases of response.

6.2 Plan Activation

The success of the response hinges on the effective and timely activation of emergency response personnel. In the event of significant emergencies, LUMA may mobilize the Crisis Management Committee (CMC), Command Staff, and General Staff across the island to bolster the response effort. The declaration of an internal emergency is the responsibility of the LUMA Chief Executive Officer (CEO) or their designee. This occurs when natural, human, or technological disasters pose a threat that could substantially impact T&D operations. Detailed triggers and procedures for emergency response activation can be found in Annex F.

6.2.1 Organization Activation

To manage day-to-day events or potential threats to the system (Type 4 and 5 events), LUMA uses the principles outlined in the document to manage coordination and response efforts. In these situations, LUMA

would name an IC and establish ICS teams to respond to events. The principles described within the document, including management by incident objectives, operational periods, and Incident Action Plans (IAPs) may be used if deemed beneficial for response efforts.

If it is not possible to effectively manage an event through normal operating procedures, the LUMA Emergency Roster (LER) is activated at the direction of the CMC or the LUMA CEO by naming the LUMA IC. Due to the size and nature of the activation process, it is intended to be a cascading activation to maximize response efficiency and consistency.

The IC, or his/her designee, shall subsequently establish an Event Type relative to the type and complexity of the outage event, resources that may be needed, and the expected impacts of the event. The IC then determines the required Command and General Staff, the Activation Level, and if there is a need to activate the LEOC.

6.2.2 Decision Methodology

The emergency response process begins with an evaluation of system conditions that contribute to identifying the Event Type and Activation Level.

The criteria may include weather forecasts, number of customers projected to be impacted, estimated damage to the T&D system, and estimated impacts to Community Lifelines and critical infrastructure. The criteria in Appendix A of Annex A are used to help establish the level of emergency response needed; the activation of the LER and/or the LEOC, and the activation of associated resources, including mutual aid assistance support. It is important to re-evaluate the Event Classification and Activation Level every 12-24 hours, particularly when external conditions are changing rapidly.

The order of determining an Event Type and Activation Level may be dependent on if the cause of the activation is a forecasted potential incident or a no-notice incident.

6.2.3 Forecasted Potential Incidents and Scheduled Events

Forecasted potential incidents allow for a preparedness window before the incident happens to position the organization for a response. Most of the time, these incidents are atmospheric and forecasted (e.g., hurricanes and rainstorms). Forecasted events, such as scheduled protests, sporting events, conventions, etc., also have the potential to result in an unplanned incident.

For a forecasted incident, the determination of an Activation Level is needed first, followed by the establishment of an Event Type. The Event Type may change once an incident starts to negatively affect any part of the T&D System (e.g., when weather forecasts change or when a storm starts to make landfall).

The EP Department and T&D Operations monitor weather forecasts. When it is determined that the forecast contains severe weather systems that may impact the T&D System, an alert is sent to the appropriate key response members to discuss initial coordination activities. LUMA personnel use weather data provided directly by the Puerto Rico based, National Oceanic and Atmospheric Administration (NOAA), a federal agency organized under the administration of the U.S. Department of Commerce, and other information, such as the Department of Energy/Pacific Northwest National Laboratory (DOE/PNNL) developed EGRASS which is used for damage prediction, to make the determination of which Event Type is likely and in which area(s) the company can expect impact.

For major forecasted events, Event Types 1, 2, and 3 (such as a major hurricane), there is a multiple-day advance notice. In these cases, if imminent, LUMA activates aspects of the appropriate response as outlined within this ERP. Preparation for such events is supported by reviewing the H-136 Timeline checklist (Appendix B of Annex D) to ensure daily progress aligns with the planned response.

Events that are more challenging to forecast are those that start or are estimated to be an Event Type 4 and escalate to an Event Type 3 or higher. This ERP allows for response to such events by a series of protocols that activate all functions under the ICS.

If it is determined that a minor event is likely (Event Types 4 or 5), LUMA manages the event through normal operational procedures. If the event escalates, protocols are in place to activate the LER. If it is predicted to be an emergency event (Event Types 1 to 3), LUMA implements its pre-event protocols and activities under the ICS structure as appropriate. The ERP allows for scalability, rapid escalation, or de-escalation, as needed.

Pre-event planning activities include, but are not limited to:

- Identifying the IC, Event Type, and Activation Level for the incident
- Initiating pre-event system conference call(s) with all required personnel
- Activating each required section under ICS, including Operations, Logistics, Planning & Intelligence (P&I), Finance & Administration, and Command Staff, and implementing notifications for internal personnel to the extent needed
- Reviewing the appropriate guides, checklists, plans, and procedures
- Acquiring the estimated resource requirements necessary for the assigned event type, including mutual aid requests and contingency plans if those items are unavailable.
- Initiating preliminary communications to the public, Life Preserving Equipment Dependent (LPE) Customers, municipal and elected officials, including required notifications to regulatory agencies (Pre-Event Reporting) if classified as an Event Type 1-3
- Mobilizing the LEOC, Regional Operations Command Centers (ROCCs), and other required Operations Section Branches as appropriate for the event type assigned
- Initiating notifications to external providers such as staging site property owners, suppliers, contractors, etc. where necessary

6.2.4 No-Notice Incidents

A no-notice incident occurs unexpectedly or with minimal warning (e.g., earthquakes, tsunamis, chemical spills, terrorist attacks). For a no-notice incident, the determination of an Event Type is needed first, followed by the establishment of the Activation Level. The lack of warning and the need for a swift response presents unique challenges.

No-notice incidents do not provide emergency responders sufficient time to prepare for the specific incident. This greatly affects LUMA's ability to pre-position needed assets and resources as well as warn and direct the public.

If it is determined that a minor event is likely (Event Types 4 or 5), LUMA manages the event through normal operational procedures. If the event escalates, protocols are in place to activate the LEOC. If it is predicted to be an emergency event.

(Event Types 1 to 3), LUMA implements its pre-event protocols and activities under the ICS structure as appropriate. The ERP allows for scalability, rapid escalation, or de-escalation, as needed.

6.3 LUMA Event Type

Events (natural, man-made, and technological), with the potential to affect the T&D System may be assigned an Event Type by the IC or designee. The IC is responsible for analyzing the severity and complexity of the incident, with the collaboration and input of the Command and General Staff. This analysis assists in identifying resource requirements and positions needed for an LER activation. In most cases, this analysis begins in the pre-event stage and continues every operational period throughout the service restoration stage for restoration events. It is during this analysis that the IC determines the Event Type. The Event Types are not directly tied to the establishment of Activation Levels but are frequently similar (refer to Appendix A).

The IC may also deem it necessary to escalate or de-escalate the Event Type and Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions. The maximum Event Type and Activation Level are documented for recording purposes. The Event Type depends upon the analysis of the expected severity and complexity of an event and is drawn from the consideration of numerous factors including, but not limited to:

- Life safety
- Current and forecasted weather conditions
- Certainty and plausibility of weather forecast and scenarios
- Size of the anticipated incident and expected impacts on T&D system operations
- Anticipated type and extent of potential or known damage
- Historical experience with other events
- Level of command anticipated or required to direct restoration efforts
- Current operational situation (number of outages, resources, supplies, etc.)
- Damage assessments
- Restoration priorities
- Forecasted or actual resource requirements
- Availability and logistical considerations of supplemental resources
- Forecasted operational tempo

Five Event Types have been established. Types 5 and 4 are considered Non-Emergency Events. They are restoration events managed through normal operations and/or an isolated event that does not require the activation of the LER unless escalation occurs.

Types 1, 2, and 3 are Emergency Events, with Type 3 being the least severe and Type 1 representing catastrophic emergency conditions. Their descriptions are as follows:

6.3.1 Type 5: Non-Emergency Event – Normal Day-to-Day Operations

Type 5 events represent normal operations and are managed by the Operations Dispatch Organization, which is staffed at all hours. For small outages, Operations dispatches designated trouble resources to repair the outage. If, upon arrival, the Trouble Shooter determines additional resources are needed, a supervisor is assigned and secures additional line crews from the Field Operations organization.

6.3.2 Type 4: Non-Emergency Event – Heightened Alert

These events include system events that impact one or more districts. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, or unanticipated events. These events are managed by System and Dispatch Operations with assistance from Field Operations. Control and management of the event remain centralized, in most cases, but may decentralize to one or more ROCCs, depending on the damage.

6.3.3 Type 3: High Alert Event (Moderate Regional Event)

A Type 3 event may result in significant damage to a district and/or moderate damage to a region. The approach is to prepare by activating the ICS structure and opening one or more ROCCs. This type of event is coordinated locally through Incident Command meetings/conference calls to coordinate pre-planning activities in advance of the event, restoration activities during the event, and demobilization activities post-event.

6.3.4 Type 2: Emergency Conditions

A Type 2 event is a severe event that may result in significant damage to the electrical transmission and distribution system in a region or moderate damage across the entire island. This is a full implementation of ICS, and most employees are assigned shifts and schedules related to their roles in this ERP.

6.3.5 Type 1: Catastrophic Emergency

A Type 1 event is a catastrophic event that likely results in significant damage to the electrical transmission and distribution system and/or a widespread outage. Type 1 events are rare but are usually forecasted in advance of the event. This event calls for the full implementation of ICS, with an activation of Level 1, in most cases. Employees are assigned shifts and scheduled in relation to their role in the ERP. The LEOC and all ROCCs are activated and in-use.

Additional details regarding Event Types related to electrical outages can be found in Annex A –- Major Outage Restoration Annex, Section 7.2.

6.4 LUMA Activation Level

The LER operates within five activation levels that increase the intensity from Level 5 to Level 1 with a Level 1 activation being the highest and most resource-intensive (see Appendix A). The Activation Levels may increase or decrease in scale due to the complexity of the incident. The maximum escalation Event Type and Activation Level are documented for recording purposes. The IC determines the Activation Level and resources required to activate it.

6.4.1 Level 5: Normal Operations

Daily operations are being performed across the organization. Staff perform day-to-day routine assignments and maintain situational awareness by observing the changing and predicted weather conditions and the news for any event that may adversely affect operations.

6.4.2 Level 4: Partial Activation

Conditions are developing (e.g., severe weather such as torrential rains or a tropical weather system) that could present a potential risk to the T&D System. Therefore, a heightened level of situational awareness and monitoring is implemented, and more frequent communications are taking place. Partial LER activation is possible with only those positions necessary, i.e., IC, Public Information Officer (PIO), and Liaison Officer (LNO). Internal conference calls may be scheduled regarding preparation for a future weather event. This can also be indicative of an isolated non-weather incident at a LUMA facility or other properties. The LEOC may be opened and used part-time or full-time if deemed beneficial to support response efforts.

6.4.3 Level 3: Moderate Activation

Some day-to-day tasks and operations may be suspended or redirected. Mobilization of internal resources and partial acquisition/mobilization of external resources is considered. Incident Command is established with necessary positions and may be dependent on the activation of and impacts on one or multiple ROCCs. The LEOC is likely open and in use at least part-time or full-time if deemed beneficial to support with response efforts.

Institutional knowledge, system performance metric indicators, and forecast confidence levels are utilized to determine a pre-event approach. Emergency response communication protocols are activated at the direction of the PIO, with notifications being coordinated by activated staff to LPE Customers; Municipal, Regulatory, and Elected Officials; and LUMA staff. Regulatory notifications/reporting and internal reporting, including IAPs are developed/submitted.

6.4.4 Level 2: Large Activation

Emergency event conditions are imminent and may cause significant impacts on LUMA operations. If the conditions are due to a severe forecasted weather event, ROCCs are already activated, and potentially, the full ICS structure is activated at the LEOC to support response and restoration activities. Conference calls and meetings are conducted to coordinate response activities as well as operational period briefings are conducted at the beginning of each operational period. It is possible mutual aid is requested and agreements activated. Emergency response communication protocols are activated to include Public Service Announcements (PSAs), online Outage Center, social media, e-mail/call blast messages, etc. Government of Puerto Rico and Federal level coordination may be required with liaisons assigned, as appropriate.

6.4.5 Level 1: Full Activation

Emergency conditions are imminent. These will likely cause, or have already caused, a catastrophic impact. The ROCCs are activated in response. Additionally, the full LER structure is activated at the LEOC to support response and restoration activities. This represents a full implementation of ICS. Consequently, most employees are assigned shifts and scheduled according to their ICS role.

Resources are needed, prompting mutual aid to be requested with potentially all agreements activated. Conference calls and meetings are conducted to coordinate response activities as well as operational period briefings are conducted at the beginning of each operational period. All emergency response communications protocols are activated to include those listed under a Level 2 activation. The Government of Puerto Rico and Federal level coordination is likely required with Liaisons assigned, as appropriate.

Advance notice may be given for severe weather threats such as a Category 1-5 hurricane. Still, events such as an earthquake may immediately activate at Level 1 based on the severity of the earthquake and the level of system impact.

Table 9 provides a summary of the key activities that are associated with each Activation Level.

Activation Level	Normal Operations (Level 5)	Partial Activation (Level 4)	Normal Activation (Level 3)	Large Activation (Level 2)	Full Activation (Level 1)
Situational awareness of resources	Y	Y	Y	Y	Y
Activation of the LER		P	Y	Y	Y
Use of the LEOC		P	P	Y	Y
Mobilization of resources		P	P	Y	Y
Notifications to stakeholders		P	Y	Y	Y
Government of Puerto Rico and/or Federal Assistance Needed				P	Y
					Y – Yes / P - Probable

Table 9: Activation Level key activities.

6.5 PREMB Event Classification

While LUMA maintains Event Types and Activation Levels, PREMB also has a set of established incident levels (the equivalent of LUMA types) and EOC activation levels. To reduce confusion and aid in the alignment of response and restoration efforts, each EOC Activation Level and event/incident type has been aligned between LUMA and PREMB.

The scope and scale of the Government of Puerto Rico's support depends on the impacts, scope, scale, and complexity of the incident. PREMB classifies events using the nomenclature 'incident level' (PREMB & DPS, 2021). PREMB's incident levels align with FEMA's and refer to the level at which PREMB employs the resources of the Government of Puerto Rico to achieve jointly developed incident objectives.

Incident levels classify an incident based on its actual or anticipated impact, size, and complexity as well as the PREMB assistance required. The PREMB Commissioner, PREMB Deputy Commissioner, and Secretary of the Department of Public Safety coordinate with the Governor on designating incident levels and adjusting designations as the magnitude and complexity of the incident change.

6.5.1 Level III: Minor Incidents

- A disaster that, due to its severity, size, location, and actual or potential impact on public health, welfare, and infrastructure, requires a moderate amount of Government of Puerto Rico support.
- A disaster requiring maximum recovery efforts and minimal response efforts, which existing PREMB resources can meet.

- A disaster requiring coordination among the involved Government of Puerto Rico and local entities due to minimal to average levels of damage.
- PREMB assistance may be limited to the activation of only one or two ESF primary agencies.

6.5.2 Level II: Moderate to Major Incidents

- A disaster that, due to its severity, size, location, and actual or potential impact on public health, welfare, and infrastructure, requires a high amount of direct Government of Puerto Rico assistance for response and recovery efforts.
- A disaster requiring elevated coordination among PREMB and whole community entities due to the moderate scale and breadth of damage.
- Significant involvement of PREMB, other Government of Puerto Rico agencies, and ESF supporting agencies activated to support the EOC, and possible deployment of initial response resources are required to support requirements.

6.5.3 Level I: Catastrophic Incidents

- A disaster resulting in mass casualties, extraordinary levels of damage, or disruptions that severely affect the population, infrastructure, environment, economy, public morale, and/or government functions.
- A disaster of such magnitude that the available resources in place for the response are completely overwhelmed or broken at the local, municipality, and commonwealth levels.
- A disaster has occurred. Its severity, size, and location, along with its actual or potential impact on public health, welfare, and infrastructure, make it significant. This disaster requires a great amount of direct PREMB assistance for response and recovery efforts. However, the necessary support capabilities do not exist at any level of government.
- Requires extraordinary coordination among Federal, Government of Puerto Rico, and local entities, due to the massive levels and the breadth of the damage, the severity of the impact, and the multi-island scope of the incident.
- The major involvement of the Government of Puerto Rico, all coordinating and primary Emergency Support Function (ESF-12) agencies, and possibly FEMA Region II is needed to support the requirements of the affected jurisdictions.

6.6 Critical Infrastructure and Facilities Restoration Prioritization

LUMA understands the challenges and potential disruption to its customers' lives resulting from electrical outages. LUMA strives to restore power to all customers in the safest and most expedient manner possible. In support, LUMA Operations utilizes a prioritization system, during both normal and emergency operations, which provides the most efficient approach to restoring electrical outages. All outages are prioritized using a variety of factors including, but not limited to, Community Lifelines, customer type, number of affected customers, and outages involving safety conditions.

The Cybersecurity and Infrastructure Security Agency (CISA), under Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience, the Energy Sector is identified as uniquely critical because it provides an "enabling function" across all critical infrastructure sectors. Under this guidance, LUMA has developed a hierarchy of critical infrastructure and facilities, prioritized as Levels 1, 2, and 3, used to categorize various facilities based on the principles of Community Lifelines discussed in Section 5.

6.6.1 Critical Infrastructure

According to CISA, these critical infrastructure sectors have assets, systems, and networks, both physical and virtual, that are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, economic security, national public health or safety, or any combination thereof (CISA, 2020).

Throughout Puerto Rico, there are many critical infrastructure vulnerabilities. The loss of power to critical infrastructure such as chemical and industrial plants, sewer lines, and water treatment and distribution systems may result in severe environmental and public health hazards to the population. Identified critical infrastructures within Puerto Rico can be found in Appendix C.

6.6.2 Critical Facilities

Critical facilities include hospitals, fire stations, police stations, storage of critical records, and similar facilities (FEMA, 2020). These facilities should be given special consideration when formulating emergency response and restoration protocols; see Appendix C for a list of Critical Facilities. There are approximately 84 fire stations (FireCARES, 2020) and 13 jurisdictional regions in the Puerto Rico Police Bureau (United States, 2011). The FEMA Shelter Inventory Map identifies 452 shelters across the 78 municipalities in Puerto Rico for this year. LUMA leverages the established relationship with partner agencies, such as PRASA and PRDoH, to maintain visibility of the particular needs of these facilities prior to forecasted events. Additionally, on February 5th, 2024, the Department of Development and Economic Trade (DDEC) and LUMA Energy, signed a Memorandum of Understanding for data sharing and confidentiality. The DDEC developed the Critical Facility Energy Support Tool (CFEST), which contains detailed information on critical facilities, including alternate sources of energy, such as generators. This data is made available through the Puerto Rico Innovation and Technology Service (PRITS).

Level 1

Critical infrastructure and facilities identified as Level 1 facilities provide services that are critical to the health and safety of the public and are tied to at least one of the eight (8) critical Community Lifelines. These facilities include, but are not limited to, the following:

- Hospitals and emergency medical facilities
- Emergency shelters, cooling centers, and rescue facilities
- Public safety entities: fire, police, and paramedics
- Emergency management offices and emergency operations centers
- Water pumping/lift stations and wastewater treatment plants
- Critical utility and communications facilities
- Fuel transfer and fuel loading facilities (ports)
- Mass transit (tunnels, bridges, ferry terminals, major rail facilities/rectifier stations)
- Airports
- Military bases
- Critical flood control structures

Level 2

Critical infrastructure and facilities identified as Level 2 facilities provide significant public services and may include some of the same facilities described in Level 1, depending on the event type. These are considered less critical by government agencies and include, but are not limited to, the following:

- Nursing homes and dialysis centers
- Facilities to support other critical government functions
- Prisons and correctional facilities
- Communications (radio, TV, etc.)

Level 3

Critical infrastructure and facilities identified as Level 3 facilities provide some public services. Depending on the event type, they may include some of the same types of facilities described in Level 2. They include, but are not limited to, the following:

- Event-specific concerns
- High-rise residential buildings
- Customers providing key products and services (food warehouse)
- Managed accounts, large employers, and other key customers
- Prioritization of other government buildings, schools, and colleges

6.6.3 Restoration Prioritization

Outages are prioritized by considering of safety conditions, type, the extent of damage to the system, critical Community Lifelines, customer type, and the number of affected customers. The designation of critical infrastructure or facilities within levels 1, 2, or 3, however, does not guarantee or prioritize their restoration after a major event. System Emergency Restoration Teams (SERTs) address emergency and life-threatening conditions reported as a priority, such as public safety hazards or downed wires. Restorations occur in accordance with the LUMA Major Outage Event Metrics, found in Appendix A of Annex A. LUMA also prioritizes actions that have the greatest gain for the overall T&D System stability and the greatest benefit for all customers.

7 Organization and Assignment of Responsibilities

7.1 LUMA Emergency Roster

The LER has been designed with a specific purpose. It aims to enable effective and efficient emergency management and coordination. This applies both internally and externally to LUMA. The LER achieves this through a management structure that is both flexible and standardized. Importantly, this structure is scalable to meet varying needs. Therefore, it can be utilized during all emergencies, from day-to-day operations to a large-scale disaster. The LER required to implement the emergency procedures is specified by the organizational chart included in Appendix A. The LER is aligned with the NIMS and utilizes an ICS structure. The use of ICS establishes lines of supervisory authority and formal reporting relationships that define clear lines of communication between different functional groups. This approach results in a reasonable span of control within each group of the operation.

Immediately upon declaration of an emergency, the required personnel on the LER shall be activated at the direction of the IC. At times, it may be desirable to staff the LEOC and place other personnel on stand-by prior to the actual event when possible. The number of personnel and mobilized resources is dependent upon the size, scale, and complexity of the emergency event and in accordance with the LUMA Major

Outage Event Metrics, found in Appendix A of Annex A. There are three defined levels to emergency response efforts. They are Strategic, Operational, and Tactical and can be defined as:

- **Strategic Level:** Provides LUMA's strategic guidance for response to the LEOC staff. The strategic level does not direct emergency response or tactical operations.
- **Operational Level:** Develops LUMA's response to the emergency and oversees the implementation of the Incident Action Plan (IAP). This group forms the LEOC staff and can include the ROCCs when activated.
- **Tactical Level:** Implements LUMA's response to the emergency and reports to the ROCCs, when activated, and/or the LEOC. This group is composed of the SERTs, damage assessment teams, and others.

The organizational charts for the LER can be referenced in Appendix A, along with Appendix B, Assignment of Responsibilities.

7.2 Agency Representatives

LUMA coordinates with multiple external agencies. Some of these external agencies have identified liaisons to coordinate restoral efforts through the LUMA LNO at the LEOC or through the LUMA PREMB Interagency Coordinator at the PREMB EOC. Some of these agencies include, but are not limited to:

- PRASA
- PREPA
- Genera-PR (not an agency but acts as agent of PREPA for generation)
- Puerto Rico National Guard
- Puerto Rico Telecommunications Regulatory Board
- Department of Energy
- FEMA
- Puerto Rico Department of Economic Development and Commerce (ESF-12)

7.3 Mutual Aid Assistance

Restoring power after a Major Outage Event is a complex operation that must be completed quickly and safely. An expedient restoration requires significant logistical expertise, along with skilled line workers and specialized equipment. Electric utilities affected by significant outages frequently call on other utilities, pursuant to mutual aid assistance agreements, for available assistance to help expedite restoration. To some extent, electric utility mutual aid is limited to those partners who are present in Puerto Rico. Mutual aid from the mainland may be delayed when requested due to a major weather event that has strained transportation resources and/or facilities. On these occasions, initial assistance from the mainland may be limited. LUMA is proactively planning and preparing by establishing prepositioned contracts.

Mutual aid may be in the form of personnel, supplies, and/or equipment, and may be required to mitigate, repair, or restore the system to normal operations. Requests for mutual aid are coordinated through the Logistics Section Chief and the IC. The mutual assistance resources obtained are then allocated between LUMA's Divisions based on the incident's needs. The resources allocated to LUMA may be pre-staged, taking into consideration the forecasted weather impacts and any pre-determined minimum staffing requirements.

The Operations Section Chief reviews the system's status and, after conferring with the IC, re-allocates resources as necessary. The re-allocation of resources is based upon the damage assessments, the extent and type of damage, the number of work assignments, the number of downed wires, the number of customers out of service, and the type of available resources (e.g., LUMA crews versus small groups of contractor crews), the predicted estimated restoration times, and the difficulty of traveling within the service area.

A Mutual Aid Unit within the Logistics Section may be activated when the IC and General Staff deem it appropriate to request mutual assistance from other utilities for Major Outage Events in accordance with the LUMA Major Outage Event Metrics, found in Appendix A of Annex A. This is required for Type 1 Events but may be used during other event types as well. The Operations Section Chief, in consultation with the IC and P&I Section Chief, determines the number and type of mutual assistance crews and equipment required. The IC or designee notifies the LUMA CMC when mutual aid assistance is required.

LUMA has access to Mutual Aid Agreements with the following parties:

1. American Public Association – (APPA) (request process depicted in figure 9 below)
2. Edison Electric Institute – (EEI)

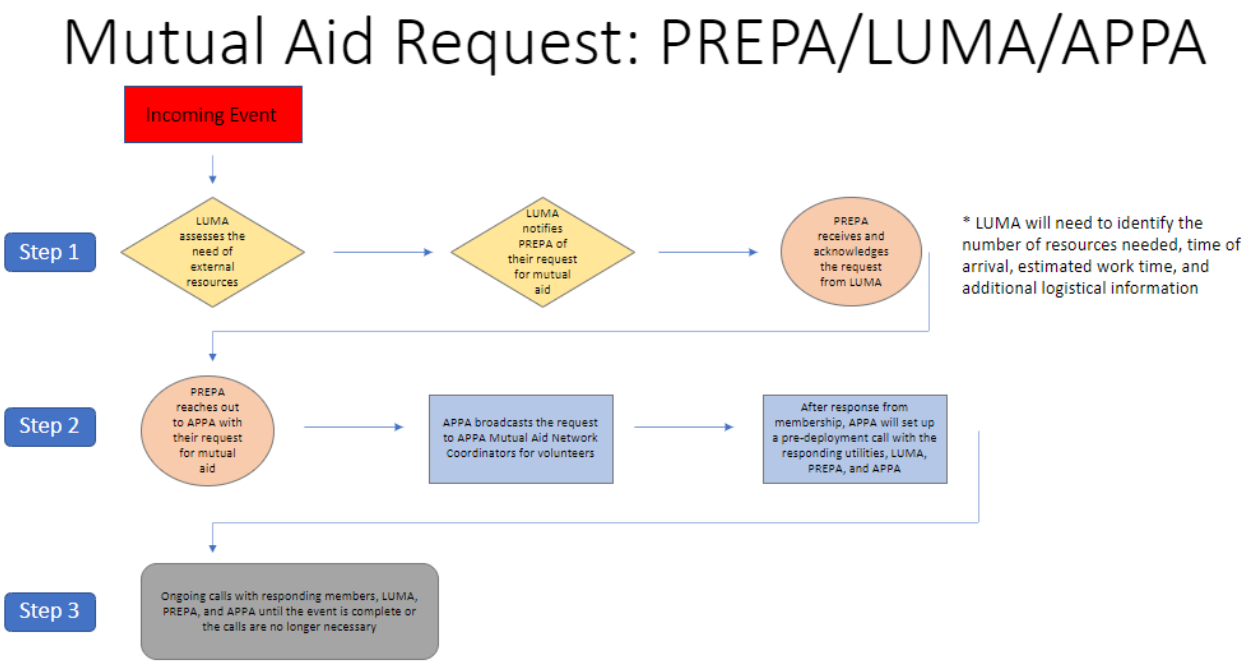

Figure 9: Flowchart describing the process for Mutual Aid agreement notification with APPA.

Additionally, LUMA has a membership subscription with Caribbean Electric Utility Services Corporation (CARILEC) that has helped develop relationships with other Caribbean Utilities, such as Trinidad Tobago Electric and Saint Lucia Electric, and engage in information sharing and open dialogue on topics such as emergency response and preparedness.

8 Direction, Control, and Coordination

8.1 General

LUMA has established the LER for the successful management of impacts to the T&D System and major electrical outages caused by storms and other natural disasters, major equipment failure, and/or other emergencies that would have a direct effect on its customers. Annex A includes procedures that are adhered to throughout the organization whenever a failure of electrical service occurs that is deemed to be an "Emergency Event".

Emergency response procedures are designed with a specific goal in mind. Whenever possible, they parallel normal operational procedures. This approach is taken to minimize the need for specialized training or work practices. However, it's important to note that this is only done wherever it's possible. This ERP provides the framework for the systematic response of resources when emergencies arise. Annex A defines a set of processes and protocols for determining the appropriate level of response during major emergencies for:

- Restoration of electric service
- Emergency response progress notification of applicable government agencies, customers, public, and employees
- Response to official requests for specific incidents, events, or actions

Note: LUMA consistently emphasizes public and employee safety as a top priority during any response. During an ERP activation, policy guidance is provided specifically by the CMC which consists of LUMA senior executive leadership. Resource support and coordination are provided by the LEOC down to the ROCCs and SERTs. During normal operations, the LUMA Emergency Preparedness (EP) Department supports emergency preparedness through the development of standards and benchmarking, as well as the delivery of training and exercises. Additionally, emergency preparedness activities within LUMA include the acquisition and maintenance of response assets such as emergency equipment and materials, pre-positioned emergency contracts, and communications equipment.

8.2 Incident Command System Structure and Coordination

The ERP aligns with the principles of the NIMS and employs the ICS organizational structure, including the role of the IC. This ICS construct is scalable and provides the flexibility to activate only those pieces of the organization required to respond to the incident. Within the LER, there is an established chain of command that identifies a line of supervisory authority and formal reporting relationships within the organization.

This chain of command is used to communicate direction and maintain a reasonable span of control within LUMA's response to an emergency. Additionally, Command and General Staff are responsible for implementing the strategic response based on strategic objectives during an emergency including, but not limited to:

- Plan the response to the emergency and oversee its implementation.
- Implement emergency procedures.
- Communicate strategic objectives.
- Provide support to the tactical teams.

9 Information Collection, Analysis, and Dissemination

Both internal and external stakeholders require timely and accurate information as an essential tool. Every employee engaged in an emergency event has an obligation to provide information by communicating frequent updates to supervisors, maintaining accurate data in systems, and following up on information requests from internal and external stakeholders.

Operational information and situational intelligence are management functions that focus on the following three primary event areas: situation status, resource status, and anticipated Event Type.

Internal and external stakeholder audiences include:

- Government of Puerto Rico and local government officials
- Customers
- General public
- Media outlets
- CMC
- LEOC, ROCC, and SERT staff
- Senior LUMA officials, directors, and managers
- LUMA employees
- PREB
- Puerto Rico Public-Private Partnerships Authority (P3A)

Depending upon the nature of the emergency event, essential elements of information may include:

- Weather predictions
- Severity of impact
- Area of impact
- Damage assessment.
- Electric transmission and distribution system operational status
- Impact to critical infrastructure
- Outages related to critical Community Lifelines
- Outages and jobs in Outage Management System
- Operational objectives
- Resource status (e.g., requested, acquired, received (onsite), working, released)

To support emergency event planning and management, tactical operations, coordination effort, and other functions, information is disseminated using a variety of methods, including but not limited to:

- Presentations and briefings during operational period briefings
- Incident Action Plan (IAP) planning meetings
- IAPs
- Situation Reports (SitReps)
- System Status Reports

10 Communications

The Communications and Liaison functions provide a variety of critical information to LUMA customers and government officials using a set of diverse communications resources, procedures, and interactive tools in advance of and immediately following an emergency event. The information varies from pre-event alert notifications and personal protective-action recommendations to post-event updates on projected outage impacts and restoration activities. Processes and protocols for information dissemination are detailed in the Standard Operating Guide: Public Information Officer Communication.

10.1 Joint Information Center

A Joint Information Center (JIC) is either a physical or "virtual" operation where public information staff representing all agencies and organizations involved in incident management activities coordinate and disseminate official, timely, accurate, easy-to-understand, and consistent information to the public. NIMS includes procedures on the responsibilities and operations of a JIC. The JIC includes PIOs from all agencies and organizations participating in incident management operations to ensure multi-agency and multi-jurisdiction coordination of all messages provided to the public. Based on geographical location and Event Type, a JIC may be organized by the government of Puerto Rico and LUMA would participate in it.

10.2 Communications with Customer

10.2.1 Notifications

During an incident, communication with customers becomes especially critical. Emergency communications may include alerts, warnings, and information not only from internal operations but external resources as well. These may include information about evacuation, curfews, and other protective measures, as well as response status, available assistance, and other matters that impact LUMA's response and recovery in accordance with the LUMA Major Outage Event Metrics, found in Appendix A of Annex A.

Well-conceived and effectively delivered emergency messages can help ensure public safety, protect property, facilitate response efforts, elicit cooperation, and instill public confidence.

LUMA communicates information through a variety of methods including, but not limited to:

- LUMA's website and Customer app, as available
- News media
- Social media, including the use of X (formerly Twitter), Facebook, and Instagram, among others.

10.2.2 Critical Customers

Critical customers are defined as those who rely on electricity for their health or receive subsidy. . Customers who provide documentation certifying their eligibility to the pertinent subsidy under current laws are added to the critical customer database. They must provide this documentation annually to stay on the list. These customers are coded in the Customer Care & Billing (CC&B) System and classified based on their needs and subsidies:

- Elderly or Senior Customers: This group includes customers who are aged 65 or older and may have specific vulnerabilities and receive a special rate. The senior rate is available to people over 65 years of age. All that is required, from LUMA, is that the person present a valid government-issued photo ID.
- Nutritional Assistance Program (PAN) Beneficiaries: These customers are enrolled in the Nutritional Assistance Program and receive a Subsidized Residential Rate. Enrollment in the Subsidized Residential Rate is dependent on the customer presenting their PAN Program enrollment letter, which states that they are currently enrolled as a beneficiary of the PAN Program. The LUMA account must be in the Pan Program beneficiary's name. Each time the beneficiary renews his or her enrollment in the PAN Program, they are required to submit the updated PAN Program enrollment letter to remain enrolled in the Subsidized Residential Rate.
- LPE Customers Subsidy beneficiaries): These are customers who rely on electronic equipment for life support, such as ventilators or dialysis machines. They require an electricity supply to sustain their vital medical equipment.

The CC&B System is programmed to reflect customers who are enrolled in the LPE Subsidy Rate program. Enrollment in the subsidized rate is dependent on the customer submitting a qualification form signed by a physician and certified by the Puerto Rico Department of Health. LPE customers are required to re-certify annually; however, all the accounts retain the designation regardless of the recertification results.

Examples of qualified equipment are provided below:

- Apnea Monitor (Infant Monitor)
- Cuirass Respirator
- Positive Pressure Respirator
- Suction Machine
- Rocking Bed Respirator
- IV Feeding Machine
- Tank Type Respirator
- Respirator/Ventilator
- Hemodialysis Machine (Home)
- Oxygen Concentrator
- IV Medical Infusion Machine
- Additional devices may qualify as life-support equipment if certified by a medical professional

These clients are of particular interest during an outage event. The indicator used in the CC&B System is "Life Support Customer". This indicator is only added to customers who benefit from the Life Preservation Equipment Subsidy. 48 hours prior to the occurrence of an emergency event, the LUMA Customer Experience Department activates the outbound telephone calls to LPE Customers. The telephone messages are customized and contain event information and LUMA preparation actions. This information addresses potential power outages and provides recommended protective actions to seek assistance from local public safety officials and human service agencies, as necessary. This process and an example of the script with the information provided and requested from the customers is detailed in the Standard Operating Guide (SOG) to contact LUMA's Critical Services Customers.

Personalized calls are attempted at least three (3) times. If there is no answer, and an answering service is available, the LUMA representative will leave a voice message. All of this is documented.

When the client raises additional needs, the LUMA representative will advise based on the information and refer the concern to the relevant Key Account specialist, who will leverage their established relationships with municipalities and refer the need to the appropriate agency or the Municipal Office for the Management of Emergencies (OMME).

Customers are also reminded that their designation as an LPE customer is not considered a restoration priority, and service will be restored as quickly as possible, following normal prioritization and safety guidelines.

Information regarding pre-event preparedness and post-event restoration activities is developed under the leadership of the PIO and approved by the IC prior to dissemination through communication platforms such as telephone, email, fax, and social media. In addition, this information is provided to news and media organizations for dissemination to the public.

10.2.3 Real-time Information

Under the direction of the PIO, the communications team reviews, and updates LUMA's website to ensure that PSAs are posted, providing information to customers in accordance with the LUMA Major Outage Event Metrics, found in Appendix A of Annex A. The Outage Map displays outage information when available. Outage information is provided geographically to include customers served and customers impacted.

10.2.4 Contact Centers

LUMA operates five (5) Contact Centers across the island that serve as the frontline for fielding questions, issues, emergencies, and outages during a major outage for contact center operations. The Contact Center Operations Coordinator readies the contact center advisor to manage the heightened call volume and address specific customer requirements related to the event. The Contact Center team swiftly and efficiently disseminates communication updates while ensuring uniform messaging across all phone agents. Contact center representatives receive situational updates from the PIO and relay information. They handle inbound calls from various entities. These include the public, residential and commercial customers, and law enforcement. They also receive calls from fire departments, other public safety agencies, and hotlines for critical facility customers. 911 centers' calls are programmed to jump to the front of the line if we have calls in queue. Additionally, they communicate with municipal and elected officials.

10.3 Communications with Government Officials

10.3.1 Notifications

During an emergency event, the PREMB interagency coordinators, based in the PREMB EOCs, direct and support emergency preparedness and response activities across the Government of Puerto Rico. LUMA Regional Interagency Coordinators (LRIACs), deployed to the PREMB EOCs, provide reports to government agency interagency coordinators or other government officials containing detailed information related to emergency conditions and restoration status for each affected region.

Interagency Coordinators of LUMA, GeneraPR, PREPA, PRASA, DDEC, under ESF-12, and other agencies can be activated in the PREMB EOC during incident response. The activation of the LEOC may coincide with the PREMB EOC, although it is not a trigger for the LEOC activation. In case of a PREMB EOC activation, the LUMA PREMB Interagency Coordinator will be requested in the PREMB EOC. The role

of the LUMA PREMB Interagency Coordinator is to facilitate formal and informal two-way communication between LUMA and PREMB under the ICS structure.

10.3.2 LUMA Regional Interagency Coordinators

When PREMB Zone EOCs are activated, the LUMA LNO will activate the LRIACs. The primary role of a LRIAC is to be LUMA's point of contact in the PREMB Zone EOCs and to communicate regional emergency-related priorities to the LEOC. The LRIACs also assist the PREMB Zone EOCs in determining if regional T&D System emergencies or outages have been reported to the LUMA Contact Center and/or LEOC. The LRIACs may be supported by a LUMA Regional Key Account Representative that has established steady-state relationships with mayors.

10.3.3 Meetings with Government of Puerto Rico Officials

Throughout the year, LUMA meets with Government of Puerto Rico officials, federal partners, and other stakeholders. Documentation of the exercises, workshops, and meetings, such as presentations, attendance lists, meeting minutes, action items, and statuses of identified action items are submitted.

When PREMB is activated, LUMA, GeneraPR, and PREPA are co-located under the ESF-12 desk in the Central COE. ESF-12 – Energy, during emergencies, supports local, state, territorial, and federal government entities, and the private sector by coordinating capabilities, services, technical assistance, as well as engineering expertise. PREPA leads the ESF during declared emergencies.

Under steady state, the ESF-12 group convenes monthly to prioritize discussions and develop a shared calendar for participating in relevant training and exercises (e.g., the yearly FEMA-sponsored Readiness Initiative). This fosters collaboration among agencies. Constant communication among LUMA, GeneraPR, and PREPA facilitates operational alignment and coordination.

10.3.4 Communication with Municipal Officials

LUMA Regional Key Accounts Representatives interact with the municipality's officials daily. LUMA Regional Key Accounts Representatives provide an initial call starting 48 hours prior to a forecasted emergency event. Updates to mayors or their designees are provided daily. These contain information related to emergency conditions and restoration performance for each affected municipality. Methods of communication include, but are not limited to, the following:

- Scheduled conference calls with municipal officials, including emergency managers, such as OMMEs' directors.
- Community Liaison communications (telephonic, electronic and/or face-to-face) with municipal officials, including emergency managers.

This process is detailed in Annex G and communicated in the one-pager distributed among partner agencies, as well as municipal officials titled "Communications with Municipalities in an Emergency" (Annex G Appendix A). The information shared includes, but is not limited to, situational awareness information regarding the affected municipality, the status of emergency conditions, outage, and restoration information to include assigned crews, priority down wire locations, critical facilities impacted by the emergency event and/or notification reports in accordance with the LUMA Major Outage Event Metrics (found in Appendix A of Annex A).

10.4 Operational Communications

10.4.1 Interoperability

Communications interoperability allows LUMA staff in the LEOC, ROCCs, and the SERTs to communicate within and across LUMA via voice, data, or video in real-time, when needed, and when authorized. Interoperability planning requires accounting for event response contingencies and challenges. LUMA incorporates interoperability plans to include standard operating guides (SOGs), technology, training and exercises, and their utilization during emergency response and restoration operations. Communications and information systems are also designed to be flexible, reliable, and scalable.

10.4.2 Incident Communications Plan

Contained within the IAP is the Incident Communications Plan. The Incident Communications Plan is updated as needed and includes incident-specific contact information for the Command and General Staff positions and for the Division Commanders. Contact information may include telephone (desk & cell numbers) and satellite phone (if applicable). The Incident Communications Plan is distributed to the Command, General Staff, Division Directors, and Regional Interagency Coordinators as part of the IAP.

10.4.3 Communications Systems

Primary communications systems utilized during emergencies may include FirstNet First Responder Cellular networks, wired phone exchange systems, Voice Over IP systems (ethernet), and VHF radio systems.

Backup systems are available to be deployed in case of issues with primary communication systems. These include rapid deployment of mobile cellular access points with satellite uplinks, portable satellite phones, and, on request, a flying cellular FirstNet hotspot to cover areas without coverage. LUMA additionally works with PREMB, municipalities, and liaison agencies for consolidated communications when beneficial based on the circumstances of the emergency.

11 Administration and Finance

11.1 Reporting

Several reports and documents are generated to facilitate and record the response to an emergency. These are broken out by those required by regulators and those used by LUMA for internal purposes during an emergency response. Each of the reports included here is tied back to the process in the ERP from which they are generated or for which they are used. The processes and activities in this chapter are initiated once the emergency event has been classified and the LER has been activated.

11.1.1 Internal Reports and Documentation

Incident Action Plan

The incident action planning process is used for all incidents involving the activation of the LEOC. The “Planning P” is a tool used to apply the principle of IAP. An IAP provides a coherent means of communicating the overall incident objectives in the context of both operational and support activities.

A formal incident-specific-IAP may be necessary to aid the First Responders and to distribute current information quickly across both the organization and external agencies aiding in the incident response effort. An IAP provides clear direction and includes a comprehensive listing of the tactics, resources, and support needed to accomplish the objectives.

Damage Assessment Reports

Damage Assessment Reports are submitted once assessments have been completed in the affected areas. The Damage Assessment Branch within the LEOC is responsible for submitting the damage assessment reports to the P&I Section Chief and the Operations Section Chief to support response efforts.

Safety Incident Report

The Safety Officer (SOFR) is required to submit a Safety Incident Report upon learning of any safety incident throughout the response and restoration efforts. Safety reports are to be submitted via the LUMA HSE Incident Management Platform and shared with the IC and other Command and General staff.

LEOC Reports

When the LER is activated, the CMC may ask for a periodic situational awareness report. The reports are prepared by the P&I Section in collaboration with other Command & General Staff.

Final Event Reports

For emergencies classified as Type 1 or 2 events, a Final Event Report is completed and submitted to the LUMA CMC within 30 days of the completion of restoration activities. It may be requested, on certain occasions, to prepare and submit a Final Event Report for Type 3 events. The EP Department and the P&I Section Chief coordinate the drafting and submission of the Final Event Report to the CMC.

11.1.2 Regulatory Driven Reports and Documentation

Under the terms of the T&D OMA, LUMA is required to provide such appropriate notification to the PREB and P3A of an Emergency (as defined on the T&D OMA) as is necessary throughout an Emergency (an Emergency Event Report) including notifications issued upon LUMA receiving knowledge of the Emergency and when an Emergency has ended. All reporting activities described below meet the requirements of an Emergency and a Major Outage Event under the terms of the T&D OMA.

The P&I Section is responsible for documentation and reports related to this section. Depending on the Event Stage, reports are submitted to the PREB, P3A, PREMB, appropriate regional representatives, and the IC. For a description of the event stages, refer to Sections 4.3 and 5.1 of Annex A. Reports will be submitted in accordance with the Major Outage Event Metrics found in Appendix A of Annex A.

Pre-Event Stage Reports (for Events anticipated to reach Type 1, 2, or 3)

During the pre-event stage, Emergency Event Reports shall be submitted at minimum once daily. Depending on the nature of the event and information available at the time of reporting, Emergency Event Reports during the pre-event stage may contain, but are not limited to, the following information:

- Date and time of the report.
- Current Event Type and Activation Level
- Potential number of customer outages
- Number of internal resources available

- Number of external resources available
- Weather forecasting and monitoring information
- Pre-event communications with the public, municipal contacts, and elected officials (describing communication methods)
- Pre-event notifications with PREB, P3A, PREMB, critical facilities (describing communication methods), and those with power-dependent medical needs
- Resource readiness (indicating actions taken to ensure availability of crews and material resources indicating type and quantity of available crews)
- Challenges anticipated or encountered in preparation for the anticipated emergency

Initial Response Stage Reports

During the initial response stage, Emergency Event Reports shall be submitted at minimum four times daily, unless otherwise directed by the PREB and P3A. Depending on the nature of the event and information available at the time of reporting, Emergency Event Reports during the initial response stage may contain, but are not limited to, the following information:

- Date and time of the report.
- Weather forecasting and monitoring information
- Number of customer outages
- The service status LPE Customers and Critical Facilities, if known
- Status of generation
- Resource readiness (indicating actions taken to ensure availability of crews and material resources indicating type and quantity of available crews)
- Observed challenges in restoration activities
- Status of the preliminary damage assessment
- Communications with the public, municipal contacts, and elected officials (describing communication methods

Restoration Stage Reports

During the restoration stage (for Type 1, 2, or 3 Events), Emergency Event Reports contain information related to emergency conditions and restoration performance for each affected region, like the information contained in the Initial Response.

Additionally, LUMA will provide daily updates on the estimated time of restoration (ETRs) during the restoration stage, (refer to Tables 16 and 17 Annex A). If ETRs are not yet available during the restoration stage, Emergency Event Reports will contain information regarding the development of ETRs. ETRs are reported in one or more of the following ways:

- LUMA Emergency Event Reports
- Via telephone by the contact center representative.
- LUMA's outage central website.
- Appropriate media outreach.
- LUMA Interagency Coordinators (Type 1 and 2 Events).

Depending on the complexity and severity of the emergency event, the frequency of reports during the restoration stage may fluctuate but are, at a minimum four per day until the restoration stage is complete.

The final Emergency Event Report must be submitted to the PREB and P3A, as per the required Event End Notification under the T&D OMA, outlining when an event type has been downgraded to a level 4, and there are fewer than 10,000 customers out of service. The remaining restoration activities will be addressed as part of normal operations.

11.2 Preservation of Records

Vital records should be protected from the effects of a disaster to the maximum extent feasible. Should records be damaged during an emergency, professional assistance in preserving and restoring those records will be obtained as soon as possible.

11.3 Procurement

LUMA's Procurement Manual provides a clear picture of LUMA's procurement policies and procedures and guides the way LUMA must conduct the selection, award, and administration of contracts funded by Federal awards.

The overall objectives of the procurement policies are to minimize the risk of improper procurement and contracting; allow for free and open competition; and provide procurement policies and procedures easily understood and implemented in conjunction with LUMA's procurement policies and procedures.

However, in the case of public exigency or emergency, a competitive solicitation may not be required if it will result in a delay in securing required resources or services, and Emergency Procurement Procedures in LUMA's Procurement Manual may apply. In these cases, LUMA may need to perform the procurement in a non-competitive manner.

Use of the public exigency or emergency exception is only permissible during the actual exigent or emergency circumstances and is subject to other requirements and conditions set forth in LUMA's Procurement Manual.

11.3.1 Emergency Procurements

Upon activating the LER, the Emergency Procurement Procedures provide additional details regarding procurement processes. For any conflicts between the ERP and the Emergency Procurement Procedures, the Emergency Procurement Procedures take precedence.

1. Obtain from CEO procurement delegation of authorities for the emergency.
2. Procure leveraging Federal Fund rules during the emergency period.
3. Ensure underlying support requirements are communicated to vendors.
4. Ensure appropriate coordination with regulatory agencies (P3A, OCPR, FOMB).
5. Designate the Procurement & Supply Chain remote team staff to specific types of emergency procurement process duties.
6. Tracking and reporting on emergency procurements to be prepared for leadership, as required using the Procurement Tracker.
7. Upon deactivation of the LER, the Procurement & Supply Chain remote team are responsible for the continuity of the emergency contract process until appropriately closed out.

12 Advanced Planning, Training, and Exercises

12.1 Overview

A successful response to emergency events requires a Company-wide commitment to preparedness that is integrated into LUMA's daily operations, not just during emergency events. LUMA's Emergency Management program is designed to increase disaster preparedness and response capabilities, resulting in the safe and reasonably efficient restoration of service during an emergency event. The program is based on a continuous cycle of plan development and exercising the plans and procedures to ensure they are effective, as shown in Figure 10. This continuous emergency preparedness cycle lends itself to continuous improvement.

Figure 10: LUMA's Preparedness Cycle.

Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, the EP Department staff, and PREMB personnel; and maintaining updated contact information of personnel and organizations that may assist in LUMA's restoration efforts.

Every employee is expected to participate in preparedness activities throughout the year, including planning, training, and exercise activities related to their assigned ERP role. Creating a culture of preparedness results in operational excellence during activations of the ERP.

12.2 Planning

This ERP is reviewed at least annually and revised as necessary. All Command and General Staff, departments, divisions, offices, and subject matter/technical experts with responsibilities in this ERP are required to review its contents and update the information to keep the ERP relevant.

The ERP is a living document, and revisions deemed necessary are a result of lessons learned during ERP activation(s) based upon the AAR and IP, training and exercises, government agencies requests, or from best practices and/ or industry standards adopted.

12.3 Training

The emergency preparedness process depends on constant and effective methods to refresh and reinforce skills in preparation for restoration events. LUMA provides ongoing training on best practices regarding the NRF, NIMS and the ICS. The LUMA EP Department maintains the ERP-related training system and coordinates ERP role-related training. Training, drills, and exercises are designed and conducted to develop and improve the knowledge and skills of personnel assigned to emergency response activities, and to support the safe and reasonably prompt completion of all required actions during ERP activations.

A large percentage of LUMA employees' ERP roles and responsibilities are either the same or very similar to the duties they perform under their normal, steady-state duties. LUMA provides position-specific training for personnel whose response and/or restoration responsibilities differ from tasks they normally perform on a regular basis. Upon hiring, employees are assigned a restoration role. LUMA strives to ensure that its employees are properly trained on their emergency-related assignments and ready to assist if restoration protocols are put into effect. The Policy and Procedure for Emergency Preparedness Trainings outlines all LUMA employees required preparedness trainings. In addition to skill-based training related directly to their ERP assignment, the training includes ICS protocols for Command staff and General staff in the LEOC and ROCCs. ERP-related training reports are maintained by the EP Department, including the type of training and training dates for each participating employee.

Skill and role-based training include hands-on training in the associated computer-based programs utilized in their ERP assignment. Other skill-based training includes but is not limited to the emergency positions of damage assessment, debris removal, wire guard, low voltage service crew, and customer contact center staff.

The Section Chiefs and Command Staff ensure that at-least annual meetings are held by the Branch Directors, Group Managers, or Unit Leaders for employees assigned to their functional area and whose primary emergency assignment differs from their steady state position. The meetings focus on several key areas related to employees' primary emergency assignments. These include reviewing the processes associated with these assignments, assessing the completion of related training, and discussing the tasks and tools required. The meetings also confirm that employees have been issued the necessary Personal Protective Equipment (PPE) to complete their assignments. Additionally, they review employees' obligations to report to work when activated and ensure that employees are aware of the notification methods. Training on the ERP is conducted throughout the year. Training and exercises are planned and distributed in the Yearly training plan. Certain employees also benefit from PREMB's training calendar and invitations from our partner agencies (i.e., FEMA, CISA). For more information, please refer to the Annex H Preparedness Training.

12.4 Exercises

The LUMA exercise program follows guidelines from the Homeland Security Exercise Evaluation Program (HSEEP) developed by FEMA. The HSEEP methodology is defined and implemented using seven exercise types, broken into the categories of discussion-based exercises and operations-based exercises.

Discussion-based exercises (including seminars, workshops, and tabletop exercises) are commonly used to familiarize exercise players with current plans, policies, agreements, and procedures, and to develop new plans, policies, etc. Operations-based exercises (including drills and functional exercises) are used to validate and/ or evaluate plans, policies, procedures, and training; to clarify roles and responsibilities, and to identify resource gaps. Figure 11, on the following page, displays all these different exercises.

LUMA employs a variety of these exercise types based on the exercise goals and objectives. Discussion and operations- based exercises are conducted each year based on a schedule developed and updated by the LUMA EP Department. One exercise that takes place every year simulates communication with partner agencies. EP Department personnel participate in partner agencies exercises to continue practicing response skills, plan reviews, share lessons learned and best practices as well as strengthen partnerships.

The goal of conducting exercises is to enhance training, improve familiarization, evaluate and/or validate plans, policies, and procedures, increase capabilities, and practice skills in a no-fault, risk-free environment.

Exercises are specifically used for:

- Improving individual and overall organizational performance
- Improving coordination and communication
- Testing and validating policies, plans, procedures, training, and equipment
- Identifying gaps in resources (both personnel and equipment)
- Exercising the ICS principles and protocols
- Identifying opportunities for improvement

Exercises are used to identify opportunities for improvement in a variety of areas, including staffing, planning, training, and equipment/ resources. An AAR/IP is developed after major exercises and real-world incidents, identifying and prioritizing the opportunities for improvement and facilitating further development of action steps. When completed, these IP items are incorporated into the ERP and related response tools.

LUMA schedules annual exercises for employees who have assigned responsibilities during an emergency event. ERP Type 2 and 1 emergency events, however, provide LUMA with similar opportunities to evaluate readiness, and are followed by conducting an AAR and the development of an IP. These real-world events provide valuable learning opportunities. The lessons from such events are incorporated into the ERP and used to identify and prioritize future planning, training, and exercise activities.

In addition to ERP-specific exercises, LUMA conducts discussion-based exercises to accomplish a variety of objectives. Table-top exercises are conducted to validate LUMA's response to an emergency event that could occur simultaneously with a loss of business continuity, a national emergency, or a pandemic incident.

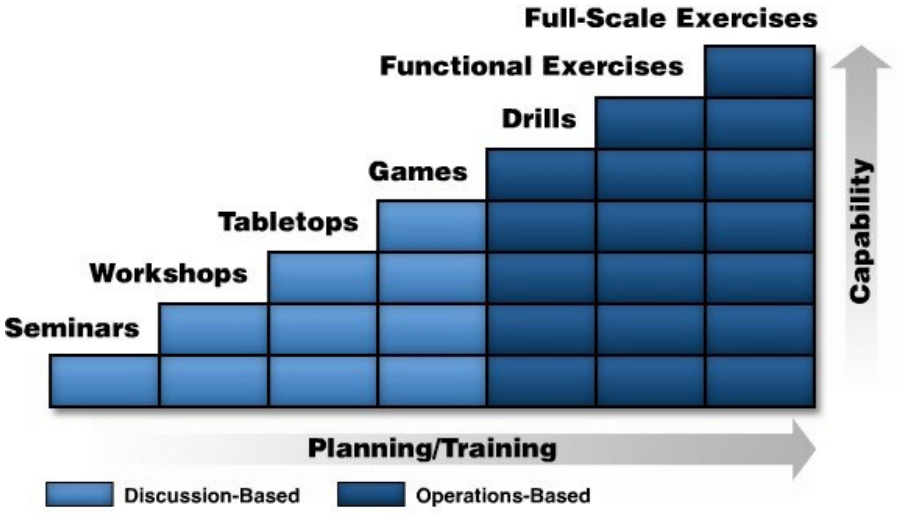

Figure 11: The different types of exercises.

12.5 After-Action Review

Detailed performance assessments are vital for LUMA's continuous improvement. AARs have three main purposes, provide an opportunity for everyone involved in an exercise or activation to:

1. identify areas in the current emergency management plan that need improvement.
2. make recommendations to improve it.
3. capture key lessons learned.

For Type 1, 2, and 3 events, the LUMA EP Department organizes a meeting to review the details of the emergency response. The purpose of this after-action review is to identify needed improvements to the ERP, procedures, facilities, or resources. To ensure a cycle of continuous improvement, individuals with responsibilities within the LER are requested to fully participate in evaluating performance and identifying functions and operations within the ERP that may need to be revised.

Additionally, the established emergency response process should be evaluated. During the emergency, participants are requested to make note of opportunities to improve the process and/or participants' performance in implementing the process. Participants are encouraged to record observations and recommendations as they occur.

LEOC P&I shall maintain accurate logs recording significant operational activities, the commitment of resources, and other information relating to emergency response and recovery operations. Expenses incurred in carrying out emergency response operations may be recoverable. Hence, all service elements maintain records of personnel and equipment used and supplies consumed during large-scale emergency operations.

Following the emergency event, the EP Department initiates the AAR process. Within the first 24-48 hours, the EP department assembles the AAR team that consists of section chiefs, IC, and LEOC Manager, among others designated by the IC to conduct an initial briefing to outline objectives and scope.

Within the first week, following the conclusion of the emergency, participants are requested to submit additional observations electronically to the EP Department. The EP Department gathers input from all

relevant personnel, partners, and stakeholders, collecting data, observations, and lessons learned. Ensuring thorough documentation of incident details, response actions, and outcomes.

In the second week, focused AAR sessions are held to analyze collected information, conduct interviews, and recollect any additional relevant information. These are also used to identify strengths, weaknesses, opportunities for improvement, and areas of success.

A month after the demobilization, the EP Department will produce and distribute a draft of the AAR report. The section chiefs and CMC members will review and validate findings, incorporating their input to ensure accuracy and comprehensiveness.

Two months after the demobilization, the AAR report will be approved and distributed to all stakeholders. A debrief meeting follows to discuss findings, share insights, and establish action items for improvement.

Post-distribution, the implementation of corrective actions and improvements is monitored, and follow-up assessments to gauge the effectiveness of changes made are scheduled.

Step #	Timing	Action	Responsible Party
1	During the emergency response	Maintain accurate logs recording significant operational activities, the commitment of resources, and other information relating to emergency response and recovery operations.	P&I
2	Emergency/exercise conclusion (24-48 h)	AAR team (section chiefs, and command staff) conduct an initial briefing to outline: • Objectives and scope • Identification of problems faced during the response • Logistical challenges • Communication breakdowns	EP Department, section chiefs, and command staff
3	Week one Post event Conclusion	• Participants are to submit additional observations electronically to the EP Department. • EP Department gathers input and collects data and observations; real-time adjustments are made during the response, and lessons learned.	EP Department, section chiefs, and command staff

Step #	Timing	Action	Responsible Party
4	Week two Post event Conclusion	EP holds focused AAR sessions to analyze collected information, conduct interviews, and recollect any additional relevant information. It conducts: • Comprehensive review of the entire response. • Analysis of strengths and weaknesses. • Identification of areas for improvement.	EP Department, section chiefs, and command staff
5	Month one Post Event Conclusion	• Compilation of incident reports. • Documentation of key findings. • Sharing of AAR draft with section chiefs.	EP Department, section chiefs, and command staff
6	Month two Post Event Conclusion	AAR report will be approved and distributed to all stakeholders. A debrief meeting follows to discuss findings, share insights, and establish action items for improvement.	EP Department, section chiefs, and command staff
7	Post AAR Distribution	• Continuous improvement of emergency response protocols • Implementation of corrective actions and improvements is monitored, and follow-up assessments to gauge the effectiveness of changes made are scheduled. • Incorporation of lessons learned into training programs.	EP Department, section chiefs, and command staff

Table 10: After Action Review (AAR) Procedure.

Emergency situations are inherently dynamic and subject to rapid changes. The effectiveness of these procedures relies on available resources and the nature of emergencies.

12.6 Employee and Family Emergency Preparedness

To help employees and their families prepare for a prolonged outage, LUMA includes personal preparedness information and recommendations through training, electronic newsletters sent to all employees, and internal communications throughout the year. The information and recommendations can

be based on communications released by Ready.gov, RedCross.org, and other official sources that provide preparedness actions and additional information that benefits them and their families. Internal communications strategies that are utilized may include, but are not limited to:

- Providing employees with resources to create a family emergency plan.
- Providing hurricane-specific preparedness and response information.
- Providing employees with resources to prepare their homes for emergencies.
- Providing employees with resources on how to assemble an emergency preparedness kit.

To further assist LUMA employees develop their Family Emergency Plans, and prepare them in the event of any disaster or emergency, LUMA created a guide to be distributed among employees with the pre-event notification. A Workday course on the subject is available and required for all employees. This combination of the just-in-time guide and the course helps employees create a simple and creative plan tailored to the family's particular needs, considering the threats in their area.

13 Plan Development and Maintenance

The ERP is a living document. As gaps become apparent, regulatory requirements change, problems emerge, or situations/environments change, this ERP is modified to remain current and useful. Each year, all LUMA departments and functions review their procedures, guidelines, checklists, and instructions relating to emergency response and revise them as necessary. This Base Plan and Annexes, along with a T&D Emergency Preparedness Report, are to be submitted to the Governor, PREB, and both Houses of the Legislative Assembly no later than May 31 on an annual basis.

Each functional area of the ERP is responsible to review and update its employee and stakeholder contacts. Elements of the review include:

- Community Lifeline organizations and critical facilities.
- All utility personnel assigned to emergency response.
- Mutual assistance companies and contractors.
- Critical Customers and other special needs customers.
- Human Service agencies.
- Print and broadcast media.
- Operators and managers of lodging facilities and restaurants.
- Government of Puerto Rico and local elected officials.
- Law enforcement and other emergency response personnel.
- Pertinent material and supply vendors.
- Telephone and other third-party utility and Joint Use contacts.

Any changes are communicated to the LUMA EP Department for inclusion in the next update of the ERP. In the event significant changes are made during the year, the EP Department provides a timely briefing for employees.

The EP Department reviews past events, ensuring that the criteria and assumptions used as the basis for the ERP are applicable. In the case that other LUMA departments and functions need to make changes to the ERP, these proposed changes can be submitted to the EP Department for approval before being incorporated into the official version of the ERP.

13.1 Revisions

A revision may require the development and distribution of a newer version of this ERP, depending on the edits or new distribution software. The new version of the ERP should receive a new date and require new approvals by LUMA officials.

13.2 Formal Plan Changes

Making formal changes to the LUMA ERP involves revising parts of the document by making specific changes to a limited number of pages. Changes are then sent to key employees, along with a summary or track-changes version that details which pages contain changes.

The person who receives the change(s) is responsible for updating those changes within their copy of the ERP and recording those changes on a Record of Changes page located at the front of the document to indicate the change has been incorporated.

The original document date does not need to change, and new signatures on the document do not need to be collected for formal ERP changes. However, they may be useful for tracking revisions.

14 Authorities and References

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- The National Security Strategy
- National Response Framework, as amended.
- National Disaster Recovery Framework, as amended.
- The Single Audit Act of 1984
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- Emergency Management Assistance Compact, Public Law 104-321
- National Incident Management System (NIMS), October 2017
- Homeland Security Presidential Directive (HSPD) 3: Homeland Security Advisory System, March 2002
- Homeland Security Presidential Directive (HSPD) 5: Management of Domestic Incidents. February 2003
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- Presidential Policy Directive (PPD) 8: National Preparedness, March 2011
- Executive Order 13347, Federal Register, Individuals with Disabilities in Emergency Preparedness
- 13 CFR Part 123, Small Business Administration Disaster Loan Program

- 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards
- 44 CFR Part 206, Federal Disaster Assistance for Disasters Declared on or after November 23, 1988
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15 Acronyms and Terms

15.1 Acronyms

Acronym	Term
AAR	After Action Report
APPA	American Public Power Association
AST	Section Assistant
BES	Bulk Electric System
CAD	Computer Aided Dispatch
CEO	Chief Executive Officer
CISA	Cybersecurity and Infrastructure Security Agency
CPG	Comprehensive Preparedness Guide
EAS	Emergency Alert System
EEI	Edison Electric Institute
EMS	Emergency Medical Services
EOC	Emergency Operations Center

Acronym	Term
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
ESF-12	Emergency Support Function
ETR	Estimated Time of Restoration
ETRS	ETR Specialist
FEMA	Federal Emergency Management Agency
FQHC	Federally Qualified Health Center
GIS	Geographic Information System/ Unit Leader
HSEEP	Homeland Security Exercise Evaluation Program
HSEQ	Health Safety Environment & Quality
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IPAWS	Integrated Public Alert & Warning System
IT	Information Technology
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
LNO	Liaison Officer
LPE	Life Preserving Equipment Dependent Customers (Customers)
MAA	Mutual Aid Agreement
MMS	Materials Management System
MOE	Major Outage Event

Acronym	Term
NAWAS	National Warning System
NIMS	National Incident Management System
NOAA	National Oceanic and Atmospheric Administration
NRF	National Response Framework
NWR	NOAA Weather Radio
OMME	Municipal Office for the Management of Emergencies
OMS	Outage Management System
OT	Operational Technology
PIO	Public Information Officer
P&I	Planning & Intelligence (Section)
POC	Person of Contact
PR	Puerto Rico
PRASA	Puerto Rico Aqueduct and Sewer Authority
PREB	Puerto Rico Energy Bureau
PREMB	Puerto Rico Emergency Management Bureau
PREPA	Puerto Rico Electric Power Authority
PSA	Public Service Announcement
SCADA	Supervisory Control and Data Acquisition

15.2 Terms

1. **After Action Report** – A document intended to capture observations of an exercise/event and make recommendations for post-exercise improvements. The final AAR and IP are published and distributed jointly as a single AAR/IP.
2. **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
3. **Business Continuity** – A set of activities that identifies potential impacts that threaten an

organization and provides a framework for building resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, and value-creating activities.

4. **Capability** – The ability to achieve a specific outcome with an applicable combination of planning, organization, resources, and trained and exercised personnel. Emergency Management and Business Continuity capabilities are those that are needed collectively to prepare for, respond to, and recover from events with the potential of impacting the operational and business functions of LUMA.
5. **Check-In** – The process necessary to receive and begin accounting for incoming external resources to enable them to participate in emergency restoration activities safely and effectively.
6. **Comprehensive Preparedness Guide 101** – Provides FEMA Guidance on fundamental planning and developing emergency operations plans (EOPs).
7. **Community Lifelines** – critical government and business functions essential to human health and safety or economic security.
8. **Crisis Management** – the process by which an organization deals with a disruptive and unexpected event that threatens to harm the organization or its stakeholders.
9. **Critical Facilities** – Critical facilities identified as Level 1, 2, or 3 facilities provide services that are critical to the health and safety of the public and are tied to at least one of the seven critical community lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.
10. **Critical Infrastructure** – A list of customers for which the loss of electrical service would result in disruption of a critical public safety function is designated as “Critical Infrastructure”. Examples include wastewater treatment plants and transportation.
11. **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, and/or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
12. **Emergency or Emergency Event** – Any outage event, as per the T&D OMA; declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, and/or operational capacity where LUMA has deemed it an Emergency and/or necessary to activate the LUMA Emergency Roster.
13. **Emergency Operations Center** – The physical locations at which coordination of information and resources to support incident management activities occurs.
14. **Emergency Response Plan** – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.
15. **Emergency Support Functions** – (ESF-12) provide the structure for coordinating Federal interagency support for a federal response to an incident. They are mechanisms for grouping functions most frequently used to provide Federal support to States and Federal-to-Federal support, both for declared disasters and emergencies under the Stafford Act and for non-Stafford Act incidents.
16. **Geographical Information System** – A framework that is used to map the distribution system with land base information.
17. **Homeland Security Exercise Evaluation Program** – A capabilities and performance-based exercise program that provides standardized policy, doctrine, and terminology for the design,

development, conduct, and evaluation of homeland security exercises.

18. **Incident Action Plan** – Includes the overall incident objectives and strategies established by the Incident Commander. The Planning Section is responsible for developing and documenting the IAP.
19. **Incident Commander** – The individual appointed by LUMA's executive management to have overall responsibility for LUMA's response during an Emergency Event.
20. **Incident Command System** – Coordinated and collaborative incident management construct specifically designed and made a part of the National Incident Management System ("NIMS") under the Federal Emergency Management Agency ("FEMA").
21. **Life Preserving Equipment Dependent Customers** – Also known as medical priority customers, means those customers who have provided documentation to LUMA of their medical conditions necessitating electric service.
22. **LUMA Emergency Roster** – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation. Includes those in the EOCs and those in the field.
23. **Municipal Liaison** – Means a liaison designated by LUMA to communicate with a municipality during an Emergency Event.
24. **Mutual Assistance Agreements** – Agreements between LUMA and other utilities, both inside and outside the state, that details specifics for obtaining or lending resources, including, but not limited to, material, equipment, and trained personnel, when internal resources are not sufficient to ensure the safe and reasonably prompt restoration of service during an Emergency Event.
25. **Outage Management System** – System used to identify customer outages, assign trouble crews, and record outage event statistics.
26. **Post-Event Stage** – The period immediately following the restoration of service to all customers after an Emergency Event.
27. **Pre-Event Stage** – The period between when LUMA first identifies an impending Emergency Event and when the Emergency Event first causes damage to the system resulting in Service Interruptions.
28. **Risk Analysis** – The first step and process of identifying and analyzing defining characteristics and potential issues that may negatively impact organizations.
29. **Risk Assessment** – The process of identifying the risk analysis and making judgements of potential events that may impact the organization.
30. **Supervisory Control and Data Acquisition** – Electronic monitoring equipment that reports the status of distribution equipment.
31. **Service Interruption** – The loss of service to one or more customers connected to the electric distribution system.
32. **Service Restoration Stage** – Period of time between when an Emergency Event causes damage to the system (causing Service Interruptions), and the time when service is restored to all customers.

Appendix A – LUMA ICS Principles

1.1 Event Types

Event Types	Characteristics
Type 5 **Normal Operations**	• A non-emergency restoration event ○ Response and restoration efforts last for less than 12 hours

Type 4
Non-Emergency Event
	• A non-emergency restoration event
	  ○ Response and restoration efforts last for approx. 12-24-hour period
	  ○ Locally assigned crews and contractors respond to any isolated incidents.
	• Preparation for an emergency that could lead to a restoration event described above.
	• An event with low or no media interest, spills or releases confined to site, and public or employee health and safety is not threatened.
	• An understood and contained cybersecurity or terrorist threat

Type 3
High Alert Event
	• An emergency restoration event for approximately 70k to 350k customer interruptions (represents approximately 10-25% of LUMA customers)
	  ○ 10k or more outages at peak
	  ○ Restoration in most cases is in 24-48 hours.
	• Preparation for an emergency that could result in a restoration event described above.
	• An event where at least 3 of the following are present:
	  ○ First aid treatment required for worker(s)
	  ○ Local and possible regional media interest
	  ○ Public/employee health & safety or environment not threatened – perception of risk present.
	  ○ Spills and releases not contained on lease or potential extend beyond site/lease.
	• A cybersecurity or terrorist threat that is not fully understood or contained.

Type 2
Emergency Conditions Event
	• An emergency restoration event for 350k to 700k customer interruptions (represents approximately 25-50% of LUMA customers)
	  ○ 25k or more outages at peak.
	  ○ Restoration in most cases is in a 10-day period or less.
	• Preparation for an emergency that could result in a restoration event described above.
	• An event where at least 3 of the following are present:

Event Types	Characteristics
	○ Multiple workers require hospitalization. ○ Regional & national media interest. ○ Spill or release not contained, extends beyond lease. ○ Public/employee health & safety or environment could be jeopardized. • A cybersecurity or terrorist event that is impacting multiple ordinary business functions or activities for a known amount of time.
Type 1 **Catastrophic Emergency**	• An emergency restoration event for more than 700k customer interruptions (more than approximately half of all LUMA customers) ○ 50k or more outages at peak. ○ Restoration could take 10 days or longer. ○ Will require an evaluation of mutual aid assistance. • Preparation for an emergency that could result in a restoration event described above. • An event where at least 3 of the following are present: ○ Mass fatalities. ○ National & international media interest. ○ Spill or release off site/not contained. ○ Public/employee health & safety or environment jeopardized. • A cybersecurity or terrorist event that is has the potential to impact multiple ordinary business functions or activities for an unknown amount of time.

Note: for additional details regarding Event Type characteristics, refer to Tables 5-9 of Annex A.

1.2 Activation Levels

Event Types	Characteristics
Type 5 **Normal Operations**	• Normal day-to-day operations • Teams utilize ERP principles to respond to events
Type 4 **Partial Activation**	• An Incident Commander is named and select positions may be activated. • Regular situational awareness updates are provided. • ROCCs, SERTs and/or the LEOC may be open and used if deemed beneficial for response
Type 3 **Moderate Activation**	• Command and General Staff are activated with supporting Branches and Units based on the need. • ROCCs, SERTs and/or the LEOC are likely open and in-use. • Incident Action Plans completed; Operational Period Briefings may be completed
Type 2 **Large Activation**	• Command and General Staff, Branches and Units are activated to coordinate response. • The LEOC, ROCCs, and SERTs are opened and in-use. • Multiple shifts are in-place to maintain response efforts. • Operational Period Briefings and Incident Action Plans are completed
Type 1 **Full Activation**	• All roles on the LER are activated, including War Rooms and any additional roles that are required to respond to specific events. • Multiple shifts are in-place to maintain response efforts. • Significant contract resources are being utilized; mutual aid is being utilized if required. • The LEOC, ROCCs, and SERTs are opened and in-use. • Operational Period Briefings and Incident Action Plans are completed.

Note: For additional details regarding Activation Level characteristics, refer to Section 6.4 of the Base Plan.

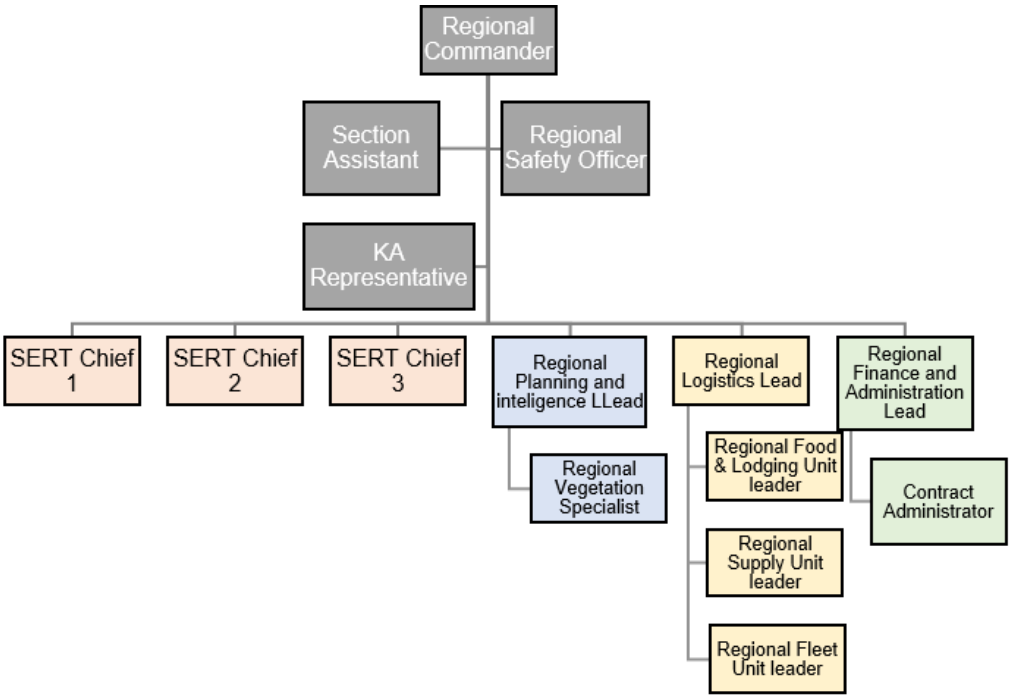
1.3 Crisis Management Committee Structure

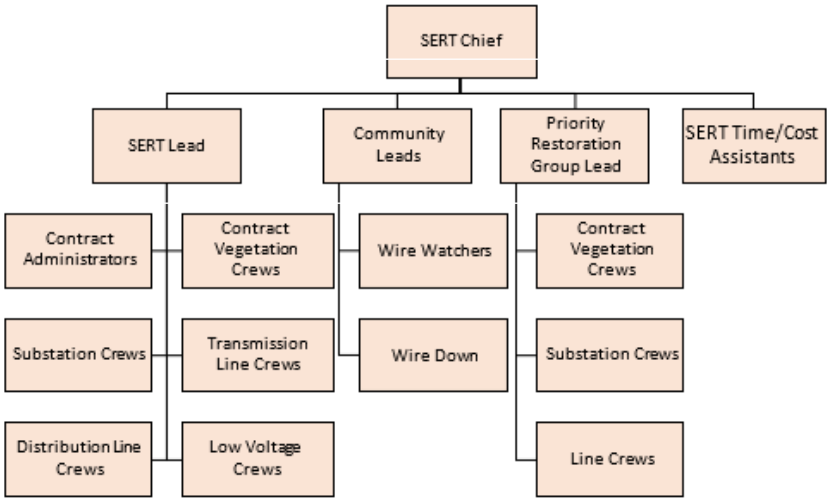
1.4 LEOC ICS Structure

Notes: Additional support roles assigned for sections to staff branches, units, and teams.
*Deputy roles can be used to maintain span of control with sections.

1.5 LUMA ICS Divisional Structure

Refer to the Base ERP – Appendix A for the LEOC Command and General Staff Structure. Each of the ROCCs operates under a similar organizational structure. The SERTs may be aligned geographically within districts, assigned to specific sites, or be focused technically. The diagrams below are illustrative and may be modified based on the characteristics of the event.





Appendix B - Assignment of Responsibility

Role	Role Section	Role Description
Incident Commander	Command	The IC is responsible for directing and coordinating all aspects of the emergency response effort. The priorities of the IC are determined by the extent, size, duration, and complexity of the incident, as well as the availability of resources. The IC could determine that an emergency condition exists for all or part of the system and invoke a scaled response and recovery actions, as needed. This determination allows expeditious resource procurement and efficient allocation of existing assets. The primary responsibilities include, but are not limited to: • Exercise overall management of delegation, coordination, and support of the incident, activating the ERP as necessary. • Determine the event type associated with the incident and the level of staffing needed in the LEOC. • Activate the LER and the LEOC, as appropriate for the event type. • Lateral coordination with PREPA GeneraPR and relevant stakeholders is needed for decision-making regarding when the responsibility of each agency may be affected. • Utilize information and damage assessments. • Determine the number of resources required to respond to an event, including internal, external, contract, mutual aid, etc., direct efforts to obtain the required number of resources throughout the event, and allocate available resources on a system-wide basis. • Ensure emergency communication protocols are implemented. • Oversee LEOC support activities including routine coordination conference calls with the command staff, section chiefs' positions, Federal, state, and municipal emergency management officials. • Implement strategic objectives from the CMC and provide restoration response status information to senior management and the LEOC. • Identify and mitigate adverse customer, regulatory, or other constituent sentiment and communicate resolution plans to the LEOC. • Obtain strategic direction from the CMC and maintain an open line of communication. • Ensure adequate and effective coordination among all functional areas involved in incident response. • Implement the ERP demobilization process, which includes the structured release of resources. • Implement post-event review processes, including any post-event outreach programs, and create after-action reviews, reports, and improvement plans.
Deputy Incident Commander	Command	The IC may have a Deputy Incident Commander (Deputy IC). Deputy ICs must have the same qualifications as the person for whom they work, as they must be ready to take over that position at any time. The primary responsibilities include, but are not limited to: • Assist and serve as an advisor to the IC and General Staff as needed, providing information related to the internal functions of the LEOC to ensure compliance with operational emergency plans and procedures. • Oversee the LEOC Manager, the Safety Officer, and other positions assigned by the Incident Commander. • Assist in establishing appropriate staffing and activation levels for the LEOC, continuously monitoring organizational effectiveness, and ensuring any necessary modifications occur as required. • Ensure adequate and effective coordination among all functional areas involved in incident response.
Legal Officer	Command	The Legal Officer is responsible for monitoring and/or advising on all legal

		matters, commercial contracts, and agreements. The Legal Officer shall also ensure the incident response efforts comply with the statutory and corporate governance practices and guidelines. The primary responsibilities include, but are not limited to: • Reviewing contractual agreements to ensure contractual liability is mitigated. • Commenting on formal communications from a legal perspective, including reviewing potential donations. • Provide guidance to incident leadership regarding corporate governance practices. • Assisting with incident investigation, particularly relating to third-party claims and damages.
Procurement Officer	Command	The Procurement Officer is responsible for administering the incident procurement process, managing financial matters pertaining to vendor contracts and agreements, and ensuring compliance with incident procurement policies. The primary responsibilities include, but are not limited to: • Arrange for emergency accounts and coding for service contracts and purchases. • Provide administration, finance forms, and procedures for purchases. • Establishing contracts with supply and contract vendors as required. • Finalize contracts and agreements and obtain signatures from appropriate approval authorities. • Maintain records of purchases and contracts.
LEOC Manager	Command	The LEOC Manager is responsible for the management of the LEOC facility and ensuring LEOC staff are supported during an incident. The LEOC Manager is also responsible for making certain the Situation Report or Senior Leadership Briefing is completed at regular intervals and contains timely and accurate information. The primary responsibilities include, but are not limited to: • Ensure that the LEOC facility is properly equipped and prepared for activation at any given moment. • Help establish appropriate LEOC staffing levels and monitor organizational effectiveness. • Assist with responsibilities as requested by the IC. • Coordinate translation services, if possible. • Coordinate for any support for EOC system(s) as needed by LEOC staff. • Ensure that coordination among Sections is accomplished effectively.
Safety Officer	Command	The Safety Officer is responsible for coordinating the appropriate response to address work-related health and safety issues for all personnel responding to an emergency, including external contractors. All industrial-related injuries and illnesses must be reported in accordance with LUMA's safety procedures, which contain instructions for completing documentation associated with injuries and illnesses arising during work-related activities. The primary responsibilities of the position include, but are not limited to: • Support the mitigation of hazardous situations as identified. • Exercise emergency authority to stop and prevent unsafe acts. • Communicate with employees and contractors about responsibility and exercising emergency authority to prevent or stop unsafe acts when immediate action is required. • Review the Incident Action Plan (IAP) for safety implications and provide safety messages for inclusion in the IAP. • Assign staff assistants qualified to evaluate special hazards. • Ensure all applicable workplace safety rules and policies are complied with during the restoration effort. • Recommends measures for assuring employee safety, public safety, and the protection of LUMA employees. • Allocates local Safety, Health, and Environmental personnel to affected branches.

		• Oversee and ensure that an initial safety briefing is conducted with all arriving mutual aid and contractor crews and provide safety briefing documents each day during the restoration process for all LUMA employees and mutual aid or contractors. • Ensure prompt investigations occur following a significant safety near-miss or actual event. • Notify the Incident Commander of any significant events or conditions related to worker health and safety. • Additional responsibilities as assigned by the Incident Commander.
Liaison Officer	Command	The Liaison Officer (LNO) serves as the primary point of contact for external representatives such as a Multi-Agency Coordination (MAC) Group, local government and/or federal agencies, in accordance with the LUMA Major Outage Event Metrics, found in Appendix A of the Major Outage Event Restoration Annex (Annex A). The LNO coordinates the assignment of requested LUMA personnel to PREMB's EOC and the PREMB Regional Emergency Operations Centers (REOCs), and coordinates response and support activities with other government response agencies. The LNO proactively solves conflicts and addresses issues that may occur between LUMA and other agencies. The LNO develops and fosters relationships with LNO partners and serves as the conduit to the IC upon activation of the LEOC. The primary responsibilities of the LNO are to effectively monitor, coordinate, and communicate with LNO stakeholders of participating organizations in support of the incident as it relates to Transmission and Distribution (T&D). This includes, but is not limited to: • Serve as the primary contact to the IC for LNO stakeholders during LEOC activations. • Serve as the primary point of contact for all LNO stakeholders who are not represented on the LER and ensure their concerns, input, objectives, and issues are effectively addressed by the response effort. • Maintain a list of assisting and cooperating agencies and Agency Representatives, including name and contact information. • Periodic maintenance of contact lists for local emergency management and response personnel which include, but are not limited to: PREMB, FEMA, Genera-PR, PREPA, PRASA, DDEC, DoE, PRNG and other personnel.
LUMA PREB & P3A Liaison Officer	Command	The PREB & P3A Liaison Officer serves as the single point of contact for LUMA to the PREB and P3A. The PREB & P3A Liaison Officer sits in the LEOC, ensuring the PREB and P3A are kept abreast of any incident and LUMA's response actions, anticipated response actions, and any other information as requested from PREB and P3A. They work closely with the LUMA LNO to ensure the continuity of messaging regarding the information being shared with those agencies. The primary responsibilities include, but are not limited to: • Serve as the liaison between LUMA, PREB, and P3A during an outage event. • Anticipate requests from PREB and P3A. • Provide the requested information and status updates at least four (4) times a day, unless directed otherwise by the PREB, regarding LUMA operations to PREB and P3A. • Ensure the unity of messaging between LUMA, PREB, and P3A. • Serve as the liaison for any Federal and/or state congressional-level requests for information. • Facilitate communication with the Governor's Office by providing reports, responding to information requests, and providing restoration updates during emergencies.
LUMA Generation Liaison Officer	Command	The LUMA Generation Liaison Officer is responsible for liaising with the generation industry across the island. The GLO is in the LEOC and maintains current contact information for all generation companies that contribute to the Transmission and Distribution system. The LUMA Generation Liaison Officer also coordinates any assistance and resource involvement throughout an

		incident with the generation companies. They work closely with the LUMA LNO to ensure continuity of messaging in the information being shared with those organizations. The primary responsibilities include, but are not limited to: • Ensure an open communication channel between LUMA and generation industry contacts during an incident. • Maintain current contact information for all generation companies on the Island. • Facilitate requests for resources with generation contacts. • Ensure the messaging is consistent between LUMA and generation industry contacts.
LUMA FEMA Liaison Officer	Command	The FEMA Liaison Officer serves as the key point contact for direct communications between LUMA and FEMA. The FEMA Liaison Officer sits in the LEOC and ensures that in a Federally declared emergency, FEMA is kept abreast of LUMA's response and restoration efforts to facilitate decisions such as priority deployment of temporary generators to critical facilities. They work closely with the LUMA LNO to ensure continuity of messaging in the information being shared amongst government agencies. The primary responsibilities include, but are not limited to: • Serve as the liaison between LUMA and FEMA within the LEOC during an event championing and strengthening Interagency Collaboration (FEMA, LUMA, COR3). • Coordinate response and representation from FEMA within LUMA's EOC. • Provide the requested information and status updates regarding LUMA response operations to FEMA, outside of interagency coordination, incorporating technology, data sharing, and analytics for live reporting. • Ensure the unity of messaging between LUMA and FEMA. • Provide support to LEOC Command and General Staff related to FEMA requests and coordination. • Provide clarity and streamline FEMA compliance processes while facilitating communications and exchange of information between LUMA and FEMA to comply with Stafford Act declaration requirements for disaster assistance.
Community Relations Specialist	Command	The Community Relations Specialist serves as a liaison for information sharing between the PREMB LUMA Regional Interagency Coordinators (LRIACs) and the LEOC. This position works directly with PREMB LRIACs to collect information on community and customer power outages while monitoring and accessing the information in the PREMB WebEOC application. The primary responsibilities include, but are not limited to: • Knowledge of PREMB WebEOC is needed to reconcile outage information with LUMA's damage assessments. • Utilize strong analytical skills, and an understanding of customer service and other utility processes, to achieve strong performance metrics and a positive community and customer experience. • Identify, develop, and implement creative solutions to address and reduce future community and customer complaints and support a positive customer experience. • Develop collaborative workflow processes with Operations, Plans & Intelligence, and Customer Experience & Key Account Specialist.
LUMA PREMB Interagency Coordinator	Command	The LUMA PREMB Interagency Coordinator serves as the single LUMA point of contact for the PREMB. The LUMA PREMB Interagency Coordinator sits in the PREMB EOC to keep federal and local government agencies informed and speaks on behalf of LUMA at operational period briefings and other requests for information. The position works closely with the LUMA LNO to ensure continuity of messaging and to keep the LEOC informed as to the information being shared in the PREMB EOC. The primary responsibilities include, but are not limited to: • Ensure an open communication channel between LUMA and PREMB during an outage event. • Provide the requested information and status updates regarding LUMA operations to PREMB.

		• Ensure the messaging is consistent from LUMA to PREMB. • When activated, work out of the PREMB EOC, and liaise with the LEOC and other government agency Interagency Coordinators. • Represents LUMA in the ESF-12 structure, which includes PREPA, GeneraPR, PRASA, DDEC, among others.
Public Information Officer	Command	The Public Information Officer (PIO) is responsible for the management of all communications regarding incident information. Incident information such as customer interruptions, resource acquisitions, system damage, and restoration progress is managed in accordance with the communication protocols established by the LUMA CMC. The PIO and staff have overall responsibility for crafting response information to be disseminated to external and internal stakeholders upon approval by the IC, including media outlets, employees, customers, municipal officials, regulators, and other government representatives. Other responsibilities of the PIO include, but are not limited to: • Ensure coordination with PREPA and GeneraPR PIOs for unity of message to all stakeholders. • Ensure the maintenance of contact lists including print and electronic media contacts. • Ensure customer outage estimated times of restoration (ETRs) are broadcast across all available LUMA platforms. • Provide employees with timely, accurate information to support situational awareness. • Develop accurate, accessible, and timely information for use in press/media briefings. • Determine any limits on information releases according to the direction of the IC. • Obtain the IC's approval of news releases. • Conduct periodic media briefings and/or disseminate news releases to media outlets. • Arrange for tours and other interviews or briefings that may be required. • Monitor and forward media information that is useful to incident planning. • Maintain current information, summaries, and/or displays on the incident. • Make information about the incident available to incident personnel. • Ensure that all subordinate positions execute their specific duties and responsibilities.
Digital Communications Specialist	Command	The Digital Communications Specialist provides multiple means of receiving response information for employees, customers, media, and other key stakeholders. The primary responsibilities include, but are not limited to: • Update the LUMA website with appropriate information related to the event. • Distribute appropriate safety, preparedness, and restoration information via various social media outlets as appropriate. • Monitor social media outlets and respond to inquiries. • Provide updates related to digital communication channels to the PIO as needed.
Internal Communications Specialist	Command	The Internal Communications Specialist is responsible for providing regular updates to LUMA employees through emails and postings regarding the incident and LUMA's response operations. The primary responsibilities include, but are not limited to: • Aid the PIO in crafting employee messages and distributing approved materials to employees at appropriate times. • Respond to employee inquiries for information related to the incident. • Provide updates to the PIO regarding employee issues as appropriate. • Ensure employee-focused communications are timely, accurate, and effective. • Coordinate with the Digital Communications Specialist to ensure messaging continuity.
Spokesperson	Command	The Spokesperson is responsible for representing LUMA in relation to media statements, press conferences, and press releases. The primary

		responsibilities include, but are not limited to: • Relaying messaging prepared by the PIO for release through media outlets. • Representing LUMA in cross-agency press conferences and media interviews. • Coordinating with other LUMA leaders to provide consistent response messaging in alignment with restoration priorities.
Customer Experience & Key Accounts Specialist	Command	The Customer Experience & Key Accounts Specialist represents the customer at the LEOC. The position monitors customer complaints and general overall customer feedback and satisfaction. The primary responsibilities include, but are not limited to: • Providing the IC with any impact on the customers in affected or non-affected areas. • Ensuring the Customer Experience teams are adequately staffed for the expected emergency and staffing plans are made to ensure proper customer service throughout the incident. • Monitors and provides feedback to Command Staff that the information from the PIO and Communications team regarding emergency response efforts are communicated to our customers. • Oversees and provides feedback on LUMA's information supplied to Community Lifeline Customers and Life Preserving Equipment Dependent (LPE) customers to ensure the information is timely and accurate. • Provides guidance and direction to the Regional Key Accounts Representatives. • Through the Regional Key Accounts Representatives, engagement with municipalities outside of formal PREMB EOCs is monitored and managed.
Command Section Assistant	Command	During LEOC activations, the Command Section Assistant provides administrative assistance and support to the Incident Commander as needed. They also serve as the scribes for the Command Staff and are responsible for documenting section activities and other duties as assigned by the Incident Commander. The Command Section Assistant also coordinates with other support staff as necessary to ensure the effective use of SharePoint and other information-sharing systems. The primary responsibilities include, but are not limited to: • Ensure each position maintains a log of important information and activities. • Maintains a complete and accurate record of all actions and key decisions that occur during and after the incident. • Take notes at meetings attended by the Incident Commander (IC). • Compile notes and other significant pieces of information into situational updates/reports. • Answer Command Section desk phone(s) if staff are busy and unable to answer.
Operations Section Chief/Deputy Ops Section Chief	Operations	The Operations Section Chief is responsible for overseeing the response to the incident, making the necessary repairs to the system, and managing all tactical operations to achieve objectives, with guidance from the Incident Action Plan (IAP). The Operations Section Chief advises all Command Staff regarding the status of tactical operations. The Operations Section Chief makes staffing assignments for the Operations Section and ensures adequate staffing. All Operations Section tasks are accomplished by the Operations Section Chief when subordinate staff is not activated. The primary responsibilities include, but are not limited to: • Prioritize the safety of tactical operations. • Assist the Incident Commander in establishing incident objectives and recommend alternate strategies for the response as required. • Develop and supervise the operations portion of the Incident Action Plan. • Direct and manage tactical restoration operations. • Request additional resources to support tactical operations. • Approve the release of resources from active operational assignments. • Brief Operations staff and communicate with LEOC leadership. • Maintain situational awareness about the overall response and related tactical

		needs. • Maintain close contact with Incident Commander and subordinate Operations personnel. • Ensure the positions within the Section execute their position-specific duties and responsibilities. • Prepare and submit requested reports/documents to the Incident Commander. • Ensure operational objectives are updated. • Ensure adequate and timely progress towards meeting goals and considers alternate strategies.
T&D System Operations Branch Director	Operations	The T&D System Operations Branch Director is responsible for the safe and efficient operation of the Transmission and Distribution Grid. Through the utilization of real-time SCADA, Generation inputs, and line capacities, the system operations team controls and directs all the system activities to ensure a stable and functional grid is maintained across the island(s). The critical business function of the System Operations Center is the real-time operation of the BES (Bulk Electric System) and non-BES assets operated by LUMA. They direct all operations regarding transmission and distribution of the power grid and primarily consist of Dispatch Control Center functions that manage the real-time operations of LUMA's BES. The control room monitors and addresses information received to conduct planned or unplanned operational requirements of the system. At the direction of the T&D Systems Operations Branch Director, the dispatch control center follows specific procedures, including those for emergency response execution and black-start operations as necessary and in accordance with the System Operation Principles. The primary responsibilities include, but are not limited to: • Control what comes on or off the system from a Generation, substation, and line perspective. • Direct all operational requests and requirements to field personnel. • Isolate the grid as necessary during system constraints or lack of capacity. • Provide field resourcing needs to planning and intelligence teams. • Provide Incident Commander and LEOC awareness of overall system capacity loading, issues, and priorities for the planning periods. • Provide restoration priorities from a system perspective to the Operations Section Chief and the Planning & Intelligence Section Chief. • Provide information to calculate estimated times of restoration (ETRs) as system conditions and status changes.
Field Operations Branch Director East and West	Operations	The Field Operations Branch Director East and West is responsible for overseeing the response to the event throughout the divisions, making the necessary repairs to the system, and for managing all tactical operations and resources to achieve that objective, with guidance from the Incident Action Plan (IAP). The primary responsibilities include, but are not limited to: • Manage the activated Regional Commanders to include Transmission and Substations. • Assure the safety of tactical operations. • Develop and supervise the operations portion of the IAP. • Direct and manage tactical restoration operations. • Identify and request, to Logistics section, when additional transmission and substation-related resources are required to support tactical operations. • Review and validate transmission and substation damage and repair information and provide it to the Planning & Intelligence Section for situational awareness. • Provide transmission and substation restoration priorities to ROCCs, SERTs, and field teams in accordance with LUMA's overall system restoration priorities. • Approve the release of resources from active operational assignments. • Initiate or approve changes to the IAP regarding operational tactics. • Maintain close contact with Incident Commander and Operations Section

		Chief. • Provide updates to the Operations Section Chief and/or Deputy Operations Section Chief at regular intervals.
Priority Restoration Group Branch Director	Operations	The Priority Restoration Group Branch Director is primarily responsible for the priority restoration of electrical service. The Priority Restoration Group Branch Director operates in a centralized or decentralized environment as required. The Priority Restoration Group Branch Director utilizes the Outage Management System (OMS), and system control centers to direct the activities of the Priority Restoration Group. The primary responsibilities include, but are not limited to: • Schedule crews according to predetermined shifts. • Disseminate dispatch instructions to crews. • Conduct close-out of OMS tickets with crews to receive reports on the nature of the work completed regardless of the manner of dispatch. • Conduct follow-up phone calls and/or emails when work is completed, including notification to the Customer Experience Team as needed, Community Affairs, and Regional and Municipal agencies. • Maintain communications with an assigned contact in the LEOC to address unique or emergency situations. • Work with Operations to complete the training of Priority Restoration Group line crews and provide training updates as needed.
Air Operations Unit Leader	Operations	The Air Operations Unit Leader supervises all air operation activities, prepares the air operations portion of the IAP, implements its strategic aspects, and provides logistical support to aircraft operating on the incident. The primary responsibilities include, but are not limited to: • Ensure individual readiness. • Obtain and assemble information and materials needed for the incident. • Gather critical information pertinent to the incident. • Participate in the preparation of the Incident Action Plan. • Ensure daily operational objectives and performance standards are met. • Prepare for and participate in pre-planning/strategy meetings. • Review local area aviation status, restrictions, and limitations if applicable. Obtain an initial briefing from the supervisor. • Establish and communicate chain of command, reporting procedures, risk management processes, and aviation operational strategy. • Determine the need for additional air support and calculate the amount and type of resources required. Ensure adequate staffing is in place to support anticipated activity. • Assist in the development and implementation of the incident demobilization plan.
Debris Management Unit Leader	Operations	The Debris Management Unit Leader is responsible for leading the LUMA debris management system, which is a collection of personnel, facilities, technical expertise, and material resources that are designated for use in the clearance, removal, transport, sorting, storage, recycling, and ultimate disposal of disaster debris. The primary responsibilities include, but are not limited to: • Work with selected debris removal contractors, designated local (public and nongovernmental) support agencies and organizations, and involved state support agencies (as applicable). • Provide for the overall (personnel, equipment, materials, vehicles, facilities, communications) management and coordination of the debris management operation. • Provide technical expertise in all facets of debris management operations. • Coordinate road access with municipal, federal, and state (DTOP) agencies (as applicable).

		• Assist in the identification, establishment, operation, and closeout of required debris management support facilities. • Monitor and track the activities and progression of the debris management operation. • Establish and manage a system for receiving and addressing inquiries from the public, unsolicited contractors, etc. • Provide operation-specific information for required reports, briefings, media releases, etc.
Operations Section Assistant	Operations	The Operations Section Assistant documents operational LEOC activities and serves as a scribe to assigned Operations staff. They maintain a complete and accurate record of all events and key decisions that occur during and after the incident. Such records are written and could be documented in map form. The Operations Section Assistant coordinates with other Section Support Staff as necessary to ensure the effective use of SharePoint or other information-sharing systems. The primary responsibilities include, but are not limited to: • Ensure each position maintains a log of important information and activities. • Maintain a complete and accurate record of all actions and key decisions that occur during and after the incident. • Take notes at meetings conducted by the Operations Section Chief. • Compile notes and other significant pieces of information into situational updates/reports. • Answer Operations Section desk phone(s) if staff are busy and unable to answer.
T&D System Operations War Room	Operations	The T&D System Operations War Room staff provide support in the critical business function of the System Operations Center, as well as the real-time operation of the BES (Bulk Electric System) and non-BES assets operated by LUMA. They direct all operations regarding transmission and distribution of the power grid and primarily consist of Dispatch Control Center functions that manage the real-time operations of LUMA's BES. The control room monitors and addresses information received to conduct planned or unplanned operational requirements of the system. At the direction of the T&D Systems Operations Branch Director, the dispatch control center follows specific procedures, including those for emergency response execution and black-start operations as necessary and in accordance with the System Operation Principles.
Regional Operations Command Centers (ROCCs) Commanders	Operations	The LUMA Regional Operations Command Centers (ROCCs) Commander reports to the Division Branch Director(s), who directs the response of field teams. These Commanders are responsible for notifications to, and mobilization of, division personnel required for operational emergency response, proportionate to the size, scale, and complexity of the emergency. Subsequently, these elements notify and mobilize personnel from their respective branches, regions, and SERT teams, and direct them to initiate their emergency restoration activation protocol. Requested resources report to their designated staging area(s) or dispatched response locations.
Logistics Section Chief/Deputy Logs Section Chief	Logistics	The Logistics Section Chief advises all Command and General Staff regarding the status of logistical operations and provides all incident resources to support the tactical execution of incident objectives. They also provide all facilities, transportation, supplies, equipment maintenance, and fueling for incident personnel and all off-site resources. The primary responsibilities include, but are not limited to: • Maintain situational awareness about the overall response and related logistics requirements. • Ensure section objectives, as stated in the LEOC Incident Action Plan (IAP), are accomplished within the operational period as required. • Ensure acquisition, distribution, and documentation of all requested resources.

		• Ensure resources requested are maintained within the boundaries of fiscal, environmental, and other constraints. • Coordinate the support of facilities, services, and materials in support of system restoration activities across multiple regions. • Provide oversight, coordinate, and/or direct staging site operations. • Identify and estimate service, support, and sustainment requirements for the current and future operational periods. • When the LEOC is activated, the Supply Unit is activated to check the availability of resources and arrange for the delivery of necessary supplies. • Coordinate site security at LUMA facilities during emergency response operations. • Ensure the positions within the Section execute their specific duties and responsibilities. • Oversee demobilization of the Logistics Section and associated resources. • Undertake additional responsibilities as assigned by the LEOC Incident Commander. • The Logistics Section Chief participates in LEOC planning meetings, reports the status of resources and shortfalls, and identifies areas where contingency planning/action is required.
Support Branch Director	Logistics	The Logistics Support Branch Director coordinates the activities of Support Branch Unit Leaders to ensure that all the LUMA resources under the control of the Logistics Section satisfy their needs. The primary responsibilities include, but are not limited to: • Coordinate the location of all LEOC needs based on operational requirements. • Establish the appropriate level of unit staffing within the Support Branch, continuously monitoring the effectiveness of the organization, and modifying as required. • Ensure branch objectives stated in the LEOC Incident Action Plan are accomplished within the operational period or within the estimated time frame. • Inform the Logistics Section Chief of all significant issues relating to the Support Branch.
Contract Administration Unit Leader	Logistics	The Contract Administration Unit Leader is responsible for ensuring any existing prepositioned or newly acquired contracts are appropriately utilized. The primary responsibilities include, but are not limited to: • Validating that sections are utilizing the appropriate contract types for the work. • Monitoring contract burn rates and contract expiration triggers. • Coordinating contract revisions with the Procurement Officer. • Communicating tracking and invoicing requirements to contractors. • Ensuring invoices issued by contractors contain the appropriate information and approvals. • Notifying LEOC personnel when a contractor can no longer be utilized due to the expiry of a contract.
Contract Administrators Support Team	Logistics	The Contract Administration Support Team is responsible for issuing Task/Work Orders. They will monitor the contract balance. In addition, it ensures that contractors' obligations are being met and that they submit all the documentation required for services. The primary responsibilities include, but are not limited to: • Maintaining accurate records of changes, communications, and decisions related to contracts, providing a clear audit trail. • Ensuring that all documentation is organized and easily accessible for post-emergency evaluation, audits, and potential claims or dispute resolution.
Supply Unit Leader	Logistics	The Supply Unit Leader is responsible for managing, receiving, and distributing resources, including personnel, equipment, and supplies. The primary responsibilities include, but are not limited to:

		• Track the delivery of incident-related resources and supplies. • Maintain an inventory of equipment and supplies. • Anticipate resource and supply needs. • Determine the type and number of resources to order. • Coordinate contracts and resource orders with the Finance Section. • Coordinate the return of reusable resources to serviceable condition. • Participate in Logistics Section planning activities. • Liaise with field operations personnel to maintain minimum resource requirements. • Receive and respond to requests for personnel, supplies, and equipment.
Mutual Aid Unit Leader	Logistics	The Mutual Aid Unit Leader is responsible for utilizing the mutual aid agreements to benefit the response to and restoration of the transmission and distribution system. Electric utilities affected by significant outages frequently call on other utilities, pursuant to mutual assistance agreements, for assistance to help expedite response and restoration. Mutual aid assistance may be in the form of personnel, supplies and/or equipment required to mitigate, repair, or restore the system to normal operations. Mutual aid assistance is either furnished by LUMA or requested by LUMA. The primary responsibilities include, but are not limited to: • Monitor LUMA's mutual aid agreements during steady state ("blue sky") days. • Execute LUMA procedures for Mutual Assistance Requests and Mutual Assistance Responses. • Assign a crew guide to the mutual aid crews. • Provide the roster of crews to the System Emergency Restoration Team (SERT) Unit Leader. • Verify personnel and equipment on the property; coordinate with the Logistics Section to establish lodging, meals, and transportation.
Transportation & Fleet Unit Leader	Logistics	The Transportation & Fleet Unit Leader is responsible for coordinating the transportation of emergency personnel and resources by all available means, coordinating all public transportation resources, coordinating fleet usage and upkeep, and coordinating the emergency routes with the Operations Section. The primary responsibilities include, but are not limited to: • Plan, staff, and manage the Transportation & Fleet Unit to meet incident needs safely. • Coordinate with the Logistics Section and other sections to help meet overall incident objectives. • Manage support for out-of-service resources; transportation for personnel, supplies, food, and equipment; fueling, service, maintenance, and repair for vehicles and other ground support equipment; and development and implementation of the incident transportation plan. • Establish or transition into a unit under the Logistics Section. • Configure unit with personnel to support operations. • Ensure transportation and fleet vehicles and equipment are properly maintained and in a safe condition to support the incident. Identify issues, resource needs, and shortfalls for the next operational period.
Corporate Security Unit Leader	Logistics	The Corporate Security Unit Leader is responsible for coordinating uninterrupted physical security for all LUMA properties and assets and for a protected and secure environment for all employees and contractors during emergency response efforts. The primary responsibilities include, but are not limited to: • Coordinate funded private security guard emergency requirements using existing private security guard contracts under the management and administration of LUMA Corporate Security using the appropriate form. • Submit forms to the Corporate Security office located in NEOS Lobby, attention: Security Analyst Team Leader for processing. • Provide management of emergency contract security guard services

		by identifying, validating, and certifying LUMA employees who will sign invoices for payment. • Coordinate private security guard coverage as needed at gate locations, equipment, staging areas, and motel/hotel parking areas for line and tree contractors, vehicles, and equipment. • Establish and maintain a direct line of communication with local law enforcement entities by coordinating with the appropriate internal personnel through the PREMB EOCs. • Through coordinated efforts, provide convoy escorts, advise on traffic concerns, and provide roadside protection and security as needed.
Service Branch Director	Logistics	The Service Branch Director ensures the Logistics Service Branch functions are carried out in support of the LEOC and activity in the operational area(s). The Service Branch Director has the overall responsibility for the preparedness, planning, and coordination of a variety of logistical services, including facilities, volunteer management, food, and lodging. The primary responsibilities include, but are not limited to: • Ensure all fixed and temporary facilities are adequately staffed and operational. • Ensure all Corporate Security functions are carried out effectively. • Ensure a process is in place to register volunteers and accurately track their donated time. • Identify community partners/locations willing to accept and hold physical donations. • Communicate with municipalities partnering in response efforts to ensure the appropriate agreements and reporting mechanisms are in place.
Food & Lodging Unit Leader	Logistics	The Food & Lodging Unit Leader is responsible for managing the Food/Lodging Unit for emergency response and disaster response, and relief personnel. The primary responsibilities include, but are not limited to: • Coordinate with the operational groups the requirements for lodging and meal resources for LUMA and mutual aid resources. • Maintain a listing of food and lodging resource locations and establish a meal plan with food vendors. • Establish communications with hotel vendors to identify the availability of hotel rooms across the impacted region(s). • Disseminate lodging requirements to staff and monitor requirements to be satisfied. • Document the number of rooms reserved, occupied, and vacant by day for each hotel being used. • Release rooms as required. • Document all requirements, decisions, issues, and email logs. • Coordinate feeding response personnel using field kitchens, contracted catering, and other available resources. • Determine feeding needs at all incident facilities, including LEOC, menu plans, facilities for food preparation and serving, potable water, and maintenance of the food service areas. • Ensure staff take appropriate health and safety measures during food preparation and service. • Keep inventory of food and monitor food orders.
Municipal Coordination Unit Leader	Logistics	The Municipal Coordination Unit Leader is responsible for working with municipalities that have agreements with LUMA to provide emergency response services including outage reporting and high-level damage assessments. They work with the Operations and Planning & Intelligence Sections to ensure municipal resources are appropriately mobilized where needed and coordinated with other available resources, including employees and contractors. The primary responsibility includes, but is not limited to:

		• Communicate resource requirements to municipalities with agreements with LUMA. • Ensure expectations and deliverables in any agreement are appropriately adhered to. • Document any municipal reporting and invoicing to ensure records are appropriately maintained. • Communicate any issues in mobilizing municipal resources to the appropriate teams for resolution.
Facilities Unit Leader	Logistics	The Facilities Unit Leader is responsible for the maintenance and operation of all LUMA buildings, which are occupied during the outage event, providing rest and sanitation facilities for incident personnel, and managing base and camp operations. The primary responsibilities include, but are not limited to: • Participate in Logistics Section planning activities. • Determine requirements for each facility to be established, including the command post. • Prepare and notify unit leaders of layouts of incident facilities. • Activate incident facilities. • Provide base and camp managers. • Provide facility maintenance services – sanitation, lighting, and cleanup. • Demobilize base and camp facilities. • Provide roadside safety details as needed.
IT OT & Communications Branch Director	Logistics	The IT OT & Communications Branch Director ensures the Branch's functions are carried out in support of the LEOC and activity in the operational area(s). They have the overall responsibility for the preparedness, planning, and coordination of a variety of logistical services, including communications, IT, and OT. The primary responsibilities include, but are not limited to: • Ensure all IT data and telecommunications systems (infrastructure and applications) are functioning effectively. • Ensure all OT systems are functioning effectively. • Provide all communications equipment necessary to provide effective, interoperable voice communications by and between all incident personnel.
Information Technology Unit Leader	Logistics	The Information Technology (IT) Unit Leader is responsible for continuously assessing the event for IT-related logistical needs and obtaining and allocating resources as required to meet the demands of the event. The primary responsibilities of the IT Unit Leader include, but are not limited to: • Ensure equipment within the LEOC is operational. If repairs or maintenance is required, notify the IC. • Notify the IC of any abnormal conditions in the system. • Ensure spare cell phones for distribution are available. • Ensure electronic transmission devices. Such as printers, faxes, etc. are available for use. • Maintain voice and data communications system throughout the event. • Contact critical communications and IT vendors to put them on advance notice of impending action. • Provide maintenance on company-provided equipment, as requested. • Dispatch IT Reps to locations to respond to IT issues.
Operational Technology Unit Leader	Logistics	The Operational Technology (OT) Unit Leader is responsible for ensuring the continuity of key operational technologies, including OT applications availability, IT Support, dispatching, procurement, and workforce management. The primary responsibilities include, but are not limited to: • Monitoring OTs and systems to ensure adequacy and continuity of service. • Restoring services to OTs when outages occur. • Developing alternative solutions to OTs when service cannot be restored. • Coordinating information with IT OT vendors and internal resources in response to OT issues. • Working alongside the Planning and operations teams to help prioritize, repair, and deploy activities and services through the Network Operations Center (NOC)

Communications Unit Leader	Logistics	The Communications Unit Leader is responsible for defining, programming, and maintaining LUMA's incident response communications equipment. They also provide data, telephone, and radio communications support for incident personnel. The Communications Unit is tasked with managing the operational and technical aspects of incident communications. As an incident grows, communications need to expand quickly. The primary responsibilities include, but are not limited to: • Provide for the operational and technical communications needs of the incident. • Provide the Communications Plan ICS-205 component for the IAP. • Coordinate needs for incident communications for Air Operations, T&D System Operations, and logistical section needs. • Initiate and maintain accurate records of communications equipment. • Design radio communications systems to meet incident needs. • Provide needed communications equipment to contract and mutual aid resources.
Cybersecurity Unit Leader	Logistics	The Cybersecurity Unit Leader identifies cybersecurity vulnerabilities and assesses threats to the infrastructure and the incident management organization. The primary responsibilities include, but are not limited to: • Planning and managing the technical and operational aspects of meeting the cybersecurity needs of an incident or event. • Developing strategies and plans for mitigating identified vulnerabilities and threats. • Preventing and detecting cybersecurity threats. • Coordinating documentation and ensuring sensitive security information is properly controlled. • Assisting in identifying, prioritizing, and implementing technical infrastructure and key resources utilized in cyber defense efforts.
Human Resources Unit Leader	Logistics	The Human Resources Unit Leader ensures staff are appropriately accounted for and that employees are assigned to roles to support response efforts as required. The primary responsibilities include, but are not limited to: • Ensuring the wellbeing of employees during and after the event, provide counseling services, and ensure communication amongst teams. • Establish an employee accountability system to ensure LUMA is aware of any emergency circumstances impacting employees. • Dispatching employees to roles based on identified needs from the incident leadership. • Ensuring any contingent human resources (including volunteers) are appropriately onboarded to human resource systems as required.
Section Assistant	Logistics	The Logistics Section Assistant (AST) is a member of the Logistics Section, documents LEOC activities, and serves as a scribe to assigned Logistics staff. The Section Assistant documents all activities and records information for the area assigned. Such records are written and could be documented in map form. The Logistics Section Assistant coordinates with other Section Assistants as necessary to ensure the effective use of SharePoint or other information-sharing systems. The primary responsibilities of the AST include, but are not limited to: • Ensure each position maintains a log of important information and activities. • Take notes at meetings conducted by the LSC. • Compile notes and other significant pieces of information into situational updates/reports. • Answer the Logistics Section desk phone(s) if staff are busy and unable to answer. • Maintains a complete and accurate record of all actions and key decisions

		that occur during and after the incident.
Planning & Intelligence Section Chief/Deputy P&I Section Chief	Planning & Intelligence	The Planning & Intelligence Section Chief is responsible for conducting overall incident planning activities to support the response and restoration effort. This includes collecting situation and resource status information, evaluating, and processing the information for use in developing IAPs and estimated times of restoration (ETRs). The position assists the Incident Commander in establishing incident objectives and recommends alternate strategies for the response as required. The PSC also establishes the battle rhythm of the LEOC by scheduling operational period briefings, planning meetings, and various reporting timelines. The primary responsibilities include, but are not limited to: • Collect, analyze, and manage all internal and external data, including damage assessments. • Conduct and facilitate planning meetings. • Compile and display incident status information. • Supervise the preparation of the IAP. • Provide input to the Incident Commander and Operations Section Chief in preparing the IAP. • Establish information requirements and reporting schedules for units within the Planning Section. • Record and track both internal and external support resources utilized during an emergency event. • Provide predictions on incident potential. • Report significant changes in incident status. • Ensure positions within the Section execute their specific duties and responsibilities. • Oversee preparation of the Demobilization Plan. • Oversee preparation and submission of Report Type I regarding customer outages and Report Type II regarding restoration resources.
Damage Assessment Group Branch Director	Planning & Intelligence	The Damage Assessment Group Branch Director is responsible for ensuring the detailed damage assessment from the regions is compiled to determine the extent of damage to the distribution system and to expedite the restoration of service to LUMA customers in accordance with the LUMA Major Outage Metrics, found in Appendix A of Annex A. The Damage Assessment Unit Leader also uses damage assessment information to estimate the estimated time of restoration (ETR) in accordance with the LUMA Major Outage Metrics; as well as the number of resources, materials, and equipment needed to repair the system. The Damage Assessment Group Branch Director works closely with the Operations Section Chief to develop and distribute damage assessment summaries and the ETR. The primary responsibilities include, but are not limited to: • Initiates and monitors the progress of damage assessment teams, including internal and external damage assessment teams, including contractors, municipalities, etc. • Receives resource information from Logistics to determine the number of resources, including damage assessors available for the event. • Discuss damage assessment, projected ETRs, and projected number of restoration crew members, contractors, and resources required based on damage assessment. • Compile damage assessment information into a system damage assessment spreadsheet to assess and determine the extent of damage to the system across impacted regions and, develop ETRs, materials, equipment, and resources and submit them to the Operations Section Chief. • Participate in post-emergency reviews to identify lessons learned, as instructed. • Provide documentation to the Documentation Unit Leader. • Ensure documentation is submitted or stored appropriately and provide

		additional information as requested to aid in the development of the After-Action Report (AAR).
Resources Unit Leader	Planning & Intelligence	The Resources Unit Leader is responsible for establishing all incident check-in activities, preparing resource status information; maintaining displays, charts, and lists that reflect the status and location of resources, transportation, and support vehicles; and maintaining a master check-in list of resources assigned to the incident, including personnel and equipment. These resources may be LUMA-owned, contracted, rented, or mutual aid assets. The primary responsibilities include, but are not limited to: • Assemble resource display materials. • Assign duties to resource unit personnel. • Establish check-in function at incident locations. • Establish and maintain a resource tracking system. • Establish the command post display on team organization and resources allocated based on the incident briefing form (ICS Form 201). • Confirm dispatch and estimated time of arrival of response personnel. • Gather, post, and maintain incident resource status, as well as the status of transportation and support vehicles and personnel. • Maintain a master roster of all resources checked in at the incident. • Prepare an organization assignment list (ICS Form 203) and organization chart (ICS Form 207). • Prepare appropriate parts of division assignment lists (ICS form 204). • Provide resource summary information.
ETR Specialist	Planning & Intelligence	The ETR Specialist is responsible for collecting information related to estimated times of restoration (ETRs) and updating the Outage Management System (OMS) so the information is relevant to disaster operations. The ETR Specialist is responsible for developing a global ETR between 24 and 48 hours after the storm's passage and/or it is safe to commence work based on damage assessments, resources, and available crews. The ETR Specialist works closely with the Regulatory Reporting Specialist to assist in providing ETRs for the outages that are reported by the OMS Specialist. The ETR Specialist reports to the Situation and Intelligence Unit Leader and works in the Planning section of the LEOC.
Situation & Intelligence Unit Leader	Planning & Intelligence	The Situation and Intelligence Unit Leader is responsible for collecting and organizing incident status and situation information. The Situation and Intelligence Unit Leader is responsible for the evaluation, analysis, and display of that information for use by response personnel. They report to the Planning and Intelligence Section Chief (PSC) and work in the Planning area. The primary responsibilities include, but are not limited to: • Report to PSC for situation briefing. • Assemble incident status display materials. • Assign duties to situation unit personnel. • Collect incident data. • Prepare predictions at intervals or upon request of the PSC. • Prepare and maintain command post-incident status display. • Arrange for internet-based situation reporting, if required. • Participate in incident planning meetings. • Prepare the Incident Status Summary Form (ICS Form 209). • Provide photographic services and maps. • Provide resource and situation status information in response to specific requests. • Maintain situation unit records. • Demobilize the unit on request.

OMS Specialist	Planning & Intelligence	The OMS Specialist is responsible for collecting information from the Outage Management System (OMS) related to the outages and system status to support the disaster operations. The OMS Specialist works closely with the Regulatory Reporting Specialist to assist in providing information regarding outages, so they are reflected in the Restoration Stage Reports. The primary responsibilities include, but are not limited to: • Routinely collect OMS data from the T&D System Operations Control Center before, during, and after an emergency. • Share OMS data with the IC and the Planning & Intelligence Section. • Monitor the Control Center and the OMS. • Answer any questions LEOC Staff may have on system outages. • Ensure OMS data is incorporated into Incident Action Planning. Triage information with the Estimated Time of Restoration (ETR) Specialist.
GIS Unit Leader	Planning & Intelligence	The Geographic Information System (GIS) Unit Leader coordinates the preparation of incident maps and displays by collecting and interpreting information. The primary responsibilities of this position include, but are not limited to: • Participate in functional area briefings and after-action reports. • Define, implement, and maintain a daily archival process. • Provide written documentation, digital data, and products developed during the incident to the Documentation Unit and others. • Assist in producing incident products by completing digital analysis. • Develop, update, and maintain metadata. • Coordinate with the Situation and Intelligence Unit Leader to prepare incident maps and displays by collecting and interpreting information. • Produces and updates maps within established guidelines and time frames.
Reporting Branch Director	Planning & Intelligence	The Reporting Branch Director (RBD) completes all regulatory reports and is responsible for understanding the T&D OMA Emergency Event Reporting Requirements. They are responsible for maintaining an information exchange between LUMA Energy, PREMB, P3A, and additional federal agencies as appropriate. They collect information in the LEOC to be included in external reports to the P3A and PREB. They get report information approved internally prior to providing it to the REGS and the P3LNO for external distribution. They work with the Command Staff, the Operations Section Chief, and the Planning and Intelligence Section Chief to collect information, get reports approved, and have information distributed through the appropriate channels. The primary responsibilities of the RBD include, but are not limited to: • Collecting Estimated Time of Restoration (ETR) data from the ETR Specialist (ETRS) and collecting Resourcing information from the Resources Unit Leader (RESL). • Complete the Pre-incident Stage Report, Restoration Stage Report Type I & II, and a Final Event Report. • Complete restoration reports every 24 hours, at a minimum. • Obtain approval of internal report information prior to external report distribution. • Review external reports for distribution to the PREB and P3A.
Regulatory Reporting Unit Leader	Planning & Intelligence	The Regulatory Reporting Unit Leader is responsible for understanding the T&D OMA Emergency Event Reporting Requirements and ensuring compliance with reporting requirements under the T&D OMA during an Emergency Event. The Regulatory Reporting Unit Leader supports in completing all regulatory reports as required. The Regulatory Reporting Unit Leader is responsible for maintaining an information exchange between LUMA, PREMB, P3A, and other federal agencies as appropriate. The position works with the Command Staff, the Operations Section Chief, and the Planning and Intelligence Section Chief to collect information, get reports approved, and have information distributed through the appropriate channels.

		The primary responsibilities of the Regulatory Reporting Unit Leader include, but are not limited to: • Support the Reporting Branch Director to collect information in the LEOC and develop internal reports for approval including, but not limited to, the Pre-incident Stage Report, Restoration Stage Reports, and a Final Event Report. • Support the completion of status reports every 24 hours, at a minimum. Complete external reports with information approved by the Incident Commander and coordinate with LUMA PREB & P3A Liaison Officer for the final distribution of reports.
Internal Reporting Unit Leader	Planning & Intelligence	The Internal Reporting Unit Leader is responsible for ensuring that timely and accurate information is gathered and reported to relevant stakeholders within LUMA. The position is responsible for implementing reporting protocols to ensure incident leadership has the information they need to make informed decisions. The primary responsibilities include, but are not limited to: • Create and populate internal reporting templates. • Coordinate with sections to gather relevant incident information to include in reports. • Complete a review of emergency information to resolve any discrepancies in internal reports. • Ensure key issues are appropriately identified. • Obtain reviews and approvals on any internal reports.
MOE Metrics Unit Leader	Planning & Intelligence	The Major Outage Event (MOE) Metrics Unit Leader ensures reporting requirements associated with MOE metrics are completed. The MOE Metrics Unit Leader ensures that, during a MOE, LUMA delivers the required Daily Update to the PREB and P3A regarding MOE performance metrics (as approved by the PREB). The position works closely with the LUMA PREB & P3A Liaison Officer to ensure the required MOE performance metrics report is compiled and distributed daily to the PREB and P3A. Responsibilities of the position include, but are not limited to: • Understand the Emergency Response MOE performance metrics reporting requirements and who to collect each metric from. • Collect daily data on the MOE performance metrics from various LEOC stakeholders. • Draft and finalize the daily report. • Coordinate final sign-off from the necessary approvers. • Coordinate with Regulatory to get the P3A transmittal number and form. • Coordinate with the LUMA, PREB & P3A Liaison Officer for final daily distribution of reports to meet required deadlines.
Environmental Unit Leader	Planning & Intelligence	The environmental unit leader is responsible for documenting the impact of restoration work on the environment, providing detailed insights into specific tasks, and actively mitigating potential damage during emergency response. Furthermore, the leader is responsible for documenting or gathering the initial Environmental Historic Preservation (EHP) requirements within the plan. The primary responsibilities include but are not limited to: • Oversee and manage environmental response activities within the LUMA Emergency Operations Center (LEOC). • Initiate notifications and coordinate with regulatory agencies (US Corps Engineers, Fish and Wildlife, Natural Resources, etc.) to ensure compliance with environmental laws and regulations. • Assess and mitigate potential environmental risks associated with power generation and distribution. • Develop a plan to mitigate (avoid ground disturbance) any impacts resulting from emergency work, ensuring submission of the plan to the relevant agencies once the emergency period concludes. • Collaborate with internal teams to integrate environmental considerations into emergency response plans. • Provide guidance on environmentally friendly practices and sustainable initiatives.

		• Act as a liaison between LUMA and environmental organizations or community stakeholders. • Monitor and report on environmental performance metrics during emergency situations. • Lead a team of environmental specialists in executing environmentally responsible response actions. • Monitor and track emergency response activities that affect the environment. • Conduct thorough reviews of work completed, referencing WOP (Parte Diarios) or other relevant documentation. • Assess whether the area involved during emergency response is a critical zone, identify any potential environmental or historical impacts and perform the proper notifications. • Obtain required EHP permits from appropriate agencies, before proceeding with planned emergency restoration work.
Documentation Unit Leader	Planning & Intelligence	The Documentation Unit Leader is responsible for ensuring incident files are maintained, complete, and up to date in accordance with LUMA standards and policies. The primary responsibilities of this position include, but are not limited to: • Report to the Planning and Intelligence Section Chief (PSC) for situation briefing. • Prepares and updates the Incident Action Plan for each operational period (reviewed by the Planning & Intelligence Section Chief and approved by the IC). • Establish a work area with files and a photocopier. • Retain and file duplicates of official forms and reports. • Accept and file reports and forms submitted to the unit. • Check the accuracy and completeness of the records submitted. • Correct errors or omissions by contacting appropriate ICS Units. • Provide duplicates of forms and reports to authorized requesters. • Prepare incident documentation for the Planning and Intelligence Section Chief when requested. • Maintain, retain, and store incident files for use after demobilization.
Check-In Staff	Planning & Intelligence	The Check-In Staff is responsible for initiating LEOC check-in and check-out procedures and keeping track of all forms and sign-in sheets.
Demobilization Unit Leader	Planning & Intelligence	The Demobilization Unit Leader oversees unit staff who develop an incident demobilization plan that includes specific instructions for all personnel and other resources to be demobilized. The primary responsibilities include, but are not limited to: • Determines demobilization triggers in accordance with information from the Situation Unit. • Oversees the collection, evaluation, and dissemination of information on the demobilization of all incident resources. • Manages the development and dissemination of the demobilization plan. • Monitors demobilization process and progress. • Communicate any issues related to the demobilization of resources to incident leadership. • Coordinates implementation of the demobilization plan.
Engineering War Room Group Branch Director	Planning & Intelligence	The Engineering War Room Branch Director oversees personnel completing Work Order Packages (WOPs) for repairing damaged assets. The primary responsibilities include, but are not limited to: • Ensures appropriate engineering support is provided to the Engineering War Room based on the outputs of the preliminary and detailed damage assessments. • Establishes the facilities and equipment required for engineering and support teams to prepare WOPs and complete any additional assignments. • Monitors status and progress of WOP completion.

		• Ensures appropriate distribution of WOP between the LEOC, ROCCs, and SERTs. • Leads and directs other engineering-related response efforts.
Finance & Administration Section Chief/Deputy F&A Section Chief	Finance & Administration	The Finance & Administration Section Chief advises all Command and General staff about fiscal, contract, and other administrative matters. The position makes staffing assignments for the Finance and Administration Section, distributes job descriptions for assigned staff, and ensures it is adequately staffed. The primary responsibilities include, but are not limited to: • Track and manage all financial aspects of ERP activation. • Track costs related to emergency restoration activities. • Provide financial and cost analysis information as requested. • Ensure compensation and claims functions are being addressed relative to the incident. • Gather pertinent information from briefings with each Section. • Develop an operating plan for the Finance/Administration Section and fill the supply and support needs of the Section. • Maintain daily contact with the LUMA CFO on finance matters. • Ensure that personnel time records are completed accurately and in a timely fashion. • Ensure that all obligation documents initiated during the ERP are properly prepared and completed. • Brief LUMA administrative finance personnel on all incident-related financial issues needing attention or follow-up. • Provide input to the IAP.
Time & Cost Unit Leader	Finance & Administration	The Time & Cost Unit Leader is responsible for collecting all cost data, performing cost-effectiveness analysis, providing cost estimates and cost-saving recommendations, as well as ensuring personnel time is recorded according to agency policy. The primary responsibilities include, but are not limited to: • Establish cost reporting procedures. • Maintain cost tracking, analysis, and estimates. • Collect and track time records and personnel costs for employees and contractors. • Document any unusual time or cost issues. • Provide forms and procedures for time recording and obtain check-in lists. • Prepare cost summaries that provide the total cost incurred and the average cost per day. • Ensure that all records are current and complete before demobilization. • Brief the Finance Section Chief on current problems, recommendations, outstanding issues, and follow-up requirements. Document and report any contract violations, cost overruns, and safety matters. • Maintain a master record of crew time reports, invoices, receipts, order forms, contracts, etc.
Cost Recovery Unit Leader	Finance & Administration	The Cost Recovery Unit Leader is responsible for collecting all cost data, performing cost-effectiveness analysis, providing cost estimates and cost-saving recommendations, as well as ensuring personnel time is recorded according to agency policy. The primary responsibilities include, but are not limited to: • Review time and cost tracking to ensure eligibility for reimbursement. • Review and audit emergency contracts to ensure eligibility for reimbursement. • Advise teams about the required documentation required to support reimbursement applications. • Review and submit applications for reimbursement. • Ensure consistency of documentation requirements within field and contract teams.

Claims Unit Leader	Finance & Administration	The Claims Unit Leader is responsible for the overall management and direction of all administrative matters pertaining to compensation for injury and claims-related activities (other than injury) for an accident. The primary responsibilities of the Claims Unit Leader include, but are not limited to: • Assist employees or contractors who are injured or involved in an incident-related accident during the incident with any related claims. • Receive and coordinate all claims for loss related to the incident. • Receive and process property claims from leased/rented properties, right of ways, or other access required requirements. • Manage the list of insured LUMA properties and equipment to include values. • Ensure all claims documentation is submitted, filed, or stored appropriately. • Ensure claims documentation complies with FEMA reimbursement requirements. • Determine the status of accidents and injury-related investigations. • Ensure written authority of persons requiring medical treatment. • Advise on the nature and status of all existing and potential future claims. • Establish procedures for prompt notification of injuries or fatalities to Command Staff.

Appendix C – Critical Facilities

Below are identified critical facilities. This list is current as of March 2024 and given the dynamic nature of some categories, is subject to change. LUMA utilizes multiple electronic databases to collect and update customer information (critical facilities) accordingly, which ensures that the most accurate information is available for emergency response actions.

1.6 Arecibo Region

Arecibo Region	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]

Utuado District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
[redacted]	[redacted]	[redacted]
Critical Facilities Level 2		
Line Number	Description	Facility Information / Additional Details
Critical Facilities Level 3		
Line Number	Description	Facility Information / Additional Details

Distribution Critical Facilities
Critical Facilities Level 1

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 2			

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]

Vega Baja District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]
Transmission and Sub-Transmission Critical Facilities	
Critical Facilities Level 1	

Line Number	Description	Description Facility Information / Additional Details
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**

Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**

Distribution Critical Facilities

Critical Facilities Level 1

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 2			
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

1.7 Caguas Region

Barranquitas District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]

Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Distribution Critical Facilities

Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

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[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 2			
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Caguas District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

Line Number	Description	Description Facility Information / Additional Details
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]

Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]

Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Critical Facilities Level 2

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
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[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Humacao District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Distribution Critical Facilities		

Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 2			
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]

1.8 Mayagüez Region

Mayagüez District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

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[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]

Critical Facilities Level 2			
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

Aguadilla District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]
Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]	[redacted]

[redacted]	[redacted]	[redacted]	[redacted]
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Critical Facilities Level 2			

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Critical Facilities Level 3

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
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1.9 Ponce Region

Ponce District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
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Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
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Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**

Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**

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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Yauco District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**
Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**

Critical Facilities Level 3			
Line Number	**Description**	**Facility Information / Additional Details**	
Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Critical Facilities Level 2			

Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Guayama District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**
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Critical Facilities Level 2		

Line Number	Description	Facility Information / Additional Details
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Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
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Distribution Critical Facilities		
Critical Facilities Level 1		

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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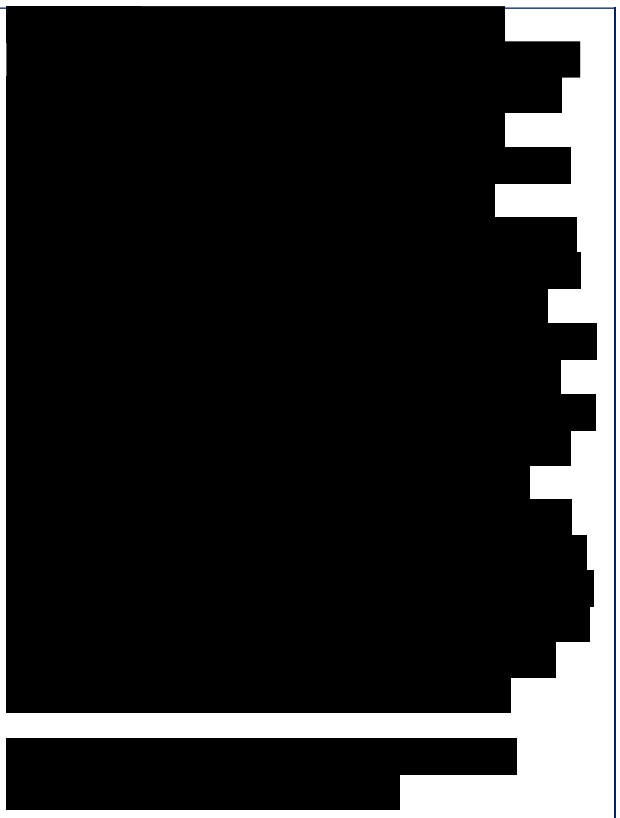
1.10 San Juan Region

Monacillo & Rio Piedras	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]



Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**
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Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
Critical Facilities Level 3		

Line Number	Description	Facility Information / Additional Details
Distribution Critical Facilities		
Critical Facilities Level 1		
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Critical Facilities Level 2			
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[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Carolina District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
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Critical Facilities Level 2

Line Number	Description	Facility Information / Additional Details

Critical Facilities Level 3

Line Number	Description	Facility Information / Additional Details
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[redacted]	[redacted]	[redacted]

Distribution Critical Facilities

Critical Facilities Level 1

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
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Critical Facilities Level 2			
[redacted]	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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[redacted]	[redacted]	[redacted]	[redacted]

Canovanas District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
Line Number	**Description**	**Description Facility Information / Additional Details**	
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Critical Facilities Level 2			
Line Number	**Description**	**Facility Information / Additional Details**	
Critical Facilities Level 3			
Line Number	**Description**	**Facility Information / Additional Details**	
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Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**

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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**

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[redacted]	[redacted]	[redacted]	[redacted]

Fajardo District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	Description	Description Facility Information / Additional Details
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[redacted]	[redacted]	[redacted]
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[redacted]	[redacted]	[redacted]
Critical Facilities Level 2		
Line Number	Description	Facility Information / Additional Details

Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
[redacted]	[redacted]	[redacted]

Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**

[redacted]	[redacted]	[redacted]	[redacted]

1.11 Bayamón Region

Guaynabo District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

Line Number	Description	Description Facility Information / Additional Details
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[redacted]	[redacted]	[redacted]

Critical Facilities Level 2

Line Number	Description	Facility Information / Additional Details
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Critical Facilities Level 3

Line Number	Description	Facility Information / Additional Details
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Distribution Critical Facilities

Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**

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Bayamon District	
Substations	[redacted]
Key Transmission Feeders	[redacted]
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**

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Critical Facilities Level 2

Line Number	Description	Facility Information / Additional Details

Critical Facilities Level 3

Line Number	Description	Facility Information / Additional Details
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Distribution Critical Facilities			
Critical Facilities Level 1			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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[redacted]	[redacted]	[redacted]	[redacted]

Toa Alta / Toa Baja District	
Substations	[redacted]
Key Transmission Feeders	
Municipalities	[redacted]
Level 1 Medical Facilities	[redacted]

	[redacted]

Transmission and Sub-Transmission Critical Facilities		
Critical Facilities Level 1		
Line Number	**Description**	**Description Facility Information / Additional Details**
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[redacted]	[redacted]	[redacted]
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Critical Facilities Level 2		
Line Number	**Description**	**Facility Information / Additional Details**
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[redacted]	[redacted]	[redacted]
Critical Facilities Level 3		
Line Number	**Description**	**Facility Information / Additional Details**
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[redacted]	[redacted]	[redacted]

Distribution Critical Facilities

Critical Facilities Level 1

Line Number Feeder	Feeder	Description	Facility Information / Additional Details
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Critical Facilities Level 2			
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Critical Facilities Level 3			
Line Number Feeder	**Feeder**	**Description**	**Facility Information / Additional Details**
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Appendix D – Key Contacts

LUMA, particularly the Liaison (LNOs) position, maintains an updated list of partners, key stakeholders and external contacts for daily operations, status updates and restoration purposes.

LUMA liaises with PREB, P3A, FEMA, DOE, Genera-PR, PREPA, and PREMB, during an activation. In addition, Regional Interagency Coordinators (LRIACs) act as LUMA's point of contact in the PREMB Regional EOCs to communicate regional emergency-related priorities to the LEOC. The LRIACs also assist the PREMB Regional EOCs in determining if regional T&D System emergencies or outages have been reported to the LUMA Contact Center and/or LEOC. The LRIACs are supported by a LUMA Regional Key Account Representative that has established during normal operations relationships with mayors. Genera-PR and PREPA may designate liaisons to the LEOC, and FEMA also dispatches its own liaisons, depending on the circumstances.

Agency	Title	Phone Number	Address
FEMA	Infrastructure Branch Director	787-720-3510	PR CAO (FEMA Puerto Rico Caribbean Area Office) - Emergency Management
FEMA	R2 Caribbean Area Office Coordinator -PR	787-720-3887	PR CAO (FEMA Puerto Rico Caribbean Area Office) - Emergency management ministry San Juan, PR 00926
CISA	Director of Communication	787-565-2942	Puerto Rico State Homeland Security Office Region 2 San Juan, PR
DOE	Recovery Coordinator	787-332-0914	209 C. Manuel Camuñas, San Juan, 00918
Genera-PR	Emergency Interagency Coordinator	787-474-2550	American International Building Plaza 250, Avenue Luis Muñoz Rivera, Road #1 San Juan PR
PREB	Emergency Interagency Coordinator	787-523-6262 787-562-9432	World Plaza Building 268 Muñoz Rivera Ave, San Juan, PR 00918
P3A	Cooperative Office Liaison	787-722-2525	Government Center Roberto Sanchez Baldorioty de Castro Avenue San Juan, PR
PREPA	Emergency Interagency Coordinator	787-521-4950,4951,5946,5945	Ponce de León Avenue #1250 San Juan PR 00907
PREMB	Operations Director	787-724-0124	Road # 1 Quebrada Arenas San Juan, PR 00926

Appendix E – Referenced Documents

This appendix lists more comprehensive documents referenced throughout the ERP, such as policies, Standard Operating Guides (SOGs), and analogous materials.

Document	Section Referenced
Vegetation Management Plan	5.2.1 Energy (BP)
HSE Safety Manual *	5.2.7 Safety and Security (BP)
Health and Safety Training Plan	5.2.7 Safety and Security (BP)
SOG LEOC Guidebook	6.2 Plan Activation (BP)
SOG Public Information Officer	10. Communications (BP)
SOG LPE Customers Policy	10.2.2 Critical Customers (BP)
Communications with Municipalities and in an Emergency	10.3.4 Communication with Municipal Officials (BP) and Annex G 4.3.1 Key Accounts
Policy and Procedure for Emergency Preparedness Trainings	12.3 Training (BP)
2023-2027 Multiyear training calendar (PREMB's yearly training calendar)	12.4 exercises (BP)
Guide to Create Family Emergency Preparedness Plan	12.6 Employee and Family Emergency Preparedness (BP)
SOG LEOC Manager	Appendix B (BP)
SOG LNO	Appendix B (BP)

*Include guides, protocols and checklist: General Safety, Job Hazard Analysis, Personal Protective Equipment, Respiratory Protection, Minimum Approach Distances, Hazzard Communication, Welding and Cutting, Helicopter Safety, Confined Space Entry, Fall Prevention and Protection, Ladders and Scaffolds, Hearing conservation, Lockout and Tagout, Working with Electricity, Motor Vehicle Safety, Trenching and Excavating, Contractor Safety, Maintenance of Traffic, Mobile equipment Safety, Crane-Suspended Personnel Platform Pre-Lift Meeting Checklist, Job Hazard Analysis Form, Confined Space Entry Permit, Scaffold Inspection Checklist, Driver Tailboard Form, Trenching and Excavating Form, Critical Lift Checklist,, Crane Suspended Personnel Platform Trial Form and Checklist A.

The templates provided serve to identify the event stage in accordance with the information available at the time of the report. Given the situational dependency and potential variability in available information, users are advised to verify the suitability of the content for their specific circumstances.

1.1 Emergency Event Stage Sample Report Template

For known possible Emergency Events, a Pre-Event Stage Report is submitted daily or more frequently if deemed necessary or the event type changes.

LUMA Emergency Event Stage Sample Report	
1	**Date and Time of Report**
2	**Weather Forecast & Monitoring**
3	**Event Summary**
4	**Safety**
5	**Expected Event Classification Type and Changes to Event Classification Type** (and all facts considered in determination)
6	**Likelihood of LEOC Activation and Activation Level** (date/time LEOC opens)
7	**System Operations** (Generation Updates)
8	**LUMA Resource Readiness** (actions taken and type/quantities)
9	**Forecasted Number and Type of Total Resources Required** (number of crews and full-time equivalents)
10	**Number of External Resources Secured** (by type and including the number of crews and full-time equivalents)
11	**Initial Response Stage Status**
12	**Global and Regional ETRs (If available)**
13	**Restoration Stage Status**
14	**Customer Outages**
15	**Total Customers with Service**
16	**Total Customers without Service**
17	**Status of Life Preserving Equipment Dependent (Customers) and Critical Customers**
18	**Problems Anticipated / Encountered for Event**
19	**Any Other Pertinent Information:**

Signature: _____ Date & Time: _____

1.2 Restoration Stage Sample Report

The information included in this report is current as of XX:XX hrs. on YYYY-MM-DD.

In compliance with Section 5.14(b) of the Transmission and Distribution Operation and Maintenance Agreement (T&D OMA) and the LUMA Emergency Response Plan (ERP), LUMA is providing an update on LUMA's response to the Emergency Event as described below:

Summary of Emergency Event

Event Date	
Event Time	
Event Name	
Event Summary	

Summary of Current Situation – As of 00:00 hrs.

LUMA Event Classification	
LEOC Activation	
Customer Outage %	
Total Customers without Service	
Total Customers with Service	
Estimated Time of Restoration	
Status of Crews	
Additional Information	

Regional Estimated Time of Restoration

Region	Total Customers in Region	Total Customers Restored	% Of Customers Restored	ETR*
Arecibo				
Bayamón				
Caguas				

Region	Total Customers in Region	Total Customers Restored	% Of Customers Restored	ETR*
Mayagüez				
Ponce				
San Juan				
Global – System-Wide				

*Estimated time of restoration for 90% of service outages.

Municipal ETRs

Municipality	Total LUMA Customers	Total Customers Out	Outage %	Estimated Times of Restoration (ETR)
Arecibo		---		
Adjuntas		---		
Arecibo		---		
Barceloneta		---		
Camuy		---		
Ciales		---		
Florida		---		
Hatillo		---		
Jayuya		---		
Manati		---		
Morovis		---		
Utuado		---		
Vega Alta		---		
Vega Baja		---		
Bayamon		---		
Bayamon		---		
Catano		---		
Corozal		---		
Dorado		---		
Guaynabo		---		
Naranjito		---		
Toa Alta		---		
Toa Baja		---		
Caguas		---		

Municipality	Total LUMA Customers	Total Customers Out	Outage %	Estimated Times of Restoration (ETR)
Aguas Buenas		---		
Aibonito		---		
Barranquitas		---		
Caguas		---		
Cayey		---		
Ceiba		---		
Cidra		---		
Comerío		---		
Culebra		---		
Fajardo		---		
Gurabo		---		
Humacao		---		
Juncos		---		
Las Piedras		---		
Luquillo		---		
Naguabo		---		
Orocovis		---		
San Lorenzo		---		
Vieques		---		
Yabucoa		---		
Mayagüez		---		
Aguada		---		
Aguadilla		---		
Anasco		---		
Cabo Rojo		---		
Isabela		---		
Lajas		---		
Lares		---		
Las Marías		---		
Maricao		---		
Mayagüez		---		
Moca		---		
Quebradillas		---		
Rincon		---		
Sabana Grande		---		
San Germán		---		
San Sebastián		---		

Municipality	Total LUMA Customers	Total Customers Out	Outage %	Estimated Times of Restoration (ETR)
Ponce		---		
Arroyo		---		
Coamo		---		
Guánica		---		
Guayama		---		
Guayanilla		---		
Juana Díaz		---		
Maunabo		---		
Patillas		---		
Penuelas		---		
Ponce		---		
Salinas		---		
Santa Isabel		---		
Villaba		---		
Yauco		---		
San Juan		---		
Canóvanas		---		
Carolina		---		
Loíza		---		
Río Grande		---		
San Juan		---		
Trujillo Alto		---		
Total				

1.3 Final Event Report

The following information is included in LUMA's AAR for Event Types (Types 1, 2, and 3). This information is made available within 30 days of the deactivation of the LEOC for the specific event.

Event Restoration Duration Summary	
1	**Company Name**
2	**Year**
3	**Event Name** (if any)
4	**Date/Time Event Start**
5	**Date/Time Event End**
6	**Event Summary**
7	**Event Duration** (in hours)
8	**Total Customers Served**

Event Restoration Duration Summary	
9	**% of Customers Affected** (relative to total customers)
10	**Highest Peak # of Customers Affected**

Narrative Description

Provide a narrative describing the Emergency Event, including, but not limited to:

- weather monitoring
- weather experienced
- event classification
- crew acquisition (by type)
- customer outages
- damage experienced
- beginning time and completion of preliminary damage assessment and detailed damage assessment
- timing of restoration

Event Description

- Total number of customers served
- Total number of communities served
- Date and time storm hit service territory
- Date and time of first outage
- Date and time Governor declared state of emergency
- Total number of customer outages over the course of the event
- Total number of communities affected
- Total number of days of restoration
- Date and time of peak number of outages
- Number of customer outages and number of customers restored for each day of the event and restoration.
- Number of total customer outages and number of total customers restored per hour of the event and restoration, in an active Excel spreadsheet.
- Time and date of restoration of 95 percent of customers
- Time and date of final restoration to customers
- A single consolidated report based on the Stage Restoration reports. Data should include all necessary updates and corrections to its Stage Restoration reports and be submitted in an active Excel spreadsheet.
- A summary of all available resources (in crews and full-time equivalents), by day and resource type.

Weather

- Actual weather experienced.

- A narrative description of LUMA's evaluation of weather forecasts before and during the event and copies of all supporting weather reports
- Maximum winds experienced.
- Duration of inclement weather
- Type and amount of precipitation, including, but not limited to average amount of precipitation in service territory, and maximum amount of precipitation in service territory.
- Event Classification
- List and discuss all factors used to derive event classification types before, during, and after the event.
- Describe any event classification type changes before, during, and after the event, and explain all factors supporting the change in classification.

Equipment Damage

- Number of transmission lines affected
- List of transmission lines that became inoperative
- List of substations affected
- Number of distribution feeders affected
- Number of distribution feeders locked out
- Number of broken poles replaced – indicate location, size, and age of damaged poles
- Number of feet of primary and secondary conductor replaced – indicate type and size
- Number of feet of follow-up reconductoring remaining – indicate type and size
- Number of damaged transformers – indicate size, type, and age of damaged transformers
- Availability of replacement transformers
- Repairs made
- Estimate for repairs
- Switching necessary to re-route power with adequate sectionalizing points

Trouble Order System

- Number of trouble orders
- Identify and describe any problems encountered on LUMA's system
- Was there sufficient manpower available to operate the system
- If de-centralization occurred, identify and describe any problems encountered after decentralization

Wires-Down Operations

- Total number of Priority wires-down calls by priority level
- For each day of the event and restoration period include:
- Outstanding priority wires-down calls by priority level
- Completed priority wires-down calls by priority level – provide in an active Excel spreadsheet
- A summary of priority wires-down response – provide in an active Excel spreadsheet
- Number of non-priority wires-down calls

Crew Supplements

- For all crew counts, please include both the number of crews and full-time equivalents
- Total number of LUMA crews
- Number and type of crews from outside LUMA
- Total number of wires-down assessors
- Total number of damage assessors
- For each day of the Pre-event and Service Restoration Stage, total number of crews per day, by type (e.g., line crew, tree crew, wires-down crew, transmission crew, damage assessor)
- For each day of the Pre-event and Service Restoration Stage, number of crews deployed, by type, to each district.
- For each day of the Pre-event and Service Restoration period, number of wires-down assessors and damage assessors used.

Food and Lodging

- Summary of food and lodging-related activities, including lessons learned.
- Helicopter
- Were helicopters available?
- How were the helicopters used?
- Communication
- Narrative description of Pre-event Stage, Service Restoration Stage, and Post-event Stage communication with:
- public officials
- the public
- Lifeline Residential Service (LRS) Customers
- Narrative description of Pre-event Stage, Service Restoration Stage, and Post-event Stage internal communication
- Identify all methods used for communication with the public, including a narrative description, the dates, and frequency of use.
- Narrative description of Municipal Liaison process during Pre-event Stage, Service Restoration Stage, and Post-event Stage
- Number and locations of Municipal Liaisons

Signature: _____ Date & Time: _____

Emergency Response Plan

Annex A – Major Outage Restoration

LUMA ENERGY

May 31, 2024

Annex A – Major Outage Restoration

Table of Contents

Tables & Figures

1 Purpose

The purpose of LUMA's Major Outage Restoration Annex (Annex A) is to establish an operational and tactical comprehensive framework for responding to major outage restoration events. Annex A assists the Emergency Operations Team in carrying out the actions necessary to protect lives, maintain continuity of service, and protect property. It also provides the Puerto Rico Energy Bureau (PREB), the Puerto Rico Public-Private Partnerships Authority (P3A), the Puerto Rico Emergency Management Bureau (PREMB), and other agencies with guidance on how LUMA responds and prioritizes electrical system outages with Community Lifeline overarching principles. This Annex helps ensure the safety of the public and employees and implements an effective restoration strategy that is consistent company-wide.

2 Scope

Annex A applies to emergency events caused by any hazard or threat that results in, or could result in, a major potential impact on the integrity of the Transmission and Distribution (T&D) System or disruption of electrical service to LUMA customers. Additionally, the Emergency Response Plan (ERP) applies to LUMA personnel and to any staff of LUMA, affiliate company employees, contractors, mutual aid resources, or any other personnel working at the direction or under the authority of LUMA.

For Annex A, an Emergency Event is defined as a Level 3, 2, or 1 event. Non-Emergency Events are defined as Level 5 and 4 events. All five of these levels are described in the Event Classification and LUMA Emergency Operations Center (LEOC) Activation Table, located in Base ERP, Appendix A.

LUMA's Emergency Operational Boundaries (shown in Figure 3 of the Base ERP) are split geographically into divisions. There are six Regions assigned to divisions. For a description of the ERP Guiding Principles, refer to the ERP - Base Plan, Section 2.

3 Situation and Assumptions

3.1 Situation

The success of LUMA's response to a Major Outage is predicated on LUMA's commitment to prepare and implement procedures outlined within Annex A and the ERP – Base Plan. The development of an After-Action Report (AAR) further enables ongoing improvement in LUMA's response and restoration processes. Execution of the appropriate responses to effect rapid and safe recovery is dependent upon the scalability of Annex A. The number of customers affected, and the magnitude of a Major Outage Event vary, but the operational concept stays consistent. The level of recovery resources can be adjusted as needed.

LUMA is taking an aggressive approach to hardening the T&D System across Puerto Rico to withstand major weather events. Through these efforts, major hurricanes like Maria will be less impactful to the T&D System, which supplies critical energy to LUMA customers. Due to the configuration of Puerto Rico's T&D grid in relation to the location of the generation, LUMA focuses on hardening key transmission lines to distribute energy to key load centers. Critical system substation rebuilding is another area of focus.

LUMA is committed to applying Necessary Maintenance Expense (NME) and Federal Emergency Management Agency (FEMA) funds to improve system resilience through storm hardening. Thus, reducing the size and frequency of service interruptions. This involves a multi-faceted multi- year approach, including:

- Hardening key transmission lines that distribute energy to key load centers.
- Hardening the feeder backbone (normally the three-phase part of the circuit that runs unfused from the substation to the normally open ties to other circuits or the physical end of the circuit).
- Hardening distribution express feeders that serve Community Lifelines.
- Targeting high-risk vegetation (excessive overhang or trees near lines that appear susceptible to falling during a major event) for proactive “hot spotting.”
- Testing and inspecting poles and structures and remediating identified risks.
- Sectionalizing with strategic placement of reclosers (enhanced with directional finding capabilities) and addressing any unfused taps.
- Strategically placing lightning arrestors.
- Performing physical inspections, identifying, and categorizing deficiencies, and performing corrective maintenance on those deemed as requiring urgent or emergency action.
- Rebuilding critical substations (particularly those susceptible to flooding), and
- Addressing the damaged or partially restored infrastructure impacted by Hurricane Maria, Hurricane Fiona, and seismic events.

3.2 Assumptions and Considerations

The ERP-Base Plan, Section 4, identifies the overall assumptions and considerations. Assumptions identified within this Annex are in addition to, but not limited to, the following:

- Damaged sections of the electrical system may be de-energized and isolated, allowing service to be restored up to the point of damage, and leaving the site safe until permanent repairs can be completed.
- Repairs are completed in a timely manner.
- Assessments of needed repairs are conducted prior to discharging restoration crew resources.
- Mutual Aid Agreements or Memorandums of Understanding are maintained and activated when the scope of the incident requires additional resources beyond LUMA’s capabilities.
- Facilitate coordinated response efforts and share information prior to and during the event to assist in establishing a common operating picture and efficient response.

4 Concept of Operations

In the event of a major outage, LUMA responds and quickly assesses the impacts on the T&D infrastructure. Then, it takes the necessary actions to mitigate cascading effects from a long-term power outage and restore service, minimizing the impact on the citizens of Puerto Rico.

4.1 Response and Restoration Operations

The Operations Section Chief is responsible for the Restoration Operations conducted in response to an event that impacts LUMA’s electric system. The directives from the LEOC follow the LUMA Restoration Strategy identified in Section 6.

4.2 Emergency Event Stages

LUMA has developed different emergency stages to outline when different response activities take place in relation to an emergency event. The key objectives of the stages and periods as they relate to system restoration are outlined in Table 13, Table 14, and Appendix A.

- Pre-event stage: The time from when an emergency event is anticipated to when it occurs. Activities include planning and preparedness efforts as outlined in Section 6.2.3 of the ERP-Base Plan.
- Emergency stage: The time at which a hazard is resulting in an impact on the T&D System. During the emergency stage, teams seek shelter and stay in a safe location. Sheltering may not always be required but is employed during certain incidents, such as severe weather conditions, hazardous material releases, or other events that pose a risk to public safety.
- Initial response stage: The period after conditions are safe until the preliminary Damage Assessment (DA) is completed. Customer restoration will begin in accordance with LUMA's restoration priorities. The duration of the initial response period is relative to the duration of service restoration. Events with a shorter anticipated duration of service restoration have shorter initial response periods.
- Restoration stage: The time after the preliminary DA is complete until (a) fewer than 10,000 customers remain out of service for a continuous period of 8 hours, marking the end of the Major Outage Event, and (b) the Activation Level is reduced to level 4 or level 5. The length of time of the restoration period depends on the resources required to resolve remaining outages and the extent of damage remaining on out-of-service assets.
- Demobilization stage: The time after the restoration has been completed, resources are beginning to be demobilized from response efforts on an increasing scale. The rate of demobilization depends on the predicted workload and resources needed. The demobilization period continues until all services across the impacted areas have been restored. Note that some resources may be demobilized from regions, branches, and units before the demobilization stage based on the changing characteristics of an event.
- Duration of service restoration: The total length of time to restore all services related to an emergency event. This includes the initial response period, the restoration period, and the demobilization period.
- Duration of event: The total length of time from the pre-event stage until: (a) the LUMA Emergency Roster (LER) is fully deactivated, and (b) all impacted service has been restored.

The relationships between the stages of an emergency event as they relate to a Major Outage Event are shown in Figure 1 below.

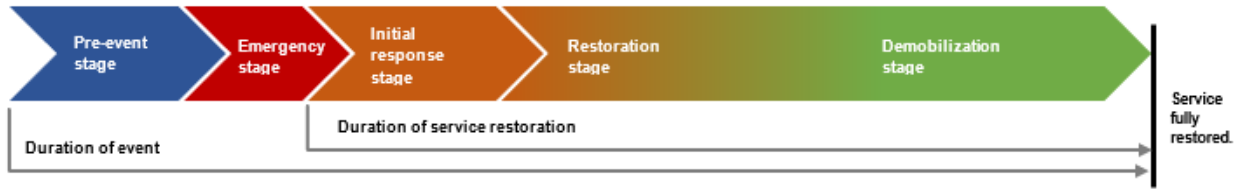

Figure1: Emergency Event Stages.

4.2.1 Approach

During emergencies, the Operations Section is responsible for safely and efficiently assessing the damage to the T&D infrastructure and restoring electric service. To accomplish this strategy, the Field Operations Branch Director East & West reports to the Operations Section Chief within the LEOC.

The Incident Command System (ICS) is flexible depending on the event's level of decentralization. Under the direction of the Field Operations Branch Director East & West, the field teams respond to the event as efficiently as possible.

- The System Emergency Restoration Teams (SERTs) are responsible for general restoration, vegetation clearing (tree removal), and system repairs.
- The Site Safety Branch is responsible for facilitating the response to downed wires (making safe or guarding the site from the public) and other immediate Health, Safety, and Environment situations.
- Priority Restoration Group (PRG) is responsible for the priority restoration of critical facilities. The PRG operates in a centralized or decentralized environment as required.
- Damage Assessment Strike (DAs) Teams are responsible for conducting and reporting on DAs.
- Dispatch supports all emergency response and restoration requests for field teams and Emergency Operations Centers (EOCs).

The mobilization of field personnel following an event will be considered the point in time when 1) field personnel is able to be dispatched without unacceptable safety risks from continued dangerous conditions (where adverse weather conditions are applicable) and 2) when the potential additional damage to the electric system would be low in proportion to the expected level of damage already sustained. The mobilization timeline could be different for specific, local areas where the effect of an emergency limits access to facilities (e.g., severe flooding).

In any emergency, three vital pieces of information must be gathered to enable an effective restoration:

- Number of electric customers out of service.
- Amount of damage to the T&D System.
- Manpower available (along with the timing of availability) to repair the damage.

Following an outage and activation of the ERP, restoration of electrical services is conducted following four basic stages:

Emergency Stage

T&D infrastructure presents an extreme risk to the public during a damaged state. Safety Teams rapidly respond to protect and correct any identified situation.

Initial Response Stage

DAs assist with the estimation of the time needed to assess and complete restorations.

Restoration Stage

SERT priorities are identified and sorted by critical facilities and the highest customer count. PRG priorities continue to be sorted by any locally prioritized Level 2 and Level 3 priorities within the critical facilities list. Continue preliminary to develop detailed DAs.

LUMA continually supports the “Safety Always” objective. Specific tactical objectives include fire/public-safety priority assistance, timely restoration, and providing useful, timely, and accurate information to all stakeholders.

To facilitate expedient restoration and to maximize the optimal use of the workforce by focusing on making immediate, temporary repairs to restore power and postponing time-consuming permanent repairs until after the ERP activation is concluded and power has been restored.

A variety of factors and circumstances are considered when assigning work, including but not limited to, the following:

- The type and availability of necessary resources to complete the repair.
- The proximity of available resources.
- The specific needs of the response.
- The type or the number of customers affected by the repair, and the time necessary to complete each specific restoration.

4.2.2 Preparation and Staging of Personnel

When an impending threat is known with reasonable certainty, precautionary staging of personnel can help facilitate a rapid response. The most critical component is the ability to be flexible to expand and retract to optimum levels as the threat becomes more certain. An anticipated and planned impending major outage requires an appropriate mobilization of personnel to respond to and recover from an emergency event in an efficient and timely manner.

The Incident Commander (IC) has overall responsibility for notifying the Command Staff. The IC might activate other roles as necessary to serve the response based on incident developments and the Event Classification. These determinations affect the level of mobilization of personnel based on the estimated impact of the emergency event. Upon notification, the Command and General Staff subsequently notify and mobilize the personnel from their respective sections and direct them to initiate their emergency restoration callouts.

The activated personnel then begin preparedness activities, including damage predictions. Damage predictions can be based on various methods depending on the specific threat. It includes historic outage events, observed damages from prior threats, and models under development from educational institutions and industry partners. The objective of the damage prediction is to determine a high-level estimate of the predicted number of outages or damages to the T&D system from a specific assessment, with the goal of determining which areas of the T&D system are most likely to sustain damage. Based on the output of the damage predictions, LUMA then determines if additional contractor or mutual aid assistance will be required for the response. Based on the responses from the contractor and mutual aid partner, LUMA mobilizes personnel to ensure they are staged near where damage is anticipated, and when it is safe to do so.

In accordance with the LUMA Major Outage Event Metrics in Appendix A, section 4, Crewing, LUMA’s mobilization timeline is identified.

Mobilization of Personnel	
Time After Damage Prediction	**Percentage of Crews Available for Response Activities**
Within 24 hours	50%
Within 48 hours	80%

Table 1: Mobilization of Personnel.

4.2.3 LUMA Resources

The Operations Section Chief makes a notification to the T&D Operations Branch Director. The T&D Operations Branch Director is responsible for making notifications to the T&D Operations Branch staff in their respective geographic region or SERT boundary.

Regional Commanders are responsible for notifications to, and mobilization of, division personnel required for operational emergency response, proportionate to the size, scale, and complexity of the emergency. Subsequently, these elements notify and mobilize personnel from their respective branches, regions, and SERT teams, and direct them to initiate their emergency restoration activation protocol. Requested resources report to their designated staging area(s) or dispatched response locations. Various crews may include:

- Troubleman Triage (One-Person Crews)
- Troubleman Overhead Line Crews (Two Person Crews)
- Troubleman Underground Crews (Two Person Crews)
- Powerline Construction Crew
- DA Strike Teams
- Wire Watcher Teams
- Substation Workers/Techs
- Telecom Workers
- Transmission Line Workers
- Equipment Operators

4.2.4 On-Island Contingency Contract Crews

The activation and assignment of crews are a valuable aspect of the restoration process. LUMA may activate contingency contract manpower, or contracts that have been pre-negotiated in accordance with LUMA and FEMA procurement policy. These contract crews support the restoration of the T&D System by increasing the capacity of the organization, which is dependent on the severity of the emergency event and could include any of the following:

- Troubleman Triage (One-Person Crews)
- Troubleman Overhead Line Crews (Two Person Crews)
- Troubleman Underground Crews (Two Person Crews)
- Underground Splicing Crews
- Powerline Construction Crew

- Tree/Vegetation Crews
- DA Strike Teams
- Wire Watcher Teams
- Substation Workers/Techs
- Telecom Workers
- Transmission Line Workers
- Equipment Operators

The Divisions are routinely engaged in the type of work necessary to restore electric service. Traditional lines of communication exist between these divisions that facilitate the coordination of the day-to-day contractor work forces in all conditions of readiness to the degree necessary.

4.2.5 Mutual Aid and Off-island Support

Mutual aid assistance is an essential part of the electric power industry's service restoration process and contingency planning on the island of Puerto Rico where utility-qualified resources are limited. As an operating utility in Puerto Rico, LUMA leverages through the Puerto Rico Electric Power Authority (PREPA) and ATCO/QUANTA mutual aid agreements. It has contingency contracts in place that enable LUMA to access mainland utility resources.

4.2.6 National Guard Assistance

The Puerto Rico National Guard, when activated by the Governor, is frequently called on to conduct disaster response and domestic emergency missions. Puerto Rico National Guard forces can provide surge logistics, transportation, communication assistance, and general-purpose capability to areas identified by the PREMB to supplement LUMA emergency response by expediting power restoration during the initial response to an incident.

4.2.7 Initial Response Stage

For Major Outage Events, LUMA begins a preliminary DA of the affected area(s) or T&D facilities when it is safe to do so. The preliminary DA is completed within a reasonable time (see Table 2) at the beginning of the operation response stage in accordance with the LUMA Major Outage Event Metrics in Appendix A. Reasonable times are determined by the duration of service restoration (refer to Section 4.4).

The preliminary DA is performed primarily by the helicopter patrol with targeted land patrols when additional information is needed.

Preliminary Damage Assessment Reasonable Time		
Event Type	**Estimated Duration of Service Restoration**	**Estimated Time to Produce Preliminary DA**
Type 3 – High Alert Conditions	3 to 5 days	Up to 36 hours
Type 2 – Emergency Conditions	5 to 10 days	Up to 72 hours
Type 1 – Catastrophic	Greater than 10 days	Up to 120 hours

Table 2: Reasonable time for preliminary DA.

4.2.8 Detailed Damage Assessment

A detailed DA is a key component of restoration operations. The DA process utilizes DA Strike Teams, or additional support as needed, to physically inspect and report damages on overhead primary, secondary, transmission, and substation assets. Assessment personnel is managed through the DA Branch. They provide access to their reports to the Planning & Intelligence (P&I) Section, the Operations Section, and the Regional Commanders. These determine resources and equipment requirements to make the repairs and restore services. The order of DA evaluation is based on the restoration priority list and interconnection of assets.

4.2.9 Restoration Stage

LUMA utilizes processes to repair damage and restore electrical service safely and efficiently. These restoration protocols are designed to restore power to the largest number of customers, in the shortest amount of time and in the safest way possible.

Field DAs and repairs may commence when:

- Field personnel can be deployed without unacceptable safety risks from continued dangerous conditions.
- The potential for additional damage to the electric system is low.

4.2.10 Prioritization

Outages are prioritized by considering safety conditions, type, and number of damages to the system, critical Community Lifelines, customer type, and the number of affected customers. LUMA focuses restoration efforts to restore service to critical facilities, such as hospitals, police departments, fire departments, and other public health and safety facilities, on a priority basis, as warranted. LUMA must make prudent decisions that have the greatest gain for the overall T&D System stability and the greatest benefit for all customers.

Priority restoration cannot be guaranteed. Therefore, LUMA implements specific communication outreach programs to critical facilities, municipal governments, and key account customers to alert them to properly prepare for potential prolonged power outages, and to provide information and updates on LUMA's preparation and restoration activities.

LUMA must address emergency and life-threatening conditions (public safety hazards, downed wires reported by emergency responders) before restoration efforts can commence.

4.2.11 Systems Assessment

LUMA completes a high-level system assessment through the System Operations Center's Supervisory Control and Data Acquisition (SCADA), Outage Management System (OMS), and reported outages from LUMA customers. When an Event Type has been determined, personnel are assigned per the LUMA incident command structure.

All activities are assigned, assessments are documented, repairs are performed, and service is restored in accordance with the following set of general priorities:

- Eliminate unsafe conditions: the elimination of hazards to the public takes precedence during emergencies. Safety Crew personnel are activated and required to:

  - Respond to reports of downed wires.
  - Cut, clear, or repair the primary and secondary hazards.
  - Clear wires so that service may be restored up to the location of the break.
  - Prioritize response to emergency calls based on the severity of risk for areas.
  - Additionally, at the initial stages of the restoration process, LUMA may be directly assigned to municipalities to “make safe” downed wires to remove trees and other debris from major roadways.
- Transmission circuits and substations: restoration is prioritized by the T&D System Operations Branch Director.
  - Determines the need for the bulk electrical system.
  - DA and repair of transmission lines and key substations.
  - Request personnel to support the restoration of transmission service to substations.
  - Bulk distribution feeder circuits, not directly affecting substations, are assigned a priority, depending on the importance of the circuit and the effect of its loss on the bulk electrical system.
- Substation repairs are directed by the Division Branch Director of the affected area in consultation with the T&D System Operations Branch Director.

Primary distribution circuits and key feeder portions of ‘locked- out’ 3-Phase primary distribution circuits are restored by either cutting faulted sections clear or by opening sectionalizing devices (i.e., switches). Damages are repaired, restoring all 3-Phase primary distribution circuits.

- Secondary distribution lines and services areas where there is only damage to secondary distribution lines and services are restored simultaneously. Repair crews perform a final assessment of damage in the area and repair any additional damage found.
- Permanent Repairs - After all electric service has been restored, permanent repairs are made to any remaining temporary field conditions. During the restoration of service, if practical, permanent repairs are made to avoid hazardous conditions and eliminate duplication of effort.

4.2.12 Outage Management System (OMS)

LUMA uses the OMS extensively to manage customer outages. Customer outages are created inside of OMS through various interface channels. Interfaces available to customers are the LUMA Call Center, Mi Luma Mobile App and LUMA webpage (see Figure 2). Outages are further created through an interface with LUMA’s Energy Management System (EMS/SCADA). The OMS analyzes all reported outages from all the interfaces. Through this analysis, OMS will then know, based on the electrically connected model (GIS), whether outages are in the same areas and then cluster all calls for the outages into one outage. This complex process allows OMS to simplify and predict outages, which allows dispatchers and respond to outages in a prioritized and orchestrated manner.

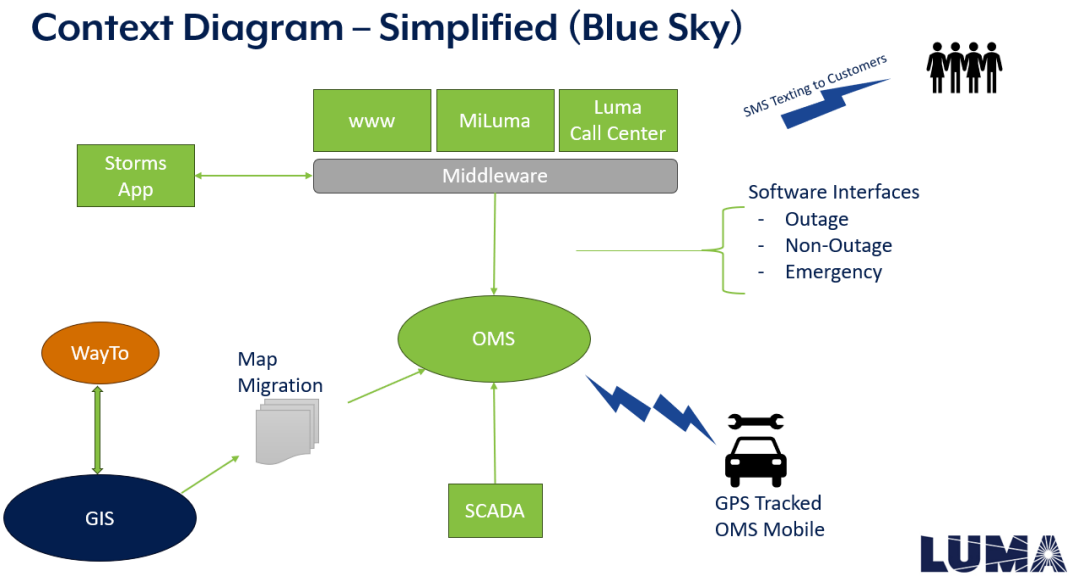

Figure 2: Context Diagram – Simplified (Steady State)

There are no changes in how OMS operates during steady state and minor T&D incidents, such as system failures, loadshedding, or severe weather. When the electrical system experiences notable outages, OMS can be used for restoration, and all interfaces function.

During a Type 1 and 2 event, the T&D Systems Operations Branch Director under the Operations Section Chief, and the OMS Specialist under the P&I Section Chief, provide the IC with a recommendation to disable the interfaces to OMS. This interaction and process are also followed to restore the interfaces to OMS. The Intelligence Technology Communications Branch Director, under the Logistics Section Chief, executes the changes to turn off and on selected interfaces. During such an event, only the Emergency Call Center phone line interface is operational.

During the period that OMS is only receiving the Emergency Call Center phone line interface, LUMA leverages the Dispatchers at the Regional Operations Command Center (ROCCs) who are in constant communication with the crews' restoring services at the distribution level. The Operators at the Distribution Operations Centers, Monacillo, Ponce, and Mayagüez, can create confirmed events where power has been restored based on the feedback from the crews performing restoration tasks. This information is manually captured to display restored services at the distribution level that are shared with customers and the public.

Although OMS will be able to handle all interface information, the webpage, and mobile app interfaces feeding OMS are shut down for the following reasons:

- LUMA is aware and expects all customers to report outages. LUMA knows which customers are affected by the higher-level outages, which might include lack of generation, transmission, and substation level damages. LUMA presents all customers with a splash page on their devices stating that LUMA is aware of the power outages and is working on the restoration.
- LUMA is aware of the locations of critical facilities and critical customers as identified in the ERP. These types of customers are identified in LUMA's Customer Database which feeds OMS.

- The underlying electrically connected model (GIS) used by OMS is not accurate with many missing customers, devices, and assets because of Hurricane Maria and associated rebuild efforts by mutual aid from mainland USA.
- There are no customer meter interfaces (smart devices, AMR, Advanced Metering Infrastructure (AMI)) feeding into OMS.
- This is a common industry practice where there are no inter-ties to other utilities to get out of power blackouts and transmission collapse.
- The focus is on EMS/SCADA and power generation to first restore the transmission system to a stable state, since adding customers too fast will result in system collapse.

LUMA has placed significant focus and effort on improving our GIS, map migrated into OMS. The more accurate GIS/OMS is, the better OMS is at grouping and predicting outages. Since its commencement, LUMA implemented several improvements and tools to facilitate data accuracy and response (see Table 3). The two most significant improvements are OMS Mobile and WayTo software.

OMS Mobile – Traditionally, the Dispatchers and Distribution Operators had to use two-way phone communications to dispatch outage work to Field restoration crews. This was inefficient for many reasons. Information (Customer details, locations, Estimated Time of Restoration (ETR), etc.) came in at best effort and was often incorrect. OMS Mobile now allows Dispatchers and Operators to see who is available, and where they are and then directly dispatch outage repairs to the crew. The crews can provide immediate feedback through OMS Mobile on status, ETR and related information. Using this tool will facilitate quicker response times and better data accuracy.

WayTo Software – This software uses configurable rules to inspect the electrically connected model (GIS) to find problems. Finding and fixing these problems in GIS allows OMS to be more accurate since the map migration process from GIS to OMS will only transfer corrected information. Rules LUMA already implemented and uses daily include, but are not limited to, disconnected breakers, wrong voltages, de-energized circuits, tiebreaker disconnects, and wrong device states.

Description	Pre-Commencement	LUMA (Currrent State)
Map Migrations	1 in 5 years	42
Un-powered GIS Features (not connected)	~60K	~30K
Breaker-to-Breaker Tie missing	~380 breakers	0
De-energized D-Circuits (WayTo software)	~90K (Implemented Apr 2023)	473
Gtech (GIS) Software Upgrade	Initial Install	2 Major version Upgrades
OMS	Unsupported version, misconfigured	2 Major version Upgrades (incl. Storm Function)
OMS Outage Triggers (interfaces)	Non-Integrated	Fully Integrated
OMS Outage response - Remote	Did not exist	Outages Dispatched– Field Crew Tablets
OMS Outage ETR estimation	WhatsApp with Crews	Field Update with OMS Mobile, back to customer (SMS)
Dispatch - Field Crew Tracking	Limited Vehicle Location/crew Visibility	All crews GPS Tracked
Critical Customers/sites Inside OMS	Tribal Knowledge only	Fully Integrated with CC&B, OMS
Functioning OMS Infra Environments	Production only	Production (prim/sec), Development, UAT
SMS Outage Texting to customer	None	Implemented

Table 3 OMS Technology Improvements.

Although LUMA has improved the OMS environments, from production only to, most recently, a production (primary and secondary), development and User Acceptance Testing (UAT) environments, LUMA has not done any stress testing based on recommendations from the contractor supporting OMS. However, during Hurricane Fiona, the OMS was stressed, as depicted below in Table 4, demonstrating that it has a larger capability than normally exercised. In the future, the OMS will benefit from additional interfaces as AMI is fielded and implemented over the next three to four years, starting in FY2025. The AMI surveys will also provide the opportunity to capture the un-powered GIS features.

		Emergencies		Outages		Total Calls	
		2022	2023	2022	2023	2022	2023
	Jan	18049	15086	38349	41264	56398	56350
	Feb	22778	12832	49262	35612	72040	48444
	Mar	25005	13646	52541	41361	77546	55007
	Apr	24653	14134	64152	57131	88805	71265
	May	26692	16389	63895	63221	90587	79610
	Jun	27668	20963	66464	85097	94132	106060
	Jul	26240	18915	67998	80086	94238	99001
	Aug	27768	25154	67050	87621	95273	112775
Fiona	Sep	16546	19632	230424	59707	246970	79339
Fiona	Oct	23682	19317	179009	59577	202691	78894
	Nov	20869	17071	58499	44560	79368	61631
	Dec	17773	15890	45398	42944	631171	58834
	Total	277,723	209,029	983,496	698,181	1,261,219	907,210

Table 4 OMS Performance.

4.3 LUMA Event Type & Activation Level

All potential events, natural, man-made, and technological, with the potential to affect LUMA operations, are assigned a classification by the IC or designee. The IC is responsible for analyzing the severity and complexity of the incident, with the collaboration and input of the Command and General Staff. This analysis assists in identifying resource requirements and positions needed for a LEOC activation at all levels of the LER. This analysis begins in the pre-event stage and continues every operational period throughout the service restoration stage for restoration events.

It is during this analysis that the IC determines the Event Type in accordance with the ERP – Appendix A. These classification types are not directly tied to the establishment of Activation Levels, described in the ERP – Appendix A. As such, an event classification of Type 1 does not always result in the establishment of an Activation Level 1, and vice versa.

The IC may also deem it necessary to escalate or de-escalate the Event Type and Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions. The Event Type depends upon the analysis of the expected severity and complexity of an event and is drawn from the consideration of numerous factors.

Five event types and activation levels have been established. Types and Levels 5 and Four 4 are considered Non-emergency events and are restoration events managed as normal operations or an isolated event that does not necessitate the activation of the LEOC unless escalation occurs.

Types 1, 2, and 3 are Emergency Events, with Type 3 being less severe and Type 1 representing catastrophic emergency conditions. LUMA's Emergency Event Types (1-5), as they relate to Major Outage Events, are described in detail in Tables 5-9. This is used in conjunction with the general conditions described in the ERP – Appendix A. Note that although they are presented together for simplicity, the Event Type and Activation Level may differ depending on the characteristics and stage of restoration.

Type	Anticipated LUMA Operating Conditions	
Event Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, that historically results in significant damage to the electrical T&D System. Type 1 events are rare but are, in most cases, forecasted. This event requires the full implementation of ICS, and all employees are assigned shifts and scheduled in relation to their role in the ERP. All affected branches, ROCCs, and SERTs are activated. This type of event is coordinated through daily Incident Command meetings/conference calls to coordinate pre-event planning activities, restoration activities during the event, and post-event demobilization activities. Communication protocols are activated, and discussion with local and Government of Puerto Rico officials occurs before the impact and through the restoration stage.
	Characteristics	• The severity of the damage affects the entire system in such a way that restoration activities may require ten (10) days or more once it is safe to begin restoration activities. • Typically, > 50% (>700,000) customer outages at peak • Typically, > 50,000 outage events at the peak • This type of event is expected to occur between 1 and 4 times over a ten-year period.
Activation Level 1 – Full Activation	Response Organization	• System-wide incident command structure is activated. • All Command and General Staff posts are activated. • The LEOC and all ROCCs and SERTs are operational. • Additional catering and lodging support functions will be established at the branch or ROCC level. • Liaisons are activated. • Staging areas may be required to support external teams and resources.
	Resource Activation	• This response requires external assistance from contractors or mutual aid assistance from other utilities outside the region. • PREMB LUMA Regional Interagency Coordinators (LRIACs) are likely activated. • Additional restoration support functions will be established at the branch and divisional level of the LER, as instructed by the Section Chiefs, and approved by the IC. • The system's emergency restoration teams are activated in the most severely affected areas at the discretion of the chief of the Operations and Planning Section and are approved by the IC.
	Communication Coordination	• Federal resources coordination is likely to be required. • A written Incident Action Plan (IAP) is required for each operational period. • Pre-event stage reporting is required. • Pre-event outreach to municipalities, government officials, and regulators • Emergency stage reporting is required. • Restoration stage reporting is required. • Demobilization stage reporting is required. • An After-Action Review is required. • Post-event meetings will be held with the most severely affected communities.

Table 5: Type 1 - Catastrophic Event characteristics.

Type	Anticipated LUMA Operating Conditions	
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a serious event that has historically resulted in significant damage to the electrical T&D System in a region(s) or could be moderate damage throughout the territory. Type 2 events are, for the most part, predicted in advance. This is a complete ICS implementation, and most employees are assigned shifts and scheduled to be related to their role in ERP. This type of event is coordinated through daily Incident Command meetings/conference calls to coordinate pre-event planning activities, restoration activities during the event, and post-event demobilization activities. All affected branches, ROCCs, and SERTs are activated. Communication protocols are activated and conversations with local and Government of Puerto Rico officials are extended before the impact and through the restoration phase.
	Characteristics	• The severity of the damage within a specific region or spreads through the system is such that restoration activities are carried out within a 10-day period once it is safe to begin restoration activities. • Typically, 25% to 50% (350,000 to 700,000) customer outages at peak. • Typically, >25,000 outage events at the peak. • This type of event is expected to occur between 2 and 4 times over a five-year period.
Level 2 – Large Activation	Response Organization	• System-wide incident command structure is activated. • All Command and General Staff posts are activated. • The LEOC, all ROCCs, and SERTS are operating. • Liaisons are activated. Staging areas may be needed to support crews and external resources.
	Resource Activation	• This response likely requires external assistance from contractors or mutual assistance from other utilities outside the region. • Additional restoration support functions will be established at the branch and divisional level of the LER, as instructed by the Section Chiefs, and approved by the IC. • The system's emergency restoration teams are activated in the most severely affected areas at the discretion of the chief of the Operations and Planning Section and are approved by the IC. • The LUMA PREMB Interagency Coordinator can be activated depending on the level of state coordination required.
	Communication Coordination	• Federal resources coordination is likely to be required. • A written IAP is required for each operational period. • Pre-event stage reporting is required. • Pre-event outreach to municipalities, elected officials, and regulators. • Emergency stage reporting is required. • Restoration stage reporting is required. • Demobilization stage reporting is required. • An After-Action Review is required. • Post-event meetings will be held with the most severely affected communities.

Table 6: Type 2 - Emergency Conditions Event characteristics.

Type	Anticipated LUMA Operating Conditions	
Type 3 – High Alert Event	**Viewpoint**	A Type 3 event represents the largest range of uncertainty due to the severity of the event being forecast (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographic area that is threatened. This type of event historically resulted in significant damage to the districts or moderate damage to the region(s). The approach is to prepare so that several regions will potentially be affected by the activation of the ICS structure and the opening of one or more ROCCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with the least impact to the areas that received the most damage. This type of event is coordinated through daily Incident Command meetings/conference calls to coordinate pre-event planning activities, restoration activities during the event, and post- event demobilization activities. Communication protocols are activated and conversations with local and state officials are extended before impact and through the restoration phase.
	Characteristics	• The severity of the damage within a specific district, region, or region is such that restoration activities are, in most cases, carried out within 48-72 hours. • Typically, 10% to 25% (70,000 to 350,000) customer outages at peak. • Typically, >10,000 outage events at the peak. • This type of event tends to occur between 1 and 5 times a year.
Level 3 – Moderate Activation	**Response Organization**	• The incident command structure is activated, either at the LEOC or at the local LUMA operational level (with one or more ROCCs). • Additional ROCCs can be activated to match the changing complexity of the event. • Additional restoration support functions, such as decentralized dispatch, downed cables, and DA, may be established in a branch or division, as instructed by the heads of the P&I or Operations Section and approved by the IC. • The LUMA PREMB Interagency Coordinator can be activated depending on the level of state coordination required. • Staging areas may be needed in an area if it has been severely affected and requires a concentrated number of crews and resources.
	Resource Activation	• This response may require external assistance from contractors. • LUMA may require a large increase in various personnel and equipment positions. • Additional staff can be obtained from restoration support functions.
	Communication Coordination	• A written IAP may be required for each operational period. • Pre-event stage reporting is required. • Pre-event outreach to life support clients, municipalities, elected officials, and regulators is carried out as needed. • Restoration stage reporting is required.

Table 7: High Alert Event characteristics.

Type	Anticipated LUMA Operating Conditions	
Type 4 – Heightened Alert Event	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more districts. Type 4 events may be due to thunderstorms, high winds, frequent or severe lightning, or unanticipated events. In most cases, these events are managed by System Operations with assistance from Field Operations. Control and management of the event remain centralized but may decentralize to one or more ROCCs depending on the damage. Internal teams are notified, and specific sections may be activated depending on the impact of the event.
	Characteristics	• The damage severity within a specific district or region is such that restoration activities are generally accomplished within a 12- 24-hour period. • The incident is, in most cases, limited to one or two operational periods in the Event Restoration phase. • Typically, 1 to 5% (14,000 to 70,000) customer interruptions at peak. • Typically, >7,000 Outage Events at peak. • This type of event generally occurs less than 5 to 10 times per year.
Level 4 – Partial Activation	Response Organization	• The incident command structure is activated, either at the LEOC or at the local LUMA operational level (with one or more ROCCs). • Additional ROCCs can be activated to match the changing complexity of the event.
	Resource Activation	• Restoration is generally accomplished with local resources. Possibly with help of other resources that have been redistributed from unimpacted regions. • 2-50 personnel may be deployed to the LEOC or ROCCs that have been activated at the discretion of the P&I or Operations Section Chiefs and approved by the IC to perform other functions.
	Communication Coordination	• No written IAP is required. • The Operations department may hold briefings or conference calls to ensure that the complexity of the event is fully communicated to management and that response personnel receive the appropriate level of support required for the event.

Table 8: Non-Emergency Restoration Event characteristics.

Type	Anticipated LUMA Operating Conditions	
Type/Level 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations and Dispatch Organizations. For small outages, Dispatch will send designated problem resources to repair the outage. If, upon arrival, it is determined that additional resources are needed, a supervisor is assigned and additional line crews from the field operations organization will be secured.
	Characteristics	• System activity is normal. • Incidents are contained within the first operational period and last less than 12 hours after resources arrive on the scene. • Typically, <2.5% (35,000) peak client outages. • Typically, <2,500 outage events at the peak. • Normal daily internal team assignments.
	Response Organization	• Incident command structure is not activated. • LEOC, ROCCs, and SERTs are not activated.
	Resource Activation	• Response to outages is coordinated with local scheduled and on-call staff.
	Communication Coordination	• No written IAP is required.

Table 9: Normal Operations characteristics.

Table Notes:

- Type 1, 2, and 3 events are “Emergency Events”. Types 4 and 5 are restoration events managed as normal operations unless escalation occurs.
- Activation Levels may not necessarily be tied to the Event Type. For example, LUMA can use Activation Level 2 to respond to a Type 3 Event if the characteristics of the event dictate a larger activation is required.
- The expected percentage of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed, such as a low wire, tree limb on a conductor, or damaged equipment.
- For all Event Types, evaluation and estimations of needed crews and resources are a result of several factors, including but not limited to:
    - The anticipated circumstances of the emergency condition(s).
    - The anticipated geographic impact of the emergency condition(s).
    - The level of availability of external or mutual aid resources.

- Travel distance or other logistical considerations that increase or diminish the ability of external or mutual aid resources to assist effectively in the restoration effort.

4.4 Restoration Priority Guidelines

LUMA strives to restore power to all customers in the safest and most timely manner possible. In support, LUMA has established restoration priorities, both normal and emergency operations, which provides the most efficient approach to restoring electrical outages.

All outages are prioritized using a variety of factors including, but not limited to, the following:

- Critical Community Lifelines
- Customer Type
- Number Of Affected Customers
- Outages Involving Safety Conditions
- Make Safe Protocols

4.4.1 Downed Wires

The safety of the public is a primary concern of LUMA, and the elimination of hazards takes precedence. The objectives of LUMA's downed wire protocols include heightened tracking of downed wire incidents, accurate reporting of the response time to downed wire locations, and full documentation of the actions taken.

Response requires trained and qualified personnel to investigate reports of downed wires and conduct repairs. Incidents are created within the OMS system with one of the following conditions identified:

- Downed wires - pole-to-pole or downed wires - pole-to-building
- Downed wires and burning
- Sparking wires

Response to downed wires for performing the initial investigation and clearing the hazard is under the direction of the Operations Section. The DA Strike Teams assist Operations with the prioritization and identification of teams for assignment. Dispatchers determine the appropriate resources assigned to both evaluate and guard downed wires or make the incident safe and work with the Logistics Section regarding those resources.

When assigning and responding to downed wire reports, the LUMA downed wires' priority and severity levels are utilized as a guideline (Tables 10 and 11). Non-outage emergency jobs during restoration activations include downed wires, burning/sparking wires, pole damage, and miscellaneous emergency calls.

Priority Level	Description of Downed Wires
1	Downed wire reports, where it is indicated that the wire is burning, arcing/sparking, or an immediate hazard, or energized primary or secondary downed wires in heavy pedestrian areas such as communities, schools, etc.
2	Non-service downed wire incidents where fire departments, police departments, or other municipal agencies are standing by on the downed wire location or have been reported by municipal officials.
3*	Report of electric downed wire from an emergency organization: • Reported to be affecting traffic flow on a major public highway. • Reported to be blocking/near a pedestrian walkway or driveway. • Reported to be the primary conductor. • Reported to be the secondary conductor.
4	Report of electric downed wire from other sources: • The primary conductor is indicated. • The secondary conductor is indicated.
5	Report of downed wire where the type of wire is not indicated, and it appears the wire is not likely an electric conductor.
*Priority 3 includes reports from members of the 911 call center, police, fire, EOC personnel, and emergency managers.	

Table 10: Priority levels of downed wires.

1. DA or repair personnel are then dispatched from the region or district area to assess or safeguard downed wire incidents, in priority order. Upon arrival at the location of a downed wire report, and initial assessment of the situation, the severity is determined. If necessary, the responder either:

- Makes the situation safe, so that the wire is not a risk to the public in the area.
- Stands by at the location until relieved or until the situation is made safe by a qualified crew.

Notification of a downed wire by a 911 agency that involves a hazard, such as a fire or situation where a downed wire traps individuals, results in the immediate dispatch of an Overhead Line Crew to the incident, when environmental conditions permit.

The remaining downed wire reports are assigned to DA or repair personnel, according to the downed wire priority, as referenced below (highest to lowest). DA or repair personnel that are specifically dispatched to safeguard downed wire situations will respond to the location of the downed wire. After assessing the situation, the severity is determined based on the following guidelines (highest to lowest).

Severity Level	Description of Downed Wires
1	Downed wire conductor that poses a high risk to public safety, due to its location on a road or pedestrian-accessible area. These situations require DA or repair personnel to remain on-site and guard the wire until they can be relieved by a Wire Watcher or after a qualified employee or contractor has made the wire safe.
2	Downed wire is a primary conductor but is not on a main road or other easily accessible location. These situations also require DA or repair personnel to remain on-site until relieved by a Wire Watcher, or the conductor can be verified and deenergized by a qualified employee or contractor. Once the wire is known to be de-energized, the DA or repair personnel barricade or tape the area and then can move on to their next location.
3	Downed wire is a secondary conductor. DA or repair personnel attempt to notify nearby customers and barricade/tape off the area to clearly distinguish the hazardous area. If the wire is either open wire secondary or triplex service cable that has an exposed end (wire is broken), DA or repair personnel remain on-site until relieved by a Wire Watcher or a qualified employee or contractor who has verified that the wire is not energized.
4	Downed wire is not an electric conductor and is not in contact with an electrical conductor, but is instead phone, cable, or other communications property. If the situation is safe, DA or repair personnel inform their coordinator of this and move on to the next order. Their coordinator may then provide this information to the appropriate company or liaison for communication with the responsible company.

Table 11: Severity of downed wires.

Once the joint reporting and response process is established, LUMA responds to all reported downed wires and takes appropriate action within a reasonable time in accordance with the LUMA Major Outage Event Metrics found in Appendix A, (per the event categorization, see Table 11) while working in conjunction with local authorities after a Major Outage Event. Reasonable times are determined by the duration of service restoration. Table 12 aligns the event classification type to the expected duration of the response.

Downed Wire Reasonable Time		
Event Type	**Duration of Service Restoration**	**Reasonable Response Time**
Type 3 – High Alert	3 to 5 days	Up to 18 hours
Type 2 – Emergency Conditions	5 to 10 days	Up to 36 hours
Type 1 – Catastrophic	Greater than 10 days	Up to 60 hours

Table 12: Reasonable time for response to downed wires.

4.4.2 Road Closure Priorities

LUMA recognizes the importance of clearing emergency evacuation routes and main thoroughfares and understands the key role they play in helping to make areas safe to clear by de-energizing or removing downed electrical wires that may be blocking roads or entangled in downed trees or roadway debris.

Once it is safe to commence the restoration process, LUMA deploys trained personnel comprised of trained high voltage line workers that have the proper skill sets to cut clear, or de-energize/ground downed wires. By completing this process, transportation corridors become safely possible.

Where possible, a restoration crew makes the location safe. If required, a wire guard representative is dispatched to the location to await SERTs. Restoration priorities are identified within the Restoration Priority Guideline, Table 13.

Priority Level	Description of Downed Wires
1	Local roads and emergency service roads.
2	Regional roads and critical municipal identified locations.
3	Report of electric downed wire from an emergency organization: • Reported to be affecting traffic flow. • Reported to be blocking/near a pedestrian walkway or driveway.
4	Report of RC from other sources where a downed wire may be the cause or ancillary to the primary cause of the RC.
5	Report of RC where the type of wire is not indicated, and it appears the wire is not likely an electric conductor.

Table 13: Priority of road closures.

4.4.3 Critical Facilities

Critical Facilities identified as Level 1 facilities provide services that are critical to the health and safety of the public and are tied to at least one of the seven critical Community Lifelines.

LUMA also places additional emphasis on critical Community Lifeline facilities and other vital service locations. Critical facility customers, first responder organizations, and other vital sites, such as hospitals, evacuation centers, and water treatment plants, are assigned the highest level of importance (as shown in Table 14).

Critical Facility Levels	
Critical Facility Level 1	These facilities provide services critical to public health and safety (Critical Community Lifelines): 1) Hospitals and emergency medical facilities 2) Emergency shelters, cooling centers, and rescue facilities 3) Emergency Operations Centers (LUMA and Municipal) 4) Water pumping stations and wastewater treatment plants 5) Fire, police, and paramedics. 6) Critical utility and communications facilities 7) Fuel transfer and fuel loading facilities (ports) 8) Mass transit (tunnels, electric drawbridges, ferry terminals, major rail facilities/rectifier stations) 9) Airports 10) Military bases 11) Critical flood control structures
Critical Facility Level 2	These facilities provide significant public services and may include some of the facility types described in Level 1 depending on the event type, but are considered to some extent less critical by government agencies: 1) Nursing homes and dialysis centers 2) Facilities to support other critical government functions. 3) Prisons and correctional facilities 4) Communications (radio, TV, etc.)
Critical Facility Level 3	These facilities provide some public services and may include some of the same types of facilities described in Level 2 depending on the event type, but are considered to some extent less critical by government agencies: 1) Event-specific concerns 2) High-rise residential buildings 3) Customers providing key products and services (food warehouse) 4) Managed accounts, large employers, and other key customers 5) Other government buildings, schools, and colleges

Table 14: Critical facilities by level.

4.5 Restoration Strategy

4.5.1 Overview

The restoration strategy begins with the prioritized outages identified by the DA teams and the OMS, when available, or through the Energy Management System (EMS). The restoration strategy takes into consideration outage information and identifies and compares that data to restoration protocols. SERTs

must address emergency and life-threatening conditions, such as public safety hazards or downed wires reported by first responders before any restorations begin.

Listed below and shown in Figure 3 is the prioritization of restoring power.

Figure 3: Prioritization of restoring power.

1) Restore critical power assets – generation, micro grids, and mini-grids.
2) Repair key transmission lines – these lines transmit energy from generating stations to key substations.
3) Restore substations – energy can be distributed to the distribution network throughout communities.
4) Restore Community Lifelines – Hospitals, emergency shelters, water systems, critical communication towers, ports, fire and police stations, and others.
5) Restore large service areas – return service to the largest number of customers in the least amount of time. Services lines to neighborhoods, industries, and businesses are restored systematically.
6) Restore individual homes.

4.5.2 Mitigation Strategy

LUMA understands the importance of pre-planning and its correlation to a timely and effective restoration response. LUMA undertakes a variety of initiatives to prepare its employees, infrastructure, emergency response partners, and the communities it serves. These initiatives include community awareness, training programs, employee training, drills, exercises, and system hardening projects in accordance with the LUMA Major Outage Metrics in Appendix A. These pre-storm actions assist LUMA in responding to outages more effectively, while ensuring that customers, employees, and key stakeholder groups are better informed and prepared when disasters strike.

4.5.3 Community Outreach

LUMA's storm preparation initiatives focus on educating the community it serves on the importance of preparedness and safety. Public education is vital to an efficient and safe restoration effort, and LUMA strives to inform its customers of what to expect before, during, and after large-scale events. Information is shared with the public through multimedia platforms such as LUMA's website, videos, social media, and its participation in community seminars, briefings, and exercises. LUMA believes that customer education is a year-round process.

First Responders

First responders play an important role in an emergency or large-scale outage. First-response organizations aid in protecting the public from unsafe conditions such as downed powerlines or vehicle collisions. LUMA continues to build a partnership regarding preparedness and planning initiatives and supports them when an event occurs.

Governmental Organizations

Governments are defined as government officials, municipal & state emergency management organizations, and federal and local government agencies, including FEMA, the Department of Energy, and the PREB, among others. LUMA continues to strengthen relationships with these critical stakeholders through information sharing and collaboration throughout the year.

LUMA practices its emergency preparedness and response plan through tabletop exercises and other relevant events. Companywide exercises center on planning and response activities during a large-scale restoration event and promote open communication and collaboration between all affected and participating entities.

This alignment helps to ensure a clear and coordinated response when an emergency occurs and promotes dialogue and continuous improvement between organizations.

Energy Stakeholders

LUMA works diligently to continuously refine and communicate ETRs as additional information becomes available throughout the restoration process. LUMA's Liaison Officer (LNO), an integral member of the LEOC Command Staff, assumes primary responsibility for disseminating vital information to energy stakeholders. This process is detailed in Annex G: Communication Guidelines.

4.5.4 Make Safe Protocols

Clearing emergency evacuation routes and main transportation corridors is an important part of the response to an emergency. Qualified electrical field crews play a significant role by de-energizing or removing downed electrical wires blocking roads or entangling downed trees or roadway debris.

During large-scale events, the number of internal resources that are trained and readily available is limited, and the demand could greatly exceed available resources. Based on needs and available resources, LUMA reassigns available internal resources and utilizes qualified external resources to ensure "make safe" actions are taken.

5 Estimated Time of Restoration Guidelines

Providing ETRs is a top priority of LUMA's overall restoration process in accordance with the Major Outage Event Metrics in Appendix A. LUMA aims to serve its customers, local officials, and emergency support organizations by providing ETRs in a timely manner.

The timing, magnitude, and impact of an event factors into ETR times. Therefore, LUMA establishes a baseline of projections to assist in determining operational goals and timelines. An ETR provides an estimate of when service is restored to a customer, location or work assignment based on the on-site assessment and historical data. Specific priorities and tactical objectives are guided by the IC and General Staff based on available resources and response priorities. See Figure 4 for the conceptual process of determining ETRs.

ETRs are a predictor of outage lengths and assist in determining the operational resources and actions required. Due to every event's unique nature, subjective analysis as well as experience during similar events are required to estimate resource, material, and equipment requirements based on weather or other known hazard conditions.

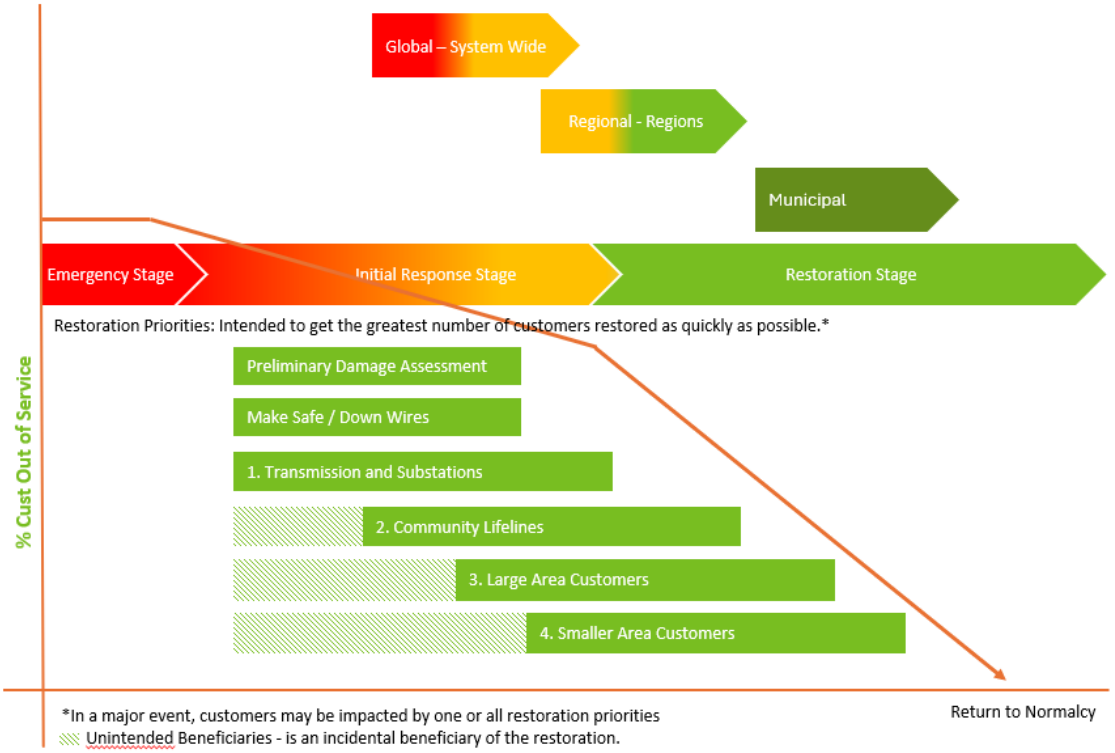

Figure 4 Conceptual process of determining ETRs.

5.1 ETR Definitions

ETRs are segregated into four types: Global, Regional, Local, and Individual Customer. These classification levels allow LUMA to provide its customers with more accurate restoration estimates, based on the current and anticipated conditions as well as the corresponding restoration efforts. ETR information may be updated as additional data and information is obtained during restoration.

- Global ETRs – Information is determined at a system-wide level, initially communicated as the point in time when 90% of customers are restored.
- Regional ETRs – Information is determined at a regional level, initially communicated as the point in time when 90% of customers within a specific region are restored.
- Municipal ETRs – Information is determined at a local level, in most cases, for specific assets including transmission lines, substations, and distribution feeders.
- Individual Customer ETRs – Information is determined at a customer level. However, this capability is currently unavailable until Advanced Metering Infrastructure (AMI) fielding and installation is completed in FY2027-2028.

These protocols are considered minimum requirements necessary to ensure customers are adequately informed. During restoration, LUMA refines ETRs and will update customer representatives, Interactive Voice Response (IVR) systems, and websites as the situation changes. LUMA provides restoration information (including customer outage counts and ETRs, if available) to media outlets and public officials in affected areas during Major Outage Events. Additionally, LUMA issues at least one press release daily for all Major Outage Events with an expected restoration stage longer than 48 hours. For widespread events, company-wide outage statistics may also be provided as part of the initial notification, if available.

During an emergency event, the ability to reach a representative for non-outage or non-emergency requests may be suspended temporarily, and the automated system may not be available for account information. ETR information is communicated through multimedia platforms and the IVR in accordance with the LUMA Major Outage Metrics in Appendix A.

The anticipated actions related to the assessment and identification of ETRs are detailed in Tables 15 and 16.

Type 3 Events with duration of service restoration expected to last 3 to 5 days.

Within the first 6 hours of the start of the Initial Response stage

- Notify regulatory authorities the start of the initial response stage and the expectation that the initial response stage will last 48 hours or less. The notification to regulatory authorities will also state what LUMA has defined as the approximate start of the restoration stage. For events expected to last 48 hours or less, the notification may be via IVR.
- Provide available information to the public via customer representatives, IVR systems, and websites.
- In certain situations (e.g., nighttime events), only limited information may be available within the initial six-hour window. In these situations, the expectation is that the companies will inform regulatory authorities of the delay in determining the Initial Response stage duration within six hours and the notification will occur in an expedited manner as information becomes known. Following a nighttime storm, the determination of whether the Initial Response will be less than 48 hours will be communicated as soon as possible, but no later than noon the following day. Any delay in establishing the initial storm expectations will affect the time requirements below.

Within the first **12** hours of the **start of the** Initial Response stage

- Provide regulatory authorities with an approximate global ETR and any available regional ETRs, where known.
- Prepare a statement for the press that includes known ETRs for the next upcoming news cycle and communicate with relevant municipal and governmental officials.

Within the first 18 hours of the start of the Initial Response stage

- Provide approximate ETRs for each region, where known, and affected, and make them available to the public via customer representatives, IVR systems, and websites.

Within the first 24 hours of the start of the Initial Response stage

- Consider issuing a press release for the upcoming news cycle based on conditions.

Within the first 6 hours of the start of the Restoration Stage

- Notify regulatory authorities the start of the restoration stage.
- Provide available information to the public via customer representatives, IVR systems, and websites.

Within the first 24 hours of the start of the Restoration Stage

- Establish regional and municipal ETRs for areas affected.
- Identify any heavily damaged areas where large numbers of customers are expected to remain without service for more than five days.
- Make ETR information available to the public via customer representatives, IVR systems, and websites.

Reporting requirements during the event

- Provide notification when the initial response stage starts, the expected start of the restoration stage, and information updates four times daily to regulatory authorities, which shall continue until otherwise directed by staff.
- Notify the start of the Restoration Stage, and provide information updated four times daily to regulatory authorities, which shall continue unless otherwise directed by staff.
- Provide ETRs
- Notify regulatory authorities when all storm-related interruptions have been restored.

Table 15: Service restoration activities for Type 3 events.

Type 1 and 2 Events with duration of service restoration expected to last 5 days or greater.

Within the first 6 hours of the start of the Initial Response stage

- Indicate that it will be a multi-day event (i.e., greater than 48 hours). The notification shall be made to regulatory authorities and will state the start of the initial response stage and when LUMA anticipates the start of the restoration stage.
- Provide a public statement indicating the likelihood of extended outages and make this information available via customer representatives, IVR systems, and websites.
- In certain situations (e.g., nighttime events), only limited information may be available within the initial six-hour window. In these situations, the expectation is that the companies will inform regulatory authorities of the delay in determining the Initial Response stage duration within six hours and the notification will occur in an expedited manner as information becomes known. Following a nighttime storm, the determination of whether the Initial Response will be greater than 48 hours will be communicated as soon as possible, but no later than noon the following day. Any delay in establishing the initial storm expectations will affect the time requirements below.

Within the first 12 hours of the start of the Initial Response stage

- Prepare a press release for issuance in time for the next upcoming news cycle and communicate with relevant government agencies.

Within the first 18 hours of the start of the Initial Response stage

- Schedule regular conference call(s) with agencies unless an alternative contact method is more appropriate. The first scheduled conference call might not take place within the first 18 hours but shall be within the first 36 hours.

Within the first 24 hours of the start of the Initial Response stage

- Notify regulatory authorities of what areas sustained the most damage to the electric system.
- Issue a press release(s) for upcoming news cycles with the information described in the previous bullet.

Within the first 36 hours of the start of the Initial Response stage

- For storms with an expected initial response stage of five days or less, provide regulatory authorities with an approximate global ETR.
- Identify any heavily damaged areas where large numbers of customers are expected to remain without service for more than five days.
- Actively participate in Emergency Support Function (ESF-12) meetings held at PREMB EOC.
- Make ETR information available to the public via customer representatives, IVR systems, and websites.

Within the first 48 hours of the start of the Initial Response stage

- For storms with expected restoration stages of five days or more, provide regulatory authorities with an approximate global ETR.
- Establish approximate regional ETRs, where known, for areas expected to be restored within five days, even if the total restoration stage is expected to be over five days.
- Identify any heavily damaged areas where large numbers of customers are expected to remain without service for more than five days.
- Make ETR information available to the public via customer representatives, IVR systems, and websites.

Beyond the first 48 hours of the start of the Initial Response stage

- For storms with expected restoration stages of five days or more, provide regulatory authorities with an approximate global ETR.

- Establish approximate regional ETRs, where known, for areas expected to be restored within five days, even if the total restoration stage is expected to be over five days. Provide ETRs to regulatory authorities.
- Make ETR information available to the public via customer representatives, IVR systems, and websites.

Within the first 6 hours of the start of the Restoration stage

- Notify regulatory authorities of the start of the restoration stage.
- Provide a public statement indicating the likelihood of extended outages and make this information available via customer representatives, IVR systems, and websites.

Within the first 12 hours of the start of the Restoration stage

- Prepare a press release for issuance in time for the next upcoming news cycle and communicate with relevant government agencies.
- Communicate information such as system damage, outages, restoration status, etc., with affected municipal and elected officials as appropriate.
- Continue post-storm municipal conference call(s) unless an alternative municipal contact method is more appropriate.

Within the first 24 hours of the start of the Restoration stage

- Provide regulatory agencies and the public with approximate regional and/or municipality ETRs. Update customer representatives, and IVR systems.
- Continue issuing press release(s) for upcoming news cycles with the information described in the previous bullet.
- Identify any heavily damaged areas where large numbers of customers are expected to remain without service for more than ten days.
- Actively participate in ESF-12 meetings held at PREMB EOC.

Within the first 48 hours of the start of the Restoration stage

- Provide regulatory agencies and the public with any additional and/or updated regional or municipality ETRs. Update customer representatives, and IVR systems.

Beyond the first 48 hours of the start of the Restoration stage

- Provide regulatory agencies and the public with any additional and/or updated regional or municipality ETRs. Update customer representatives, and IVR systems.

Reporting requirements during the event

- Provide notification when the initial response stage starts, the expected start of the restoration stage, and information updates four times daily to regulatory authorities, which shall continue until otherwise directed by staff.

- Notify the start of the Restoration Stage and provide restoration information updates four (4) times daily to regulatory authorities, which shall continue until otherwise directed by staff.
- Provide ETRs
- Notify when all outage event related interruptions have been restored.

Table 16: Service restoration activities for Type 2 events.

6 Organization

This section outlines the key functions of the various components and positions of the Storm Restoration organizational structure. An orderly and consistent flow of information between Operations, Communications, Logistics, and associated support organizations is necessary in times of emergency events. Organizational charts indicating lines of authority and the interrelation between organizational groups are included in Appendix A.

6.1 LUMA Leadership

Prior to and during major storm events, LUMA's senior leadership maintains an ongoing open dialogue to discuss and share intelligence regarding an impending emergency event that may affect the electric system. This proactive dialogue ensures the most complete and timely "situational awareness" between leadership teams. It provides a platform to facilitate discussions regarding the potential sharing of personnel resources and other support functions between entities.

This coordinated approach is also important to the overall restoration response from a communications perspective, as it provides the mechanism for consistent messaging to employees, customers, and other external stakeholders. With the threat of a major storm or another system emergency, LUMA's leadership team, through the Crisis Management Committee (CMC), activates LUMA's LER.

6.2 LUMA Emergency Roster

An overview of LUMA's LER utilized during restoration activities can be found in the ERP - Base Plan, Appendix A. Please refer to LUMA's ERP – Base Plan Appendix B for a list of responsibilities by role. LUMA continues to update the list when required due to personnel changes or updates.

6.3 Direction, Control, and Coordination

Emergency response procedures parallel normal operational procedures to minimize the need for specialized training or work practices. This Annex provides the framework for the systematic response of resources when emergencies arise. It defines a set of processes and protocols for determining the appropriate level of response during major emergencies for:

- Restoration of electric service.
- Emergency response progress notification of applicable government agencies, customers, the public, and employees.
- Response to official requests for specific incidents, events, or actions.
- Response to natural or man-made events that involve LUMA's facilities.

For additional information related to direction, control, and coordination, refer to the ERP – Base Plan, Section 8.

7 Communications

LUMA strives to provide timely, accurate, and consistent communications prior to, and during, a Major Outage Event as details become available. Emergency communications may include alerts and warnings from the National Weather Service (NWS), or other verified emergency notifications of events that may affect electric service. Communications may include information regarding evacuation, curfews, other actions for protective measures, LUMA response and restoration status, available assistance, and other matters that impact LUMA's response and recovery.

The Public Information Officer (PIO) is responsible for communicating necessary and critical information externally. LUMA will communicate information externally through a variety of methods including, but not limited to:

- LUMA's website and customer app, as available
- News Media
- Social messaging, including the use of Twitter, Facebook, and Instagram, among others.
- Situational Reports to Local, Municipal, and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)

Public Service Announcements (PSAs) are distributed to the following stakeholders:

- Customer Experience Teams
- Employees
- Media outlets
- Elected Officials
- Local Municipal Officials
- Regulatory and State Governmental Agencies

7.1 PSAs

The IC must approve the final draft of all PSAs prior to their dissemination by the PIO or other designers. Public statements may include the following confirmed information:

- Number of customers affected
- Affected regions
- Numbers of crews
- ETR
- Cause of the outage/event
- Warnings regarding hazardous conditions and public safety information
- Description of emergency response actions already taken
- Customer Service phone numbers for customers to report outages or damage, a Company website link to report outages and access restoration information, and links to relevant social media platforms.

7.2 Media Communications

Prior to and during an emergency event, a PIO media team member is available to media outlets for information regarding company activities in addition to regularly scheduled PSAs. In larger, more extensive emergencies, it may be desirable to schedule news media briefings and have an appointed spokesperson available for press conferences.

The PIO team is responsible for communicating with a full range of broadcast, news, and online and print media outlets, ensuring timely and clear communication of all vital messaging. The PIO team formulates press releases, coordinates appropriate interviews, and provides periodic status updates throughout an event and afterward.

In addition, the team maintains focus on storm-related threats, including flooding, and shares all available safety and restoration information, recommendations for preparing for flooding or evacuation, safety precautions, and suggested steps to arrange for reenergization (if a home or area has been de-energized due to flooding or other conditions).

The goals are to:

- Provide accurate, timely information to the media, customers, local elected officials, local municipal officials, and employees.
- Demonstrate preparedness through proactive and diligent communication.

7.3 Digital Communications

Prior to a known event, the PIO or a designated digital communications team member review and updates the Company's website content. During the event, the PIO or designated digital communications team member posts PSAs on the website, and that content is current.

If available, the outage map displays outage and restoration information geographically and in tabular format and is provided by region or town, including customers served and customers impacted on the tabular side. Geographically, customers also see outage information and an estimated outage location. If possible, regional ETRs are then shared via the website and social media channels.

7.4 Employee Communications

Internal communications are prepared and distributed before, during, and after an event by the PIO team through multimedia platforms to employees. Information and updates, expectations for their support, and the nature, scope, and status of LUMA's restoration response are included. Messages include information consistent with that released to the public, including safety tips regarding specific types of dangers so employees may prepare their families for possible demanding assignments and extended shifts that come with a severe storm or other emergency.

Daily and overnight message notifications and postings are examples of typical communications and are sent by the PIO employee communications team. All information released is approved by the PIO and the IC.

Topics can include:

- Weather updates
- Safety information
- Company preparations and activities
- Restoration status
- PSAs
- Customer feedback
- Link to event photos and videography
- Links to outage center

7.5 Regulatory Officials

The LUMA PREB & P3A LNO communicates with regulatory officials prior to and during an emergency event using email, conference calls, and individual phone calls or other means, as necessary.

Once a predicted emergency event is forecasted, the Reporting Unit prepares Emergency Event Reports, as required by LUMA Major Outage Metrics, and submits them to the appropriate agencies as required until outages occur. For additional information on reporting, refer to the ERP – Base Plan, Section 11.

7.6 Government Officials

During events requiring the activation of the ROCCs, LUMA's Customer Experience Specialist at the LEOC is tasked with providing staffing support. Regional Key Accounts Representatives are strategically positioned within the ROCCs to facilitate seamless communication among the LEOC, ROCCs, partner agencies, and municipal officials. This collaboration occurs both prior to, during, and after an event, as well as throughout the restoration process, adhering to the outlined guidelines in the LUMA Major Outage Metrics detailed in Appendix A.

Municipalities impacted by emergencies help prioritize the restoration of electric facilities and provide access to LUMA facilities through municipal support services. During emergencies, each Regional Key Accounts representative submits daily reports to municipal officials, including emergency managers or their representatives, containing detailed information on emergency conditions and restoration progress for every affected municipality and neighborhood.

The following communications are carried out by the Regional Key Accounts Representative to satisfy the regulatory reporting requirements:

- Scheduled conference calls with municipal officials, including emergency managers.
- Community liaison communications (telephonic, electronic or in-person) with municipal officials, including emergency managers.
- Communicate with key account customers.
- Provision of emergency conditions and restoration information, including but not limited to:
    - Outage and restoration information.
    - Priority down wire locations.
    - Critical Facilities impacted by the emergency event, through a community website portal that may be accessed by municipal emergency managers.

8 Demobilization

Demobilization is the orderly, safe, and efficient return of an incident resource to its original location or status. The IC is responsible for initiating the de-escalation/demobilization process. Demobilization planning for de-escalation/demobilization is an ongoing process that begins as soon as the response begins to facilitate accountability and ensure efficient resource management.

Tracking resource requirements and releasing those resources that are no longer required to support the response is essential for accountability and managing control. This assists in reducing the displacement of resources, reducing operating costs, and ensuring resources are available for other activities and assignments as needed.

The P&I Section Chief develops demobilization plans and ensures they are implemented as instructed by the IC.

The LER may be fully demobilized when:

- All storm-related jobs are assigned.
- Centralized Dispatch is managing events.
- All non-regional crews are released.

9 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness that is integrated into LUMA's daily operations, not just during incidents. Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, Emergency Preparedness Department staff, and PREMB personnel; and maintaining updated contact information of personnel and organizations that may assist in LUMA's restoration efforts. Every employee is expected to participate in preparedness activities throughout the year.

The Emergency Preparedness Department maintains the ERP-related training database and coordinates ERP role-related training. Training, drills, and exercises are designed and conducted to develop and improve the knowledge and skills of personnel assigned to emergency response activities and support the safe and reasonably prompt completion of all required actions during ERP activations.

The LUMA exercise program is consistent with the Homeland Security Exercise Evaluation Program (HSEEP) developed by the FEMA. The HSEEP methodology is defined and implemented using seven exercise types, broken into the categories of discussion-based exercises and operations-based exercises. LUMA employs a variety of these exercise types based on the exercise goals and objectives. The goal of conducting exercises is to enhance training, improve familiarization, evaluate, or validate plans, policies, and procedures, increase capabilities, and practice skills in a no-fault, risk-free environment.

10 Annex Development and Maintenance

This Annex is a living document. Development and maintenance of this Annex are in conjunction with the LUMA ERP. Proposed changes should be sent to the Emergency Preparedness Department of Operations for approval and inclusion.

Please reference the LUMA ERP – Base Plan, Section 13, Plan Development and Maintenance, for additional information.

11 Acronyms and Terms

11.1 Acronyms

Acronym	Term
AAR	After Action Report
CMC	Crisis Management Committee
CSR	Customer Service Representatives
DAs	Damage Assessment Strike
EOC	Emergency Operations Center
ERP	Emergency Response Plan
ESF-12	Emergency Support Function
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
HSEEP	Homeland Security Exercise Evaluation Program
HSEQ	Health Safety Environment & Quality
HVX	Hurrevac
IAP	Incident Action Plan
IC	Incident Commander

Acronym	Term
ICC	Incident Command Center
ICS	Incident Command System
IT	Information Technology
IVR	Interactive Voice Response
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
LNO	Liaison Officer
MOU	Memorandum of Understanding
NWS	National Weather Service
OMA	Operations Management Agreement
OMS	Outage Management System
P&I	Planning & Intelligence
P3A	Puerto Rico Public-Private Partnerships Authority
PIO	Public Information Officer
PREB	Puerto Rico Energy Bureau
PREMB	Puerto Rico Emergency Management Bureau
PREPA	Puerto Rico Electric Power Authority
PSA	Public Service Announcement
RC	Road Closure
ROCC	Regional Operations Command Center

Acronym	Term
SCADA	Supervisory Control and Data Acquisition
SERT	System Emergency Restoration Team
SITREP	Situational Report
T&D	Transmission & Distribution

11.2 Terms

1) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
2) **Critical Facilities** – Identified as Level 1, 2, or 3 facilities provide services that are critical to the health and safety of the public and are tied to at least one of the seven critical Community Lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.
3) **Damage Assessment** – A mechanism utilized to determine the magnitude of damage and impact of disasters.
4) **Demobilization** – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.
5) **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
6) **Emergency or Emergency Event** – Any outage event, as per the T&D Operations Management Agreement (OMA); declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LUMA Emergency Roster.
7) **Emergency Operations Center** – The physical locations at which coordination of information and resources to support incident management activities occurs.
8) **Emergency Response Plan** – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.
9) **Geographic Information Systems** – A framework used to map the distribution system with land base information.
10) **Hurrevac** (HVX)– National Hurricane Program's hurricane decision support tool used to assist in decision-making and responding to tropical cyclone threats and evacuations.
11) **Joint Information Center** – A central point of contact for new media and interest parties to coordinate incident information activities.
12) **Key Account Customers** – Large industrial customers who may have their own electrical system to which LUMA supplies power.

Appendix A – Major Outage Event Metrics

Description	Metrics	Location	Comments
1. Preparation Phase			
Completion of steps to provide timely and accurate emergency event preparation following an alert from the U.S. NWS or the company's private weather service, or the government of Puerto Rico has declared a state of emergency or when an event Is known to be imminent or has occurred, in accordance with the Emergency Response Plan, for an event expected to affect the compan''s service territory.	Completion of each step count separately:		
	1.1 Event-level categorization is based on weather forecasts, system resiliency assessment and available resources.	Base Plan: Section 6.3. Annex A: Section 4	Event Type and Activation Level determined and documented when LER activated.
	1.2 Press releases issued/text messages/emails sent.	Base Plan: Section 10.1, Annex A: Section 7	
	1.3 Municipal conference calls held.	Base Plan: Section 10.3 Annex A: Section 7	Interagency/municipal conference calls held. Participating in agency interactions through the activated PREMB zones EOCs, and KA representatives embedded in the ROCCs.
	1.4 Critical & essential customers alerted — based on established list with current information.	Base Plan: Section 10	Critical and essential customers refer to the Community Lifeline Customers.
	1.5 Point of contact for critical facilities alerted — based on established list with current information.	Contact lists are stored separately	Critical Facilities are facilities that provide services to public health and safety.
	1.6 Company compliance with the training program as specified in the Emergency Response Plan.	Base Plan: Section 12.3	Evidence of ongoing training, including courses, drills, and exercises.

Description	Metrics	Location	Comments
	1.7 Participation in all pre-event mutual assistance group calls.	Base Plan: Section 7.3 Annex A: Section 7	
	1.8 Verify materials/stockpiles level based on the forecast. If materials are not on hand, corrective steps are taken in the shortest reasonable time to correct the situation.	Base Plan: Section 8.1 Annex A: Section 4	

2. Downed Wires

Response to downed wires reported by municipal public officials.	Once the joint reporting and response process is established, LUMA will respond to all reported downed wires and take appropriate action within a reasonable time (per the event categorization), working in conjunction with local authorities after a Major Outage Event. Reported means that the situation is tracked in the Customer Information System (CIS) by the official contacting LUMA call centers or reported via the Municipal EOC through LUMA's Municipal Emergency Operations Center (OMME) Regional Interagency Coordinators (LRIACs) and /or Key Accounts representatives.	Base Plan: Section 6.6 Annex A: Section 4	A reporting and response process on how these are managed needs to be put in place jointly with municipal public officials. Fire and Police training on how to handle downed wires will be provided as requested. Reported means that the situation is tracked in the Customer Information System (CIS) by a municipal first responder contacting LUMA call centers directly or reported through a PREMB zone EOC.
	Reasonable Time Duration of Response Service — Restoration Time 3 to 5 days — 18 hours 5 to 10 days — 36 hours > 10 days — 60 hours		

Description	Metrics	Location	Comments
3. Damage Assessment			
	After the beginning of the Major Outage Event and when it is safe to do so, LUMA will begin a preliminary damage assessment of the affected area(s) or T&D facilities. The preliminary damage assessment will be completed within a "reasonable time" at the beginning of the Operation Response phase. The preliminary damage assessment will be done primarily with helicopter patrol and very limited specific land patrol to address helicopter assessment questions. Concurrent with the start of the preliminary helicopter assessment, LUMA will begin a more thorough damage assessment.	Annex A: Section 4	The thorough damage assessment (also known as the detailed damage assessments)
	Reasonable Time Duration of Response Service — Restoration Time 3 to 5 days — 36 hours 5 to 10 days — 72 hours > 10 days — 120 hours		
4. Crewing			
50% of the forecast crewing [from mutual assistance] committed to the utility.	50% of the forecast crewing [from mutual assistance] committed to the utility. Three (3) days prior to a forecasted event occurring	Annex A: Section 4	

Description	Metrics	Location	Comments
	(when the event allows that much warning time), LUMA will complete a "damage prediction" to determine crew requirements. Based on this damage prediction, the number of mutual assistance crews will be determined. LUMA will store materials, equipment, and personnel at the required location prior to the weather event striking the area. Within 24 hours of the damage prediction, 50% of indicated internal crews and qualified contract crews will be deployed. Within 48 hours of the damage prediction, 80% of the indicated internal crews and qualified contract crews will be mobilized on island.		

5. Estimated Time of Restoration (ETR) for 90% of Service Outages

Estimated Time of Restoration for 90% of service outages (made available by LUMA on the web, IVR, to Customer Service Representatives (CSRs), etc.)	Publication of regional ETRs in accordance with guidelines.	Annex A: Section 5	
	Publication of municipal ETRs in accordance with guidelines.	Annex A: Section 5	
	A preliminary ETR for 90% service restoration will be made available on the Internet 24 hours after the preliminary damage assessment.	Annex A: Section 5	
	ETRs on 90% service restoration to be made	Annex A: Section 5	

Description	Metrics	Location	Comments
	available on IVR and to CSRs by a municipality or region.		
	All ETRs are to be updated every 24 hours.	Annex A: Section 5	

6. ETR Accuracy for 90% Service Restoration

Regional ETR accuracy Municipal ETR accuracy	Accuracy for 90% of service outage restoration and published in accordance with ETR requirement time. The ETRs used for this metric will be the ETRs posted after the detailed damage assessment is completed and not based on the preliminary damage assessment.	Annex A: Section 5	

7. Municipality Coordination

Coordination with municipalities regarding road clearing, downed wires, critical customers, etc.	Through the activated PREMB zones EOCs, the LUMA local Regional Interagency Coordinator will attend all scheduled Situation Report (SITREP) meetings. The coordinator will be the conduit for municipality-specific information and requests. LUMA's Regional Interagency Coordinator will attend all scheduled SITREP meetings at activated PREMB EOCs.	Base Plan: Section 10.3 Annex A: Section 7	Through any activated PREMB EOCs or Municipal EOCs, the LUMA Interagency Coordinator or Regional Key Accounts Representatives will receive updates. To track, the zone PREMB or Municipal EOCs must be activated so that all requests flow through the respective EOCs.

8. EOC Coordination PREMB/Federal EOC Coordination

Description	Metrics	Location	Comments
Coordination with PREMB and Federal EOCs.	Through the PREMB and Federal EOCs, the LUMA Liaisons will attend all scheduled meetings. The Liaison will be the conduit for the Incident Command Center (ICC) information and requests. To track activity, the State and Federal EOCs must be activated and not a request from elected officials.	Base Plan: Section 10.3 Annex A: Section 7	Through the Commonwealth and Federal EOCs, the LUMA Interagency Coordinators and Liaisons will participate in all required scheduled meetings (telephonic, video conference, TEAMS/ZOOM, and chats) and receive updates. To track activity, the Commonwealth and Federal EOCs must be activated. Requests from elected officials outside of EOCs are not included.
9. Utility Coordination			
Coordination with other utilities (Telecommunications, water, power generation, etc.)	Establish contact points between utilities.	Base Plan: Section 7.2	
10. Safety			
Measure of any employee or contractor injured doing hazard work during storm/outage and restoration.	Record safety incidents and include them in a safety report per LUMA Health Safety Environment & Quality (HSEQ) standard.	Base Plan: Section 11.1.1 Annex A: Section 4	
11. Mutual Assistance			

Description	Metrics	Location	Comments
Crew requests made through all sources of mutual assistance or other pre-negotiated contracts with utility service providers.	Three (3) days prior to a forecasted event occurring (when the event allows that much warning time), LUMA will complete a damage prediction to determine the requirements for on and off-island mutual aid/pre-negotiated contracts with other utility service providers. LUMA will activate the required resources and place them on standby until the damage assessment is completed. After the initial damage assessment is completed, the requests for mutual assistance or other utility service provider crews will be made as follows: Within 70 hours, 40% of crews After 120 hours, 80% of committed mutual aid and other utility service provider crews will be requested.	Base Plan: Section 7.3 Annex A: Section 4	

12. Call Answer Rates

Customer calls answered by properly staffed call centers (use of IVR and other technology is an acceptable solution).		Base Plan: Section 10.2 Annex A: Section 7	

13. Web Availability

Description	Metrics	Location	Comments
The company's website, specifically the section pertaining to outage impact and restoration, must be available around the clock during a major storm event, and information must be updated hourly until final restoration. If no new information is available, the website must display the last time and date that information was updated. The website or section pertaining to outage impact and restoration may be taken offline for a short period during off-peak hours to perform system maintenance.		Base Plan: Section 10.2 Annex A: Section 7	

14. PREB and Administrator (P3A) Reporting

Provide storm event information to PREB and Administrator in accordance with LUMA's Electric Outage Management System (OMS) guideline requirements to be established in the ERP for LUMA.	Information is to be updated every 24 hours.	Base Plan: Section 10.3 Annex A: Section 7	

15. Customer Communications

Description	Metrics	Location	Comments
Availability of press releases, text messaging, email, and social media.		Base Plan: Section 10 Annex A: Section 7	

16. **Outgoing message on a telephone line**

Recorded message providing callers with outage information is updated within two hours of communication of press releases.		Base Plan: Section 10.2 Annex A: Section 7	

Table 17: Summary of Major Outage Performance Metrics.

Emergency Response Plan

Annex B – Fire Response

LUMA ENERGY

May 31, 2024

Annex B – Fire Response

Table of Contents

1 Purpose

The purpose of LUMA's Fire Response Annex (Annex B) is to describe the key functions that LUMA implements to address fire-specific events that affect facilities and infrastructure that provide electric service throughout Puerto Rico.

Annex B provides guidance to assist in protecting lives and property and maintaining continuity of service throughout the electric grid when affected by any minor or major fire-related incident or event. A vital feature of Annex B is scalability, which allows for expansion and retraction of responding resources depending on the severity of the emergency. Many emergencies are manageable at a local or internal level but can quickly escalate to a system-wide emergency.

2 Scope

Annex B applies to emergency events caused by a fire event or fire-related hazards that result in, or could result in, a major impact on the integrity of the Transmission and Distribution (T&D) System or any other disruption of electrical service to LUMA customers. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

3 Situations and Assumptions

3.1 Situation

LUMA's ability to respond to an emergency fire event or fire-related hazards to lessen the effects of power outages, public safety hazards, or property damage on communities depend upon a combination of coordinated decisions internally and externally regarding local emergency services personnel and resources. Uncontrolled fire events have the potential to expand into a major emergency and can negatively affect the safety of others, property, and the ability of LUMA to provide continuous electric service to its customers.

The effectiveness of Annex B is predicated on LUMA's commitment to prepare and implement guidance and best practices outlined within Annex B and the Emergency Response Plan (ERP) – Base Plan. Execution of the appropriate responses to affect rapid and safe preparation and recovery is dependent upon the scalability of Annex B. The number of customers affected, and the magnitude of a Major Outage Event and public safety risks vary, but the operational concept stays consistent. The level of recovery resources can be adjusted as needed.

Additional natural or man-made hazards may require a change in the Event Type, which requires flexibility in this Annex. There are five (5) Event Types and Activation Levels located in the ERP - Base Plan, Appendix A.

3.2 Assumptions and Considerations

LUMA's ability to prepare for, respond to, and recover from any type of incident that may affect the T&D System is critical. The concepts for the preparation, response, restoration, and recovery are outlined within the ERP – Base Plan and Annex A, Major Outage Restoration. Identified below are additional assumptions and considerations regarding response to emergency incidents, such as fire, which include, but are not limited to the following:

- Preemptive actions to reduce the potential impacts of fire events may be implemented in response to fire- related hazards.
- Damage Assessment Strike (DAs) determines the impact and magnitude of damage and should be conducted within a reasonable timeline.
- DA reports identify affected geographic area(s) that contribute to the estimated impacts and time of restoration baseline projection.
- Normal resources and processes for support to impacted areas for power restoration may not be enough due to the severity and duration of the outage and the extent of the damage.
- Natural and man-made emergencies, such as facility or infrastructure fire(s), may necessitate the utilization of local fire service resources.
- Fire events may present issues that require a response by law enforcement, fire departments, electric and water/wastewater utilities, public health authorities, and environmental protection agencies. In these cases, effective interagency coordination utilizing the National Incident Management System (NIMS)/Incident Command System (ICS) is essential.
- Minor or major emergency events, disasters, and acts of terrorism may adversely impact local available public safety personnel, equipment, facilities, and communications systems.
- Mutual Aid Agreements (MAA) or Memorandum of Agreements (MOA) are maintained and activated when the scope of the incident requires additional resources beyond LUMA's capabilities.
- Potential weather conditions will affect the response and restoration actions.
- Assessment, prioritizing, and scheduling of repairs are conducted throughout the response and restoration process.

4 Concept of Operations

If an emergency event results in or may result in damages to facilities or power outages, LUMA responds and rapidly assesses the impacts on the T&D System infrastructure and takes the necessary actions to mitigate cascading effects from continual power outages and implement restoration protocols.

To ensure response integration, the Puerto Rico Emergency Management Bureau's (PREMB) Incident Levels and LUMA's Event Types are utilized and identified in the ERP – Base Plan.

4.1 Activation

The efficient activation of emergency response personnel is critical to the success of any response. Fires and fire-related hazards can affect LUMA operations outside daily steady-state operational boundaries. If it is not possible to effectively manage an event through normal operating procedures or within normal departmental controls, the LUMA Emergency Roster (LER) is activated at the direction of the CMC or the LUMA Chief Executive Officer (CEO) by naming a LUMA Incident Commander (IC). Due to the size and

nature of the activation process, it is intended to be a cascading one to maximize response efficiency and consistency.

4.1.1 No-Notice Incidents

A no-notice incident occurs unexpectedly or with minimal warning. No-notice incidents do not provide emergency responders enough time to prepare for the specific event. Fire is an example of a no-notice incident. During a no-notice event, the determination of an Event Type is needed before the establishment of an Activation Level. This is done by the IC once designated by the CMC.

4.2 LUMA Event Types

The Event Type depends upon the analysis of the expected severity and complexity of an event and is drawn from the consideration of numerous factors. The LUMA Event Types and their anticipated operating conditions are described in Section 6 of the ERP and Section 7 of Annex A.

4.3 Restoration Operations

Restoration Operations conducted in response to an event impacting LUMA's distribution and transmission scheme are the responsibility of the Planning and Dispatch Team. Directives from the LUMA Emergency Operation Center (LEOC) follow the LUMA Restoration Strategy and the Concept of Operations, both of which can be found in the Major Outage Restoration Annex (Annex A, Sections 6 and 7).

4.3.1 Approach

LUMA assesses, during or after a fire, the damage to the T&D infrastructure and completes any critical repairs. The Regional Operations Command Centers (ROCCs) across the island report to the Division Branch Director(s), who directs the response of field teams.

The transition from the emergency stage to the initial response stage takes place during the time when (1) restoration personnel in the field can be deployed without unacceptable safety risks due to the continuation of hazardous conditions and (2) when the potential additional damage to the T&D System is low in proportion to the expected level of damage already suffered.

The start of the initial response stage may be different for specific areas where the effect of the incident caused other adverse conditions, such as additional debris and limiting access to damaged areas. When a fire occurs, an effective response occurs when timely and accurate information is provided which includes, but is not limited to, the following:

- Number of clients out of service.
- Amount of damage to the T&D infrastructure.
- Labor (along with their availability) to repair the damage.

In response to a fire event or fire related hazards and activation of the ERP, the operation of electrical services is carried out by following four basic steps:

1) Make safe protocols.
2) DA (preliminary and detailed assessments).
3) Prioritization of restoration.

4) Execution of tactical restoration operations.

4.3.2 Mobilization of Personnel

Most fires occur with little to no warning. Therefore, LUMA may be required to institute a safe deployment of resources depending on the Event Type.

The most critical component to mobilizing personnel is the flexibility to adapt as the threat becomes more certain.

- The IC is responsible for notifying the Command Staff of LEOC activations.
- The IC may activate other roles based on incident developments and the Event Type.
- Notifications are made in accordance with the LUMA Performance Metrics for the Mobilization of Personnel located within the ERP - Annex A.

4.3.3 Damage Assessment

DA is a key component of restoration operations. The DA process utilizes DA Teams, or additional support as needed, to physically inspect and report damages on overhead primary, secondary, transmission, and substation assets. Assessment personnel are managed through the DA Branch, and they provide access to their reports to the Planning & Intelligence (P&I) Section, the Operations Section, and the Regional Commanders, who determine resources and equipment requirements to make the repairs and restore services. The order of DA evaluation is based on the restoration priority list and interconnection of assets.

4.3.4 Restoration

As outlined in Annex A, LUMA follows restoration processes safely and efficiently to repair damage and restore electrical service. Field DAs and repairs can begin when:

- Field personnel can be deployed without safety hazards or dangerous conditions.
- The potential for additional damage to the T&D System is low.

Prioritization

Outages are prioritized by:

- Safe working conditions.
- Damage to LUMA facilities or infrastructure.
- Critical Community Lifelines, customer type, and the number of affected customers.
    - LUMA identifies a summary of Major Outage Event Performance Metrics located within the ERP, Annex A.

Situational Assessment

LUMA completes an evaluation of the system through the Supervisory Control and Data Acquisition (SCADA), Outage Management System (OMS), and reported outages from LUMA customers. When the Event Type has been determined, staff are assigned according to the structure of the LUMA identifiers.

4.3.5 Emergency Fire Event Conditions

The Restoration Priority Matrix and Critical Facility Level protocols are consistent in both normal and emergency operations for any type of event. Municipal emergency response resources, such as law

enforcement or fire departments that respond to the incident, should provide LUMA with the status of the area/facility before a DA can be conducted.

4.3.6 Make Safe Protocols

During an incident, the number of resources that are trained and readily available may be limited, and the demand could greatly exceed those available. LUMA ensures “make safe” actions are taken and acknowledges it may be necessary to contract additional resources to support safe and restoration activities.

5 Estimated Time of Restoration

Damages that cause transmission or distribution interruption due to fire, and fire-related hazard(s) which may impede restoration operations, must be investigated upon notification of an impending or immediate incident. Subsequently, timely and accurate Estimated Times of Restoration (ETRs) are provided to all LUMA customers and stakeholders. Providing accurate ETRs is a top priority of LUMA’s overall restoration process.

The flexibility of an event requires a strategic, deliberate, planning-oriented posture that allows a utility to plan:

- Resource needs
- Operational periods
- Strategic objectives
- Staff fatigue
- External communications

Expected actions related to ETRs are found in ERP Annex A, Section 5

6 Organization

This section describes the key functions of the various components and positions of the organizational structure. An orderly and consistent flow of information between operations, communications, logistics, and partner support organizations is necessary in times of Major Outage Events. The organizational charts indicating the lines of authority and the interrelationship between the organizational groups can be found in Appendix A of Annex A.

6.1 LUMA Leadership

In response to a fire event or fire-related hazards, LUMA leadership maintains an ongoing and open dialogue to discuss and share information about the impact on the T&D System. This dialogue ensures full situational awareness among leadership teams and provides a platform to facilitate discussions on the possible exchange of staff resources and other support functions between entities.

This approach provides the mechanism for consistent messages to employees, customers, and other external stakeholders. Following a fire or fire-related hazard(s), the LUMA leadership team and the CMC activate the applicable functional areas as needed.

6.2 LUMA Emergency Roster

The organizational structure of LUMA during outage restoration can be found in Appendix A of Annex A. Refer to the LUMA ERP – Base Plan for a list of roles and responsibilities.

7 Direction, Control, and Coordination

This Annex provides the framework for a systematic response when fire-related incidents occur, and restoration operations are required. Determination of an appropriate response is based on multiple factors, which include:

- DA(s)
- Determination of Event Type
- Coordinated response utilizing the ICS

The LUMA ERP, its Annexes, and Appendices, identify the framework to respond to and recover from natural and man-made events. For additional information related to direction, control, and coordination, refer to the ERP – Base Plan, Section 8.

8 Communications

LUMA provides timely, accurate, and consistent communications following a fire. Emergency communications may include alerts and warnings from verified emergency notifications. Communications may include information about protective measures, LUMA response and restoration status, available assistance, and other matters affecting LUMA's response and recovery.

The LUMA PIO communicates timely and accurate information. LUMA communicates information through a variety of methods, including but not limited to the following:

- LUMA’s website and customer app, as available.
- News media.
- Social media, including the use of Twitter, Facebook, and Instagram, among others.

LUMA has established a consistent messaging platform that is flexible enough to allow for internal or external expansion, depending on the Event Type. The Event Type chart can be found in Appendix A of the ERP - Base Plan.

9 Demobilization

The Incident IC is responsible for initiating the de-escalation/demobilization process. Demobilization is the orderly, safe, and efficient return of operations, facilities, and resources to their pre-incident status. Demobilization planning is an ongoing process that facilitates accountability and ensures efficient resource management.

Tracking resource requirements and releasing those resources that are no longer required to support the response is essential for accountability and managing incident control. This assists in reducing the loss of

resources, limiting operating costs, and ensuring retention and availability of resources for other activities and assignments as needed.

The Planning & Intelligence Section Chief (PSC) develops demobilization plans and ensures they are implemented as instructed by the IC.

The emergency response operations may be fully demobilized when:

- All event-related jobs are assigned.
- Centralized Dispatch is managing the event.
- All non-regional crews are released.

10 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness that is integrated into LUMA's daily operations, not just during incidents. Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, Emergency Preparedness Department staff, and PREMB personnel; and maintaining updated contact information of personnel and organizations that may assist in LUMA's restoration efforts. Every employee is expected to participate in preparedness activities throughout the year.

The Emergency Preparedness Department maintains the ERP-related training database and coordinates ERP role-related training. Training, drills, and exercises are designed and conducted to develop and improve the knowledge and skills of personnel assigned to emergency response activities and support the safe and reasonably prompt completion of all required actions during ERP activations.

The LUMA exercise program is consistent with the Homeland Security Exercise Evaluation Program (HSEEP) developed by the Federal Emergency Management Agency (FEMA). The HSEEP methodology is defined and implemented using seven exercise types, broken into the categories of discussion-based exercises and operations-based exercises. LUMA employs a variety of these exercise types based on the exercise goals and objectives. The goal of conducting exercises is to enhance training, improve familiarization, evaluate or validate plans, policies, and procedures, increase capabilities, and practice skills in a no-fault, risk-free environment.

11 Annex Development and Maintenance

This Annex is a living document. The development and maintenance of this Annex are in conjunction with the ERP-Base Plan. Proposed changes should be sent to the Emergency Preparedness Department for approval and inclusion.

Please reference the ERP – Base Plan, Section 13, Plan Development and Maintenance, for additional information.

12 Acronyms and Terms

12.1 Acronyms

Acronym	Term
CEO	Chief Executive Officer
CMC	Crisis Management Committee
DA	Damage Assessment
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
HSEEP	Homeland Security Exercise Evaluation Program
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
MAA	Mutual Aid Agreement
MOA	Memorandum of Agreements
NIMS	National Incident Management System
OMA	Operations Management Agreement
OMS	Outage Management System
P&I	Planning & Intelligence

Acronym	Term
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau
PSC	Planning & Intelligence Section Chief
ROCC	Regional Operations Command Center
SCADA	Supervisory Control and Data Acquisition
T&D	Transmission & Distribution

12.2 Terms

1) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedure.
2) **Damage Assessment** – A mechanism utilized to determine the magnitude of damage and impact of incidents.
3) **Demobilization** – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.
4) **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
5) **Emergency or Emergency Event** – Any outage event, as per the T&D Operations Management Agreement (OMA); declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LUMA Emergency Roster.
6) **Emergency Operations Center** – The physical locations at which coordination of information and resources to support incident management activities occurs.
7) **Incident Action Plan (IAP)** – Includes the overall incident objectives and strategies established by the Incident Commander. The Planning Section is responsible for developing and documenting the IAP.
8) **Incident Commander** – The individual appointed by the Company's Crisis Management Committee (CMC) to have overall responsibility for LUMA's response during an incident.
9) **Incident Command System** - Coordinated and collaborative incident management construct specifically designed and made a part of the NIMS under the FEMA.
10) **Joint Information Center (JIC)** – A central point of contact for new media and interest parties to coordinate incident information activities.
11) **LUMA Emergency Roster** – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation. Includes those in the EOCs and those in the field.

Appendix A – Hazards Assessment

For some areas in Puerto Rico, the dry season starts around January and extends throughout April. In May, the island experiences relief from dry conditions in some areas. Dry conditions begin to develop again around June, continuing throughout August. In Puerto Rico, the southern region is characteristically dry all year-round. This makes the zone prone to wildfires from January through May (mostly February) because of low precipitation. The vegetative material and the hydrated flora do not burn; there must be an accelerant for it to burn. Due to the abundance of woody debris/fuel following Hurricane Maria, there was an increase in wildfires within green and hydrated areas. It is estimated that Puerto Rico experiences 2,000 to 5,000 forest fires annually.

Electrical Hazards

Substations and electrical facilities contain combustible materials that can create fires and explosions due to shorts or equipment damage. The fires are generally created because of other equipment failures. Still, due to the nature of the assets, the fires can result in large outages and complicated restoration conditions.

Tree Hazards

After a fire, many trees are weakened from burning around the base of the trunk. The trees can fall over or blow down without warning. Shallow-rooted trees can also fall.

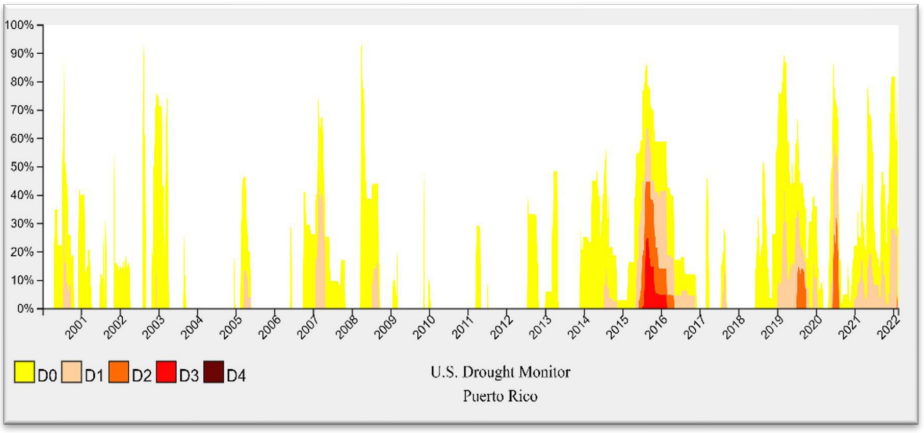

Figure 1: Drought monitor for Puerto Rico, 2001-2022.

Emergency Response Plan

Annex C – Earthquake Response

LUMA ENERGY

May 31, 2024

Annex C – Earthquake Response

Table of Contents

1 Purpose

The purpose of LUMA's Earthquake Response Annex (Annex C) is to describe the key functions that LUMA implements in response to an earthquake or earthquake-related hazard that affects the Puerto Rico Transmission and Distribution (T&D) System facilities and infrastructure that provide electric service throughout Puerto Rico.

Annex C provides guidance to assist in protecting lives and property and maintaining continuity of service throughout (T&D System) when affected by any minor or major earthquake or earthquake-related incident or event. A vital feature of this Annex is scalability, which allows for the expansion and retraction of responding resources depending on the severity of the emergency outage. Many emergencies are manageable at a local or internal level but can quickly escalate to a system-wide emergency.

2 Scope

Annex C applies to emergency events caused by earthquakes and earthquake-related hazards that result in, or could result in, a major l impact to the integrity of the T&D System or a disruption of electrical service to LUMA customers. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

3 Situations and Assumptions

3.1 Situation

Annex C applies to emergency events caused by earthquakes and earthquake-related hazards that result in, or could result in, a major potential impact on the integrity of the T&D System or disruption of electrical service to LUMA customers. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

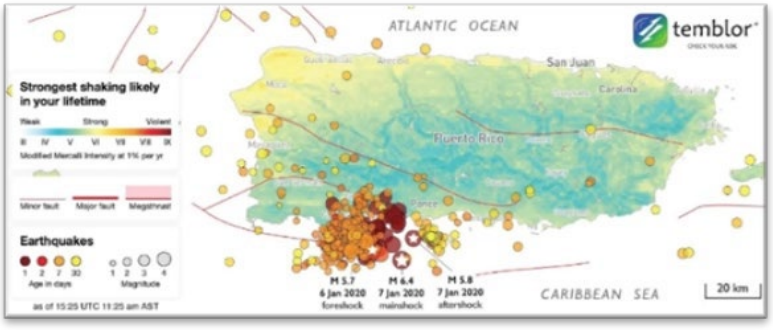

Figure 1: Puerto Rico earthquakes, Dec 2019 - Jan 2020.

The effectiveness of this Annex is centered on LUMA's commitment to prepare and implement the guidance and best practices outlined within this Annex and the rest of the Emergency Response Plan (ERP). Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected, and the magnitude of a Major Outage Event may vary, but the operational concept stays consistent. The level of recovery resources can be adjusted as needed.

Figure 2: Major geographical faults overlapping map of power generation facilities.

3.2 Assumptions and Considerations

LUMA's ability to respond to and recover from any type of incident that may affect the T&D System is critical. The concepts for the response, restoration, and recovery are outlined within the ERP – Base Plan and Annex A, Major Outage Restoration. Identified below are additional assumptions and considerations regarding response to an earthquake which include, but are not limited to, the following:

- Earthquakes of high magnitude can inflict serious structural damage to electrical infrastructure and facilities.
- Cascading effects of earthquakes may include additional damage, large quantities of debris, and simultaneous fires.
- Earthquakes can trigger earthquake-related hazards, such as aftershock earthquakes, tsunamis, surface faulting liquefaction, or landslides. For more information on these hazards, refer to Appendix A, Hazards Assessment.
- Damage assessments (DA)s determine the impact and magnitude of damage and should be conducted within a reasonable timeline.
- DA reports identify affected geographic area(s), which contribute to the Estimated Time of Restoration (ETR) baseline projection.
- Normal resources and processes for getting power restoration support to impacted areas may not be enough due to the severity of the earthquake.
- Earthquakes and earthquake-related hazards may present issues that may require a response by law enforcement, fire departments, electric and water/wastewater utilities, public health authorities, and environmental protection agencies. In these cases, effective interagency coordination utilizing the National Incident Management System (NIMS)/Incident Command System (ICS) is essential.
- Potential weather conditions may affect the response and restoration actions.
- Assessment, prioritizing, and scheduling of repairs are conducted throughout the response and restoration process.

4 Concept of Operations

In the event of a major outage due to an earthquake or earthquake-related hazards that results in damages to LUMA facilities or the T&D System, LUMA responds and rapidly assesses the impacts and takes the necessary actions to mitigate cascading effects from continual power outages and implements restoration protocols.

To facilitate response integration, the Puerto Rico Emergency Management Bureau's (PREMB) Incident Levels and LUMA's Event Types are utilized and identified in the ERP – Base Plan.

4.1 Activation

The efficient activation of emergency response personnel is critical to the success of any response. An earthquake happens with little or no warning, and Puerto Rico is at risk for such emergency events. If it is not possible to effectively manage an event through normal operating procedures or within normal departmental controls, the LUMA Emergency Roster (LER) is activated at the direction of the Crisis Management Committee (CMC) or the LUMA Chief Executive Officer (CEO) by naming a LUMA Incident Commander (IC). Due to the size and nature of the activation process, it is intended to be a cascading one to maximize response efficiency and consistency.

4.1.1 No-Notice Incidents

A no-notice incident occurs unexpectedly or with minimal warning. No-notice incidents do not provide emergency responders enough time to prepare for the specific event. An earthquake is an example of a no-notice incident. During a no-notice event, the determination of an Event Type is needed before the establishment of an Activation Level. This is done by the IC once designated by the CMC.

4.2 LUMA Event Types

The Event Type depends upon the analysis of the expected severity and complexity of an event and is drawn from the consideration of numerous factors: The LUMA Event Types and their anticipated operating conditions are described in Section 6 of the ERP – Base Plan and Section 4 of Annex A.

4.3 Restoration Operations

Restoration Operations conducted in response to an event impacting LUMA's distribution and transmission scheme are the responsibility of the Planning and Dispatch Team. Directives from the LUMA Emergency Operations Center (LEOC) follow the LUMA Restoration Strategy and the Concept of Operations, both of which can be found in full in the Major Outage Restoration Annex (Annex A, Sections 6 and 7).

4.3.1 Approach

After an earthquake, LUMA safely and efficiently assesses the damage to the T&D infrastructure and completes any critical repairs. The LUMA Regional Operations Command Centers (ROCCs) report to the Division Branch Director(s), who directs the response of field teams.

The transition from the emergency stage to the initial response stage takes place during the time when (1) restoration personnel in the field can be deployed without unacceptable safety risks due to the continuation

of hazardous conditions and (2) when the potential additional damage to the T&D System is low in proportion to the expected level of damage already suffered.

The start of the initial response stage may be different for specific areas where the effect of the emergency caused other adverse conditions, such as additional debris and limiting access to damaged areas. When an earthquake event occurs, an effective response occurs with timely and accurate information, which includes but is not limited to the following:

- Number of customers out of service.
- Amount of damage to the T&D infrastructure.
- Labor (along with their availability) to repair the damage.

After an interruption to the T&D System and activation of the ERP, the restoration of electrical services is carried out by following four basic steps:

1) Make Safe Protocols.
2) DA (preliminary and detailed assessments).
3) Prioritization of restoration.
4) Execution of tactical restoration operations.

4.3.2 Mobilization of Personnel

Earthquakes occur with no warning. Therefore, LUMA may be required to institute a rapid deployment of resources in the safest manner possible.

The most critical component to mobilizing personnel is the ability to be flexible and adapt to optimum levels as the threat or extent of damage becomes more certain.

- The IC is responsible for notifying the Command Staff of LEOC activations.
- The IC may activate other roles based on incident developments and the Event Type.
- Notifications are made in accordance with the LUMA Major Outage Performance Metrics.

4.3.3 Damage Assessment

DA is a key component of restoration operations. The DA process utilizes DA Teams, or additional support as needed, to physically inspect and report damages on overhead primary, secondary, transmission, and substation assets. Assessment personnel is managed through the DA Branch, and they provide access to their reports to the Planning & Intelligence (P&I) Section, the Operations Section, and the Regional Commanders, who determine resources and equipment requirements to make the repairs and restore services. The order of DA evaluation is based on the restoration priority list and interconnection of assets.

Assessment personnel should maintain safety and security protocols when conducting DAs after an earthquake in case of secondary earthquake-related hazards. Aftershocks may occur without warning up to days after the initial earthquake.

4.3.4 Restoration

As outlined in Annex A, LUMA follows restoration processes safely and efficiently to repair damage and restore electrical service. Field DAs and repairs can begin when:

Prioritization

Outages are prioritized by:

- Considerations of safety conditions.
- Extent of damage to LUMA facilities or infrastructure.
- Critical Community Lifelines, customer type, and the number of affected customers.
    - LUMA identifies a summary of Major Outage Event Performance Metrics located within the ERP, Annex A.

4.3.5 Emergency Earthquake Event Conditions

The Restoration Priority Matrix and Critical Facility Level protocols are consistent in both normal and emergency operations for any type of event. Municipal emergency response resources, such as law enforcement or fire departments, that respond to the incident should provide LUMA with the status of the area/facility before a DA can be conducted.

LUMA's facilities and infrastructure damages are assessed by conducting a DA. LUMA's restoration efforts focus on the prioritization objectives listed below including, but not limited to, the following:

- Responding with appropriate resources to address emergency and life-threatening conditions regarding electrical services.
- Restoration to affected Critical Community Lifelines as outlined in Annex A.
- Disseminate timely and accurate communications of system conditions.

4.3.6 Make Safe Protocols

During a minor or major event, the number of resources that are trained and readily available may be limited, and the demand could greatly exceed those available. LUMA ensures "make safe" actions are taken and acknowledges it may be necessary to contract additional resources to support safe and restoration activities.

5 Estimated Time of Restoration

Earthquake damage that causes the electric system to fail and considerations regarding earthquake-related hazard(s) that may impede restoration operations must be investigated upon notification of an impending or immediate emergency event. The timespan of an earthquake may prolong the ETR. Aftershocks, and other earthquake-related hazards, can occur after the initial event. Providing an accurate ETR is a top priority of LUMA's overall restoration process.

The flexibility of an event requires a strategic, deliberate, planning-oriented posture, which allows a utility to plan resource needs, operational periods, strategic objectives, staff fatigue, and external communications. The expected actions related to ETRs are found in Annex A of the ERP, Section 8.

6 Organization

This section describes the key functions of the various components and positions of the organizational structure. An orderly and consistent flow of information between operations, communications, logistics, and partner support organizations is necessary in times of emergency outage events. The organizational charts

indicating the lines of authority and the interrelationship between the organizational groups can be found in Appendix A of the Major Outage Restoration Annex (Annex A).

6.1 LUMA Leadership

Following an earthquake, LUMA leadership maintains an ongoing and open dialogue to discuss and share information about the impact on the T&D System. This dialogue ensures full situational awareness among leadership teams and provides a platform to facilitate discussions on the possible exchange of staff resources and other support functions between entities.

This approach provides the mechanism for consistent messages to employees, customers, and other external stakeholders. Following an earthquake or earthquake-related hazard(s), the LUMA leadership team and the CMC activate the applicable functional areas as needed.

6.2 LUMA Emergency Roster

The organizational structure of LUMA during outage restoration can be found in Appendix A of Annex A. Refer to the LUMA ERP – Base Plan for a list of roles and responsibilities.

7 Direction, Control, and Coordination

Annex C provides the framework for the systematic response when earthquake emergencies arise, and emergency restoration operations are required. Determination of an appropriate response is based on multiple factors, which include:

- DAs
- Determination of the Event Type
- Coordinated response utilizing the ICS

The ERP identifies the framework to respond to and recover from natural or man-made events. For additional information related to direction, control, and coordination, refer to the ERP – Base Plan, Section 8.

8 Communications

LUMA provides timely, accurate, and consistent communications following an earthquake. Emergency communications may include alerts and warnings from verified emergency notifications. Communications may include information about protective measures, LUMA response and restoration status, available assistance, and other matters affecting LUMA's response and recovery.

The LUMA Public Information Officer (PIO) communicates timely and accurate information. LUMA communicates information through a variety of methods, including but not limited to, the following:

- LUMA’s website and customer app, as available.
- News media.
- Social media, including the use of Twitter, Facebook, and Instagram, among others.

LUMA has established a consistent messaging platform that is flexible enough to allow for internal or external expansion, depending on the Event Type. Refer to Appendix A of the ERP – Base Plan.

9 Demobilization

The IC has the responsibility to initiate the De-escalation/Demobilization process. Demobilization is the orderly, safe, and efficient return of operations, facilities, and resources to their pre-event status. Demobilization planning is an ongoing process that facilitates accountability and ensures efficient resource management.

Tracking resource requirements and releasing those resources that are no longer required to support the response is essential for accountability and managing incident control. This assists in reducing the loss of resources, and operating costs, and ensuring the retention and availability of resources for other activities and assignments as needed.

The Planning & Intelligence Section Chief (PSC) develops demobilization plans and ensures they are implemented as instructed by the IC.

The emergency response operations may be fully demobilized when:

- All event-related jobs are assigned.
- Centralized Dispatch is managing the event.
- All non-regional crews are released.

10 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness integrated into LUMA's daily operations, not just during emergency events. Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, The Emergency Preparedness Department staff, and PREMB personnel; and maintaining updated contact information of personnel and organizations that may assist in LUMA's restoration efforts. Every employee is expected to participate in preparedness activities throughout the year.

The Emergency Preparedness Department maintains the ERP-related training database and coordinates ERP role-related training. Training, drills, and exercises are designed and conducted to develop and improve the knowledge and skills of personnel assigned to emergency response activities and to support the safe and reasonably prompt completion of all required actions during ERP activations.

The LUMA exercise program is consistent with the Homeland Security Exercise Evaluation Program (HSEEP) developed by the Federal Emergency Management Agency (FEMA). The HSEEP methodology is defined and implemented using seven exercise types, broken into the categories of discussion-based exercises and operations-based exercises. LUMA employs a variety of these exercise types based on the exercise goals and objectives. The goal of conducting exercises is to enhance training, improve familiarization, evaluate, or validate plans, policies, and procedures, increase capabilities, and practice skills in a no-fault, risk-free environment.

11 Annex Development and Maintenance

This Annex is a living document. The development and maintenance of this Annex are in conjunction with the ERP-Base Plan. Proposed changes should be sent to the Emergency Preparedness Department for approval and inclusion.

Please reference the ERP – Base Plan, Section 13, Plan Development and Maintenance, for additional information.

12 Acronyms and Terms

12.1 Acronyms

Acronym	Term
CEO	Chief Executive Officer
CMC	Crisis Management Committee
DA	Damage Assessment
EOC	Emergency Operations Center
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
HSEEP	Homeland Security Exercise Evaluation Program
IC	Incident Commander
ICS	Incident Command System
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
NIMS	National Incident Management System
OMS	Outage Management System

Acronym	Term
P&I	Planning & Intelligence
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau
PSC	Planning & Intelligence Section Chief
ROCC	Regional Operations Command Center
T&D	Transmission & Distribution

12.2 Terms

1) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedure.
2) **Damage Assessment –** A mechanism utilized to determine the magnitude of damage and impact of disasters.
3) **Demobilization** – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.
4) **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
5) **Earthquake** – A term used to describe both sudden slips on a fault and the resulting ground shaking and radiated seismic energy caused by the slip or other sudden stress changes in the earth.
6) **Earthquake** Aftershock – Shaking of the earth's surface caused by lower magnitude tremors that follow the principal earthquake.
7) **Earthquake Related Hazards** – Secondary hazards triggered by the initial earthquake. This includes but is not limited to earthquake aftershocks, tsunamis, liquefaction, surface faulting and landslides.
8) **Emergency or Emergency Event** – Any outage event, as per the T&D Operations Management Agreement (OMA); declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LUMA Emergency Roster.
9) **Emergency Operations Center** – The physical locations at which coordination of information and resources to support incident management activities occurs.
10) **Incident Action Plan** – Includes the overall incident objectives and strategies established by the IC. The Planning Section is responsible for developing and documenting the IAP.
11) **Incident Commander** – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.
12) **Incident Command System** – Coordinated and collaborative incident management construct

specifically designed and made a part of the National Incident Management System (NIMS) under the FEMA.

13) **Joint Information Center** – A central point of contact for new media and interest parties to coordinate incident information activities.
14) **Landslides** – The movement of surface material down a slope that may be triggered by weather or earthquakes.
15) **LUMA Emergency Roster** – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation. Includes those in the Emergency Operations Centers (EOCs) and those in the field.
16) **Surface Faulting** – An offset of the ground surface when fault rupture extends to the Earth's surface.

Appendix A – Hazards Assessment

Puerto Rico experiences frequent earthquakes due to the many geological faults that surround and cross over the island, as shown in Figure 3, below. Earthquakes occur when two blocks of earth, known as geological faults, suddenly slip past one another, causing a release of energy and seismic waves. Seismic waves shake the earth's crust and may cause a significant amount of damage to roads, infrastructure, buildings, and nature. Earthquakes' widespread impact and high magnitude can trigger a variety of hazards. When planning for an earthquake, there are a variety of hazards that should be taken into consideration.

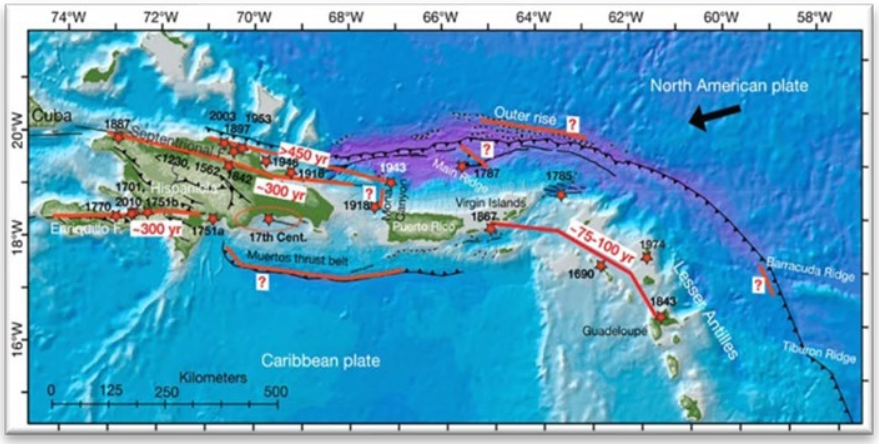

Figure 3: Puerto Rico fault lines.

Earthquake Aftershocks

Aftershocks are lower-magnitude earthquakes that occur after the main shock of a larger earthquake. They occur near the epicenter of the original earthquake or along the fault line that caused the primary quake. In many cases, they can be large enough to hamper emergency response efforts by destabilizing infrastructure and potentially causing additional stress to individuals coping with damage from the original quake. Aftershocks decrease in magnitude and frequency over time and generally are most severe in the hours and days following the primary quake.

Surface Faulting

Surface faulting is the displacement that reaches the earth's surface during a slip along a fault. It commonly occurs with shallow earthquakes, with an epicenter less than 20 km. Surface faulting can leave a visible line in the ground; noting the shift in the fault location. This can have a dramatic effect on the local infrastructure.

Landslides

A landslide is the movement of surface material down a slope. Earthquake-induced landslides are a result of the ground shaking and fault movement of an earthquake, which can potentially have a catastrophic impact on infrastructure. Landslides can include a large area of land, or surface movement that builds as it moves down the slope, both having the ability to cause significant destruction.

Tsunami

A tsunami is a sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes and has the potential to cause significant damage to coastal areas. Tsunami waves in the Puerto Rico region could have an average height of 30 feet. A tsunami on the northern coast of the island could affect the Central San Juan, Palo Seco, and Cambalache power plants. A tsunami on the southern coast of the island could affect Costa Sur, Central Aguirre, AES, and EcoEléctrica.

Emergency Response Plan

Annex D – Severe Weather Response

LUMA ENERGY

May 31, 2024

Annex D – Severe Weather Response

Table of Contents

1 Purpose

The purpose of LUMA's Storm and Hurricane Response Annex (Annex D) is to establish a comprehensive operational and tactical framework to respond to major outage restoration events caused by the effects of severe weather. The Annex defines the operational roles and responsibilities of the LUMA Crisis Management Committee (CMC) and LUMA Emergency Operations Center (LEOC) before, during, and after severe weather. This annex assists the LUMA Emergency Roster (LER) in taking the necessary actions to protect safety, maintain continuity of service, and protect lives and property. It also provides the Puerto Rico Energy Bureau (PREB), the Puerto Rico Public-Private Partnerships Authority (P3A), the Department of Economic Development and Commerce (DEDC), the Negotiated for Emergency Management and Disaster Management (NMEAD), and other agencies with guidance on how LUMA responds to and prioritizes power outages with the general principles of Community Lifelines. This Annex helps define the operational, logistical, and administrative procedures carried out before, during, and after Puerto Rico and the Transmission and Distribution (T&D) System are impacted by severe weather.

2 Scope

This Annex applies to emergency outage events caused by severe weather and related hazards that result in, or could result in, a major impact on the integrity of the T&D System or a disruption of electrical service to LUMA customers. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

3 Situations and Assumptions

3.1 Situation

Severe weather poses a threat to life and property. A major severe weather incident is likely to have significant impacts on the T&D System. Puerto Rico is vulnerable to a variety of severe weather incidents such as hurricanes and tropical storms, flooding, storm surge, thunderstorms, heavy rain, landslides, lightning, windstorms, wildfires, hailstorms, and tornadoes.

On September 20, 2017, Hurricane Maria entered the southeastern part of Puerto Rico and, crossed the entire island with winds of 155 mph and exited via the northwestern coast, leaving unprecedented catastrophic damage throughout the island. This hurricane caused very serious damage to the T&D System, causing a total blackout and collapse of communications.

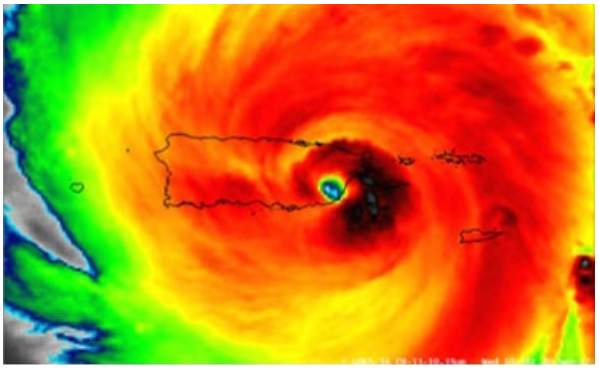

Figure 1: Hurricane Maria making landfall in Puerto Rico.

The efficiency of this Annex is based on LUMA's commitment to prepare and implement the procedures described in this Annex and the Emergency Response Plan (ERP) – Base Plan. Executing the appropriate responses to affect fast and secure recovery depends on the scalability of the Annex. The number of clients affected, and the magnitude of a Major Outage Event vary, but the operating concept remains the same.

LUMA takes a proactive approach to strengthen the T&D System throughout Puerto Rico, to withstand major weather events. Because of this, major hurricanes like Maria are less impactful for the T&D System that supplies power to LUMA customers and critical areas. Due to the configuration of Puerto Rico's T&D grid and the location of generation, LUMA focuses on strengthening critical T&D lines to distribute power to key load centers as well as the reconstruction of critical system substations.

3.2 Assumptions and Considerations

The ERP-Base Plan, Section 4, describes the general assumptions and considerations. Identified below are additional assumptions and considerations regarding response to severe weather, which should include, but are not limited to, the following:

- Puerto Rico is highly vulnerable to the dangers posed by storms and hurricanes which negatively affect the T&D System infrastructure that LUMA operates.
- Severe weather can occur at any time of the day or night, on weekends or holidays, with little or no warning.
- The succession of events in an emergency or disaster is not predictable.
- Operational plans may require modifications to meet the requirements of the incident at hand.
- Severe weather can involve high winds and rain, creating an environment for flooding and landslides. For more information on these hazards, refer to the Hazards Assessment (Appendix A).
- An emergency may be declared in advance of an impact if the information indicates that such conditions are developing or are probable.
- Weather conditions (i.e., impassable roads, and downed communication systems) may hinder the response and restoration actions.
- LUMA has a duty and responsibility to maintain, distribute, and implement the ERP.
- The response to the negative effects of severe weather should be guided by the principles of the National Response Framework (NRF), National Incident Management System (NIMS), and the Incident Command System (ICS).
- The impact of emergency events on the energy infrastructure operated by LUMA depends on the extent and severity of the damage.

- Assessment, prioritizing and scheduling of repairs are conducted throughout the response and restoration process.

4 Concept of Operations

In the event of interruptions due to a storm or hurricane that results in or may result in damage to facilities or power outages, LUMA promptly assesses the impacts on the T&D infrastructure and takes the necessary steps to mitigate the cascading effects of the ongoing power outages and implement restoration protocols. To ensure the integration of response, the incident response levels of the Puerto Rico Emergency Management Bureau (PREMB), and the LUMA event classification types are identified in the ERP - Base Plan.

During a severe weather event that is forecasted as a potential incident (i.e., a hurricane), an Activation Level is chosen before an Event Type.

4.1 Activation

The efficient activation of emergency response personnel is critical to the success of any response. Storms and hurricanes can affect LUMA operations outside daily steady-state operational boundaries. LUMA will activate the CMC to appoint an Incident Commander (IC) during significant emergencies that result in a substantial impact on T&D operations or a state/federally declared island-wide emergency. The IC is responsible for activating the Command Staff and analyzing the severity, and size of the incident together to determine if the severe weather event triggers the activation of the LEOC.

LUMA assesses the impacts on the T&D infrastructure. After the assessment, LUMA takes the necessary actions to restore Community Lifelines as rapidly as possible and minimize its impact on the citizens of Puerto Rico. LUMA utilizes Event Types (Base Plan Appendix A) for major events and phases of response.

Forecasted Potential Incidents vs. No-Notice Incidents

The process of determining the Activation Level or an Event Type may be dependent on what triggers the activation: a forecasted potential incident or a no-notice incident. See Appendix A of the ERP – Base Plan for the Activation Level Chart and the Event Type Chart, respectively.

Forecasted Potential Incidents and Scheduled Events

Forecasted potential incidents allow a preparedness window before the incident to position the organization for a response. Commonly, these incidents are atmospheric and forecasted (i.e., hurricanes). For these types of incidents, the Activation Level should be assigned first, followed by assigning an Event Type, if required. For a hurricane, an Event Type may be designated once the incident starts to negatively affect any part of the T&D System.

No-Notice Incidents

A no-notice incident occurs unexpectedly or with minimal warning. No-notice incidents do not provide emergency responders sufficient time to prepare for the specific event. The determination of an Event Type is needed before the establishment of the Activation Level during a no-notice event.

4.2 LUMA Event Types

The Event Type depends upon the analysis of the expected severity and complexity of an event and is drawn from the consideration of numerous factors: The LUMA Event Types and their anticipated operating conditions are described in Section 6 of the ERP – Base Plan and Section 7 of Annex A.

4.3 Restoration Operations

Restoration Operations conducted in response to an event impacting LUMA's distribution and transmission scheme are the responsibility of the Planning and Dispatch Team. Directives from the LEOC follow the LUMA Restoration Strategy and the Concept of Operations, both of which can be found in full in the Major Outage Restoration Annex (Annex A, Sections 6 and 7).

4.3.1 Approach

During an emergency, LUMA safely and efficiently assesses the damage to the T&D infrastructure and completes critical repairs. The LUMA Regional Operations Command Centers (ROCCs) report to the Division Branch Director(s), who directs the response of field teams.

The transition from the emergency stage to the initial response stage takes place during the time when (1) restoration personnel in the field can be deployed without unacceptable safety risks due to the continuation of hazardous conditions and (2) when the potential additional damage to the T&D System is low in proportion to the expected level of damage already suffered.

The start of the initial response stage may be different for specific areas where the effect of the emergency caused other adverse conditions, such as additional debris and limiting access to damaged areas. After the passage of a storm or hurricane, three important pieces of information must be collected to allow for an effective restoration:

- Number of customers out of service.
- Extent of damage to the T&D infrastructure.
- Labor (along with their availability) to repair the damage.

After an interruption to the T&D System and activation of the ERP, the restoration of electrical services is carried out by following four basic steps:

1) Make Safe Protocols.
2) Damage Assessment (DA) (preliminary and detailed assessments).
3) Prioritization of restoration.
4) Execution of tactical restoration operations.

4.3.2 Mobilization of Personnel

When the threat of a storm or hurricane is imminent, preventive deployment of personnel can facilitate a rapid response. The most critical component is the ability to be flexible, expanding and retracting to optimal levels as the threat becomes more secure. An anticipated major outage requires an appropriate mobilization of personnel to respond to and recover from a storm or hurricane in an efficient and timely manner.

- The IC is responsible for notifying the Command Staff of LEOC activations.
- The IC may activate other roles based on incident developments and the Event Type.

- Notifications are made in accordance with the LUMA Major Outage Performance Metrics.

4.3.3 Damage Assessment

DA is a key component of restoration operations. The DA process utilizes DA Teams, or additional support as needed, to physically inspect and report damages on overhead primary, secondary, transmission, and substation assets. Assessment personnel are managed through the DA Branch, and they provide access to their reports to the Planning & Intelligence (P&I) Section, the Operations Section, and the Regional Commanders, who determine resources and equipment requirements to make the repairs and restore services. The order of DA evaluation is based on the restoration priority list and interconnection of assets.

4.3.4 Restoration

LUMA follows restoration processes safely and efficiently to repair damage and restore electrical service. These restoration protocols are designed to restore power to as many customers as possible, in the shortest possible time, and in the safest manner possible.

Field DAs and repairs can begin when:

- Field personnel can be deployed without safety hazards or dangerous conditions.
- The potential for additional damage to the electric system is low.

Prioritization

Refer to Section 4.1 of Annex A for specific details about outage restoration priorities. Outages are prioritized for considerations of security conditions, type, and amount of damage to the system, Community Lifelines, type of customer, and the number of customers affected. LUMA focuses restoration efforts on restoring service to critical facilities such as hospitals, police departments, fire departments, and other public health and safety facilities as a matter of priority, as warranted. LUMA must make prudent decisions that have the greatest benefit to the overall stability of the T&D System and the greatest benefit to all customers.

Priority restoration cannot be guaranteed. Therefore, LUMA implements specific communication outreach programs to critical facilities, municipal governments, and key account customers to alert them to adequately prepare for potential prolonged power outages and to provide information and updates on LUMA's preparedness and restoration activities.

LUMA must assess emergency and life-threatening conditions (public safety hazards, downed wires reported by emergency services) before restoration efforts can begin.

Situational Assessment

LUMA completes an evaluation of the system through the Supervisory Control and Data Acquisition System (SCADA), Outage Management System (OMS), and reported outages from LUMA customers. When a type of event classification has been determined, staff are assigned according to the structure of the LUMA identifiers.

Please refer to Section 4 of Annex A for how activities are assigned, evaluations documented, repairs made, and service restored.

5 Estimated Time of Restoration

Potential damage from severe weather, that could cause the power grid to fail, must be investigated upon notification of an impending emergency. Severe weather hazards must be considered before providing an Estimated Time of Restoration (ETR). The lifespan of a storm may prolong the ETR, given the unpredictable nature of these phenomena.

Subsequently, timely and accurate ETR must be provided to all LUMA customers and stakeholders. Providing an accurate ETR is a top priority of LUMA's overall restoration process.

The flexibility of an event requires a strategic, deliberate, planning-oriented posture, which allows a utility to plan resource needs, operational periods, strategic objectives, staff fatigue, and external communications. The expected actions related to ETRs are found in Annex A of the ERP, Section 8.

6 Organization

This section describes the key functions of the various components and positions of the organizational structure. An orderly and consistent flow of information between operations, communications, logistics, and partner support organizations is necessary in times of emergency events. The organizational charts indicating the lines of authority and the interrelationship between the organizational groups can be found in Appendix A of the Major Outage Restoration Annex (Annex A).

6.1 LUMA Leadership

Before and during major storm and hurricane events, LUMA leadership maintains an ongoing and open dialogue to discuss and share information about an impending emergency event that may affect the power grid. This proactive dialogue ensures full situational awareness among leadership teams and provides a platform to facilitate discussions on the possible exchange of staff resources and other support functions between entities.

This approach provides the mechanism for consistent messages to employees, customers, and other external stakeholders. With the threat of a major weather event or another emergency, the LUMA leadership team and the CMC activate the applicable functional areas.

6.2 LUMA Emergency Roster

The organizational structure of LUMA during the restoration of the outage can be found in Appendix A of Annex A. Refer to the LUMA ERP – Base Plan for a list of roles and responsibilities.

7 Direction, Control, and Coordination

This annex provides the framework for a systematic response when severe weather emergencies arise, and emergency restoration operations are required. Determining an appropriate response is based on multiple factors, including:

- DAs

- Determining the type of event
- Coordinated response using the ICS.

The ERP, annexes, and appendices identify the framework for responding to, and recovering from, natural or man-made events. For additional information related to direction, control, and coordination, see the ERP – Base Plan, Section 8.

8 Communications

LUMA provides timely, accurate, and consistent communications before, during, and following a severe weather event. Emergency communications may include alerts and warnings from verified emergency notifications. Communications may include information about protective measures, LUMA response and restoration status, available assistance, and other matters affecting LUMA's response and recovery.

The LUMA Public Information Officer (PIO) communicates timely and accurate information. LUMA communicates information through a variety of methods, including but not limited to the following:

- LUMA's website and customer app
- News media
- Social media, including the use of Twitter, Facebook, and Instagram, among others.

9 Demobilization

Demobilization is the orderly, safe, and efficient return of an incident resource to its original location or state. The IC is responsible for initiating the demobilization process. Demobilization planning is an ongoing process that begins as soon as the response begins. This facilitates accountability to ensure efficient resource management.

Tracking resource requirements and releasing them when no longer needed to support the response is essential for accountability. This helps reduce resource loss, reduce operating costs, and ensures that resources are available for other activities and assignments as needed.

The Planning & Intelligence Section Chief (PSC) develops demobilization plans and ensures they are implemented as instructed by the IC. The emergency response operations can be completely demobilized when:

1) All jobs related to storms or hurricanes are reassigned.
2) Centralized Dispatch is managing events.
3) All non-regional teams are dispatched (released).

10 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness that is integrated into LUMA's daily operations, not just during emergency events. Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, The Emergency Preparedness Department staff, and PREMB personnel; and maintaining updated

contact information of personnel and organizations that may assist in LUMA's restoration efforts. Every employee is expected to participate in preparedness activities throughout the year.

The Emergency Preparedness Department maintains the ERP-related training database and coordinates ERP role-related training. Training, drills, and exercises are designed and conducted to develop and improve the knowledge and skills of personnel assigned to emergency response activities, and to support the safe and reasonably prompt completion of all required actions during ERP activations.

The LUMA exercise program follows guidelines from the Homeland Security Exercise Evaluation Program (HSEEP) developed by the Federal Emergency Management Agency (FEMA). The HSEEP methodology is defined and implemented using seven exercise types, broken into the categories of discussion-based exercises and operations-based exercises. LUMA employs a variety of these exercise types based on the exercise goals and objectives. The goal of conducting exercises is to enhance training, improve familiarization, evaluate, or validate plans, policies, and procedures, increase capabilities, and practice skills in a no-fault, risk-free environment.

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This Annex is a living document. The development and maintenance of this Annex are in conjunction with the LUMA ERP – Base Plan. Proposed changes should be sent to the Emergency Preparedness Department for approval and inclusion.

Please reference the LUMA ERP – Base Plan, Section 13, Plan Development and Maintenance for additional information.

12 Acronyms and Terms

12.1 Acronyms

Acronym	Term
CEO	Chief Executive Officer
CMC	Crisis Management Committee
DA	Damage Assessment
DEDC	Department of Economic Development and Commerce
ERP	Emergency Response Plan
ESF-12	Emergency Support Function
ETR	Estimated Time of Restoration

Acronym	Term
FEMA	Federal Emergency Management Agency
HSEEP	Homeland Security Exercise Evaluation Program
IC	Incident Commander
ICS	Incident Command System
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
LNO	Liaison Officer
NIMS	National Incident Management System
NMEAD	Negotiated for Emergency Management and Disaster Management
NRF	National Response Framework
NWS	National Weather Service
OMA	Operations Management Agreement
OMS	Outage Management System
OSC	Operations Section Chief
P3A	Puerto Rico Public-Private Partnerships Authority
P&I	Planning & Intelligence
PIO	Public Information Officer
PREB	Puerto Rico Energy Bureau
PREMB	Puerto Rico Emergency Management Bureau
PREPA	Puerto Rico Electric Power Authority
PSC	Planning & Intelligence Section Chief

Acronym	Term
ROCC	Regional Operations Command Center
SCADA	Supervisory Control and Data Acquisition
SERT	System Emergency Restoration Team
T&D	Transmission and Distribution

12.2 Terms

1) **Atmospheric Disturbance** – Area of bad weather, accompanied by heavy rains and winds.
2) **Bulletin** – Information message issued by the National Weather Service (NWS) of Puerto Rico.
3) **Emergency or Emergency Event** – Any outage event, as per the T&D Operations Management Agreement (OMA); declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LUMA Emergency Roster.
4) **Flash Flood** – Flash floods are the result of intense storms dropping large amounts of rain within a short period of time or dam failures. Flash floods occur with little or no warning and can reach a full peak in only a few minutes.
5) **Flood Warning** – Is a forecast of impending floods advising of the expected severity of flooding (minor, moderate, or major), the affected river or body of water, and when and where flooding will begin.
6) **Fujita - Pearson Tornado Scale** – A descriptive scale categorizing tornadoes by intensity, relating intensity to damage potential.
7) **Hurricane** – Storm with a defined circulation and intensity in which sustained winds reach or exceed 74 miles per hour.
8) **Hurricane, Storm, or Tropical Depression Warning** – Statement transmitted when a hurricane, storm or tropical depression is expected to hit an area within the next 24 hours.
9) **Hurricane, Storm, or Tropical Depression Watch** – Statement transmitted when the hurricane, storm or tropical depression approaches and threatens specific coastal areas or locations in the next 36 hours or less.
10) **Imminence of Hurricane, Storm, or Tropical Depression** – Indicates that the hurricane, storm, or tropical depression will hit Puerto Rico.
11) **LUMA Emergency Roster** – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation. Includes those in the EOCs and those in the field.
12) **Severe Thunderstorm Warning** – Issued by the NWS when a severe thunderstorm has been sighted or indicated by weather radar.
13) **Severe Thunderstorm Watch** – Issued by the NWS Service when the weather conditions are such that a severe storm (damaging winds 58 miles per hour or more, or hail 3/4 of an inch in diameter or greater) is likely to develop.
14) **Tropical Cyclone** – Includes hurricanes, tropical storms, and tropical depressions. These storms

are born in the tropical and subtropical Atlantic Ocean including the Caribbean Sea and the Gulf of Mexico. Tropical cyclones are classified mainly by wind speed.

15) **Tropical Depression** – A tropical low-pressure system where the maximum sustained surface wind (1-minute mean) is 33 knots (38 mph) or less.
16) **Tropical Disturbance** – Organized convection originating in the tropics/sub-tropics with a non-frontal migratory character, sustained for twenty-four hours or more.
17) **Tropical Storm Warning** – A warning that tropical storm conditions are expected in a specified area within twenty-four hours.
18) **Tropical Storm Watch** – Tropical storm conditions pose a threat to a specified area generally within thirty-six hours.
19) **Tropical Storm** – A tropical low-pressure system in which the maximum sustained surface wind (1-minute mean) ranges from 34 to 63 knots (39 to 73 mph).
20) **Warning** – Issued to forewarn an event that is imminent or has a high probability of occurring.
21) **Watch** – Term used as an alerting procedure for an event that may occur.
22) **Wind Chill** – Wind chill is a term used to describe the rate of heat loss on the human body resulting from the combined effect of low temperature and wind. As winds increase, heat is carried away from the body at a faster rate, driving down both the skin temperature and eventually the internal body temperature.

Appendix A – Hazards Assessment

Puerto Rico is in the path of storms and hurricanes, which develop in the Atlantic, crossing the Caribbean, and many affect the United States. Hurricane season begins on June 1 and ends on November 30 of each year. Hurricanes and tropical cyclones have historically caused the most damage and loss of life in Puerto Rico.

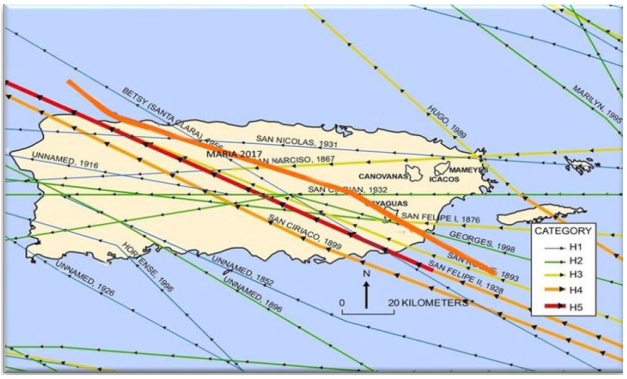

Figure 2: Hurricane trajectories through Puerto Rico.

Hurricanes are tropical cyclones that develop in the tropics. Tropical cyclones can be defined as a closed circulation that develops around a center of low pressure in which winds rotate counterclockwise in the northern hemisphere. Hurricanes, tropical cyclones, and rainstorms can create a variety of hazards.

Saffir-Simpson Scale

The Saffir-Simpson hurricane wind scale establishes categories from 1 to 5 according to the intensity of the hurricane. The scale provides examples in the United States of the different types of damage and impacts caused by winds depending on their intensity. The maximum wind speed on the surface is expressed by one (1) minute of sustained wind at the standard observation base of 33 feet over unobstructed areas.

Category	Winds (mph)	Damage
1	74-95	**Some damage:** Large branches of trees will snap, and shallowly rooted trees may be toppled. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110	**Extensive damage:** Moderate- Power outages and blackouts are expected to last several days or weeks. The supply of drinking water could be scarce due to the failure of filtration systems.
3 (major)	111-129	**Devastating damage:** Water and electricity may become scarce for several days or weeks after the storm passes.

Category	Winds (mph)	Damage
4 (major)	130-156	**Catastrophic damage:** Blackouts can last for weeks and even months. In the long run, the shortage of safe drinking water will increase human suffering. Many places in the area will remain uninhabitable for weeks and months.
5 (major)	> 157	**Catastrophic damage:** Blackouts can last for weeks and even months. The scarcity of safe drinking water will increase human suffering. Many places in the area will remain uninhabitable for weeks and months.

Table 1: Saffir-Simpson Scale description.

High Winds

A tropical cyclone can produce winds of more than 157 miles per hour. Hurricane-force winds can damage the distribution and transmission grid, as well as buildings, and destroy mobile homes and other properties. Debris, such as signs, roofing, siding, and other items, become airborne debris, causing additional injuries from hurricane damage. In addition, high-rise buildings deserve special consideration; wind pressures in the upper portions of high structures can be much higher than those on the ground floor. High-rise bridges in the areas become particularly vulnerable to strong winds. Not only could they experience wind-related structural problems, but they could also affect evacuation times. Winds are the biggest cause of material damage to the interior of the coast.

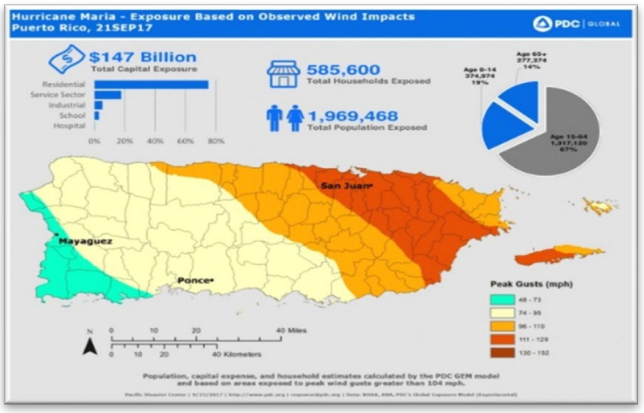

Figure 3: Hurricane Maria - exposure based on observed wind impacts.

Thunderstorms and Floods

Annual precipitation for Puerto Rico ranges from 172 inches near El Yunque National Forest (located in the Sierra de Luquillo mountains) in the eastern part of the island to less than 30 inches at Ponce in the southwest. Much of the rainfall in the wet season (May through October) derives from tropical cyclones (hurricanes and tropical storms) and easterly waves, which move from east to west, while high sea surface temperatures can also trigger local thunderstorm activity. In the dry season (November through April), rainfall is caused by cold fronts moving from west to east.

Due to Puerto Rico's geography, rains cause runoff that can quickly cause unexpected flooding by rivers, streams, or storm surges when atmospheric phenomena arrive. These floods can cause serious damage to critical infrastructure and property and cause loss of life.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Jan	5.21	1.54	3.08	1.91	1.97	3.58	2.52	3.48	4.36	2.66
Feb	2.75	2.26	3.17	1.53	2.44	4.15	4.01	1.56	4.24	2.33
Mar	2.73	2.98	9.19	3.87	1.81	2.71	3.81	6.22	3.78	3.58
Apr	5.50	4.82	5.98	4.89	4.09	3.33	6.39	8.02	5.34	4.02
May	10.89	13.90	8.39	11.40	6.80	4.15	6.36	6.41	6.64	5.94
Jun	8.65	8.42	1.68	6.40	1.66	2.39	4.75	5.52	4.15	3.20
Jul	9.81	10.00	6.00	7.25	3.46	2.35	6.59	7.11	3.69	6.50
Aug	7.83	16.43	8.13	6.57	12.12	6.00	7.78	8.43	8.20	6.36
Sep	7.33	10.69	3.97	7.72	7.22	6.07	6.03	12.98	6.12	8.56
Oct	11.95	5.71	9.07	6.90	4.26	7.44	10.33	11.27	7.57	7.35
Nov	6.12	7.77	5.96	6.84	8.47	6.81	11.79	6.74	5.69	4.35
Dec	4.74	4.03	3.64	5.86	4.17	2.66	3.85	3.21	2.30	2.84
Annual	83.51	88.55	68.26	71.14	58.47	51.64	74.21	80.95	62.08	57.69

Figure 4: Annual yearly precipitation in Puerto Rico (2010-2020).

Landslides

Landslides include all movements of soil, rock, or debris because of falling, sliding, or flowing. The triggering cause may be heavy rainfall or seismic activity. An untimely occurrence of a large earthquake during or soon after a sustained period of moderate to heavy rainfall could produce a landslide problem of monumental proportions. Large landslides across the island can happen, isolating communities, delaying response activities, limiting the provision of essential community services (Community Lifelines), and the restoration of the electricity transmission and distribution system.

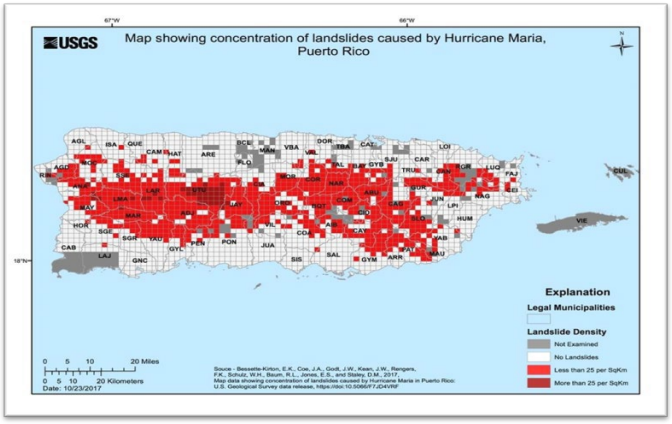

Figure 5: Concentration of landslides caused by Hurricane Maria.

Appendix B – H-136 Timeline

Note that the below table is to be used as a guide only and can be adapted based on projected impacts of the storm.

Section	Group/Unit	Task
Pre-storm – 136 hours		
CM	CM	Coordinate with the Puerto Rico National Weather Service (NWS) regarding potential tropical weather threats.
CM	CM	Brief chief executive and the CMC chair after receipt of weather advisories, as required.
CM	CM	Request IT to conduct equipment readiness within the LEOC; including alternate location(s) to include radios, telephones, and laptops.
CM	CM	The LUMA CMC or Chief Executive Officer (CEO) activates the IC. The IC considers activating the LUMA Emergency Roster (LER).
CM	CM	The IC determines the LUMA Event Type and affects the incident may or will have on the T&D Operations.
Pre-Storm - 120 hours - 5 Days Continue actions from the previous operational period as needed.		
CM	CM	Monitor the National Hurricane Center's (NHC) tropical cyclone forecasts utilizing hurricane tracking tools, (e.g., Hurrevac (HVX))
OPS	Operations Section Chief (OSC)	Consider potential threat to LUMA Transmission and Distribution Services (T&D).
CMC	Chair	Host an EOC pre-activation meeting to determine if the Emergency Response Plan (ERP) needs to be activated.
CM	CM	Prepare Tropical Weather Update in conjunction with the NWS Notifications for internal distribution until LEOC is activated.
CMC	Chair	Coordinate CMC conference call schedule, in coordination with local NWS Offices, NHC briefings and the PREMB.

Section	Group/Unit	Task
CMC	Chair	Begin strategic planning for personal preparations.
CMC	Chair	Request activation status of FEMA IMAT and appropriate teams.
CM	CM	Request follow-up meeting with IT regarding tools and technology that are operating and available for use.
CMD	IC	Determine staffing needs based on the predicted event effects on the T&D System.
OPS	OSC	Determine the need to activate contingency contract manpower, or contracts that have been pre-negotiated in accordance with LUMA.
CM	CM	Conduct communications testing; equipment and alert/notification systems.
CM	CM	Identify and analyze the locations of critical communications assets in the anticipated impact areas.
PLAN	PSC	Determine current needs and anticipate future resource gaps – develop a strategy to resolve them.
CMD	PIO	Designate a PIO point of contact for media.
CMD	PIO	Develop and disseminate pre-incident preparedness messaging via LUMA social media platforms.
Pre-Storm - 96 hours - 4 Days Continue actions from the previous operational period as needed		
CMD	IC	Activation Level is recommended by the IC or CMC.
CMC	Chair	The IC considers activating the LUMA Emergency Roster (LER).
CMD	IC	LEOC IC determines the Event Staffing Matrix.
CMD	PIO	Coordinate with Planning regarding situational awareness and response preparedness messaging.
LOGS	LSC	Validate material stock levels against the damage predictive model and Event Type.

Section	Group/Unit	Task
LOGS	LSC	Coordinate with Finance and Purchasing regarding contracts.
LOGS	LSC	Notify Fleet and provide the CM Department's activation considerations for possible activation of the Fuel Plan.
CMC	Chair	LUMA CMC Chair determines if a Declaration of an Emergency is warranted. (In conjunction with PREMB)
CMC	Chair	Brief PREMB on the LEOC Division and Branch EOC Activation Status and Pre-Event Stage Reports.
CMC	Chair	Discuss the activation of the Emergency Response Plan (ERP).
CMD	IC	Confirm what elements of crisis and incident response organization need to be activated.
CMD	PIO	PIO follows emergency response communications protocols for internal and external staff and stakeholders.
OPS	ROC	Validate resources are available and operational within the ROCCs.
OPS	OSC	Conduct discussion regarding Mutual Aid requirements based on weather predictions.
LOGS	LSC	Conduct analysis of internal resources to identify status and availability based on geographical impacts to the area.
LOGS	LSC	Meet with Procurement regarding the approved list of contractors and local vendors regarding available resources.
LOGS	LSC	Establish contact with the Regional Logistics groups to ensure processes and protocols of restoration operations are identified and updated accordingly.
PLAN	RESL	Initiate activities for appropriate resource acquisition and internal mobilization.
LOGS	LSC	Coordinate with operations the possible need for barge Embarkation and Debarkation (Reception) ports.
LOGS	FACL	Activate LUMA pre-identified staging areas as needed based on the geographical area of predicted impacts.

Section	Group/Unit	Task
OPS	OSC	Prepare staffing plan, schedules, and briefing for control centers as dictated for the Event Type and Activation Level.
OPS	T&D System Ops Branch Director	Initiate activities for appropriate resource acquisition and internal mobilization.
LOGS	LSC	Identify possible Federal support requirements.
Pre-Storm - 72 hours - 3 Days Continue actions from the previous operational period as needed.		
OPS	ROC	Prepare staffing plan and schedules for respective ROCCs and SERT (System Emergency Restoration Team) as dictated for the duration level in the response matrix and approved by the Director.
PLAN	PSC	Coordinate and participate in conference calls with local NWS Offices, PREMB, PREPA, Government, and Municipalities.
OPS	OSC	Conduct Operations Team Briefing/Conference Call.
OPS	OSC	Develop staffing roster for continued operations periods and disseminate to staff.
FIN	FSC	Implement financial tracking and resource procurement procedures.
CMD	LNO (Liaison Officer)	Coordination and participation in all FEMA Region 2 Conference Calls.
CMD	IC	Coordinate with Command and General Staff to discuss geographic areas that may be affected.
CMD	IC	Evaluate the weather predictions and coordinate with LEOC General Staff to establish the Activation Level and Event Type.
CMD	IC	In coordination with General Staff, discuss possible impacts on life safety, environment, operations, and infrastructure.
CMD	IC	Notify internal and external staff and partners, and stakeholders of the LEOC Activation Status via conference calls.
CMD	PIO	Based on predictions of weather impacts, recommend, and provide staff time to complete their pre-storm preparedness plan.

Section	Group/Unit	Task
CMD	PIO	Verify the personal preparations plan has been engaged and ensure all personnel has been provided release time to complete.
CMD	LNO	Participate in pre-event planning and operational conference calls and meetings with internal, external and Stakeholders.
CMD	PIO	Develop Public Service Announcements (PSAs) for customers that provide NWS predicted onset of hazardous weather conditions information.
OPS	ROC	Notify SERTs and other personnel of the impending threat and the level of response required.
OPS	Priority Restoration Group Branch Director	Evaluate Restoration Crews Staffing Matrix for pre-determined shifts.
OPS	OSC	Ensure the accuracy of the LEOC Staffing Rosters for the next operational periods.
OPS	Priority Restoration Group Branch Director	Review the status of Generation operations with providers.
OPS	T&D Systems Operations Branch Director	Evaluate the T&D System and OMS operational status.
OPS	T&D Systems Operations Branch Director	Ensure all T&D System redundant systems are in functional operating condition.
OPS	OSC	Coordinate the Operations Team Briefing Conference calls and meetings.
Pre-Storm - 48 hours - 2 Days Continue actions from the previous operational period as needed.		
CMC	IC	Coordinate with the LEOC Command to determine Activation Level and Event Type.

Section	Group/Unit	Task
PLAN	PSC	Establish a battle rhythm and provide it to LEOC Command Staff. Post in LEOC throughout Activation.
CMD	LNO	Coordinate approval of Pre-event notifications to key stakeholders, municipal officials, local government, and non- government organizations.
OPS	OSC	Develop and disseminate shift schedules for all SERT resources.
PLAN	RESL	Prepare Resource Request Forms (RRFs) and submit them to PREMB.
CMC	LNO	Discuss activation of ROCCs.
CMC	IC	Communicate with the Agency Administrator and CMC on LEOC Activation direction.
CMC	Chair	Brief PREMB on the LEOC Activation Status.
CMC	Chair	Participate in LEOC Meetings to discuss potential impacts on geographic areas.
CMC	Chair	Coordinate with PREMB to identify Emergency Access requirements and potential issues regarding transportation expectations.
CMD	IC	Review and approve the LEOC and other activated ROCCs Staffing Roster.
PLAN	PSC	Coordinates LEOC Planning Cycle Meetings within each Operational Period. (Planning P)
CMD	IC	LEOC Incident IC may activate the Division and Regional EOCs.
CMD	IC	Coordinate activities with the PREMB Emergency Support Function (ESF-12) agencies (PREPA, P3, etc.)
CMD	PIO	Coordinate all communications regarding LEOC status, weather predictions, and operations IAPs are approved and disseminated by the PIO.
CMD	CX & KA Specialist	Customer Experience Department performs the outbound telephone calls to LPE Customers.

Section	Group/Unit	Task
CMD	CX & KA Specialist	KA representatives share relevant information with respective government officials, partner agencies with critical facilities, and stakeholders.
OPS	OSC	Coordinate with field operations that personal protective equipment has been provided to field crews.
OPS	OSC	Provide briefings to LEOC and ROCCs for situational awareness.
OPS	OSC	Identify in coordination with PREMB Community Lifeline Customer possible potential issues.
LOGS	LSC	Address possible shelter (housing/lodging) operations and logistical needs.
LOGS	RESL	Ensure resource allocation process and procedures are being followed.
LOGS	RESL	Consider demobilization planning with OPS based on current assets and projected needs.
LOGS	LSC	Identify types of resources needed for the anticipated event in coordination with OPS.
PLAN	SITL	Provide all internal staff and external entities, partners, and stakeholders with Situational Report (SIT-REPs).
PLAN	SITL	Coordinate with GIS to provide potential areas to be affected.
FIN	FSC	Activate Emergency Response Policy and Protocols as necessary.
Pre-Storm – 24 hours – 1 Day Continue actions from the previous operational period as needed.		
CMD	PIO	Continue to focus on public information campaigns, specifically on reinforcements of protective actions.
CMD	IC	Finalize planning pre-landfall protective action requirements.
CMD	PIO	Ensure the PIO campaign is reaching target audiences and re-evaluate as necessary.

Section	Group/Unit	Task
OPS	OSC	Evaluate the T&D System Status, the OMS and report findings and provide information to Plans for the Pre-Event Stage Reports.
OPS	PRG	Establish ancillary communications assets if traditional platforms are nonfunctional or unavailable (Live ICS Forms).
CMD	LNO	Coordinate with PREMB regarding Community Lifeline Customer status.
CMD	PIO	Coordinate communications regarding LEOC status, weather predictions, and operations IAPs are approved and disseminated by the PIO.
OPS	OSC	Coordinate suspension of daily operations for the next operating period including landfall.
LOGS	COML	Identify communication equipment primary and secondary functions post-landfall to field operations, EOCs, PREMB, internal and external entities.
LOGS	FACL	Coordinate with other Section Chiefs on any anticipated resource needs.
LOGS	TRUL	Coordinate with PREMB regarding emergency services transportation requirements.
PLAN	PSC	Coordinate ongoing Planning Cycle operations.
PLAN	REGS	Ensure all Sections are providing information for the IAPs.
FIN	FSC	Provide forms and documentation required to be completed for reimbursement purposes.
CMD	IC	Review and approve IAPs for prior operational periods.
Landfall - +0 to +48 Hours Continue actions from the previous operational period as needed.		
CMD	PIO	Coordinate all communications regarding LEOC status, weather predictions, and operations IAPs are approved and disseminated by the PIO.

Section	Group/Unit	Task
CMD	LNO	Conduct ongoing communications with Puerto Rico Electric Power Authority (PREPA) regarding Generation status updates.
CMD	IC	Coordinate all approved data and information with Unified Command, if established.
CMD	IC	Update operations and discuss transitioning into a recovery based on operations, DAs and ETRs.
PLAN	PSC	Deploy DA Team, as needed.
OPS	PRG	Compare DAs and OMS reports; review with LOGS and CMD for response planning and reporting requirements.
LOGS	F&L	Coordinate feeding activities for response personnel and create schedules and locations.
OPS	FOBD	Compile response data regarding staffing status, communications availability, and safety concerns during operational briefings.
CMD	SOFR	Re-iterate that all safety measures are being followed; resource management updates are to be provided to CMD.
LOGS	LSC	Validate the status of Mutual Aid resources.
LOGS	FUL	Report Staging Areas status reports to include resource accountability and availability.
LOGS	T&FUL	Coordinate with PREMB to identify transportation concerns.
PLAN	DAGBD	Collect, analyze, and distribute DA reports in conjunction with LOGS and PLAN.
PLAN	Reporting BD	Develop the Regulatory Reporting regarding ETRs.
FIN	T&C Unit Leader	Ensure reporting and tracking of all damage-related costs are being conducted.
FIN	Cost Recovery Unit Leader	Ensure costs tracking procedures are being adhered to.
CMD	IC	Activation Level is recommended by the IC or CMC.

Section	Group/Unit	Task
CMD	IC	LEOC IC determines the Event Staffing Matrix based on the extent of impacts.
CMD	PIO	Coordinate with Planning regarding situational awareness and response preparedness messaging.
LOGS	LSC	Validate material stock levels against the damage predictive model and Event Type.
LOGS	LSC	Coordinates with Finance and Purchasing regarding contracts.
LOGS	LSC	Notify Fleet and provide the CM Department's activation considerations for possible activation of the Fuel Plan.
CMC	Chair	LUMA CMC Chair determines if a Declaration of an Emergency is warranted. (In conjunction with PREMB)
CMC	Chair	Brief PREMB on the LEOC Division and Branch EOC Activation Status and Pre-Event Stage Reports.
CMC	Chair	Discuss the activation of the Emergency Response Plan (ERP).
CMD	IC	Confirm what elements of crisis and incident response organization need to be activated.
CMD	PIO	Follows emergency response communications protocols for internal and external staff and stakeholders.
CMD	LO	Coordinate conference calls to discuss requirements for requesting waivers.
OPS	ROC	Validate resources are available and operational within the ROCCs.
OPS	OSC	Conduct discussion regarding Mutual Aid requirements based on weather predictions.
LOGS	LSC	Conduct analysis of internal resources to identify status and availability based on geographical impacts to the area.
LOGS	LSC	Meet with Procurement regarding the approved list of contractors and local vendors regarding available resources.

Section	Group/Unit	Task
LOGS	LSC	Establish contact with the Regional Logistics groups to ensure processes and protocols of restoration operations are identified and updated accordingly.
PLAN	RESL	Initiate activities for appropriate resource acquisition and internal mobilization.
LOGS	LSC	Coordinate with operations the possible need for barge Embarkation and Debarkation (Reception) ports.
LOGS	FACL	Activate LUMA pre-identified staging areas as needed based on the geographical area of predicted impacts.
OPS	T&D System Ops Branch Director	Prepare staffing plan, schedules, and briefing for control centers as dictated for the Event Type and Activation Level.
OPS	OSC	Initiate activities for appropriate resource acquisition and internal mobilization.
LOGS	LSC	Identify possible Federal support requirements.

Table 2 - H-136 timeline checklist.

Emergency Response Plan

Annex E – Cybersecurity and Terrorism

LUMA ENERGY

May 31, 2024

Annex E – Cybersecurity and Terrorism

Table of Contents

1 Purpose

The purpose of LUMA's Cybersecurity and Terrorism Annex (Annex E) is to establish an operational and tactical response to cyber and terrorist attacks. In addition to attacks, there is also a huge risk for these types of incidents to impact customers, facilities, and electrical lines. Today's modern utility systems rely heavily on high-speed communications and equipment, making the Transmission and Distribution (T&D) System more susceptible to major destruction or control by acts of terrorism.

Incidents resulting from cybersecurity and terrorist attacks present an immediate risk to the availability of energy infrastructure and control systems, having a detrimental effect on the economy, environment, and safety of Puerto Rican citizens. LUMA has also implemented a Cybersecurity Incident Response Plan (CSIRP) which is set into motion to detect, analyze, contain, eradicate, and recover from a cyber-event. This process is followed and —in conjunction with the Emergency Response Plan (ERP)— described below to mitigate and respond to adverse impacts on business operations.

In recent years, such incidents have increased, raising situational awareness to enhance protective measures. Response considerations for terrorism and cybersecurity incidents must be considered, as the outcome can potentially be devastating to the entire transmission and distribution system, potentially affecting the whole island. Annex E helps define the operational, logistical, and administrative procedures that are carried out when responding to cybersecurity and terrorist attacks.

2 Scope

This Annex applies to an operational response triggered by cybersecurity or terrorism incidents that result in, or could result in, a major impact on the integrity of the T&D System or any other interruptions to electrical services to LUMA customers. The scope of this document is intended to serve as a guide for developing response actions and coordinating with all internal and external stakeholders and governmental agencies. Note that cyber-attacks increasingly look to compromise critical data or obtain access to confidential information that may not impact the integrity of the T&D system but obtain financial or other benefits through the use or sale of information. Similar emergency processes may be used to manage those types of events, although an operational field-level response may not be required.

Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

3 Situations and Assumptions

3.1 Situation

As the threat landscape continues to evolve, it must be recognized that cybersecurity and terrorist attacks can happen anywhere and anytime, with operational and brand impacts on targets. The intent and capability of malicious attacks continue to increase while threat actors continue to use advanced tactics to the detriment of the safe and secure operation of critical infrastructures.

Puerto Rico contains critical infrastructures that are potential target to threat actors with motivation to engage in cybersecurity or terrorist attacks. It is important to understand potential motivation factors (motivators) as these may indicate the scope and magnitude of the impact of an attack. Attack motivators include:

- Financial Gain
- Recognition & Achievement
- Insider Threat
- Political Motivation
- State Actors

The motivators above may lead threat actors to consider the electrical system or supporting technologies as viable targets. Throughout Puerto Rico, there are many critical infrastructure vulnerabilities that remain a potential target for cybersecurity or terrorist attacks. This infrastructure contains assets, networks, and systems vital to sustaining life and the environment on the island. The success of this Annex is predicated on LUMA's commitment to respond, as such incidents can interrupt the economic environment, public health, and security for all.

Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the successful execution and scalability of the response plans in this Annex. The number of customers affected, and the magnitude of an emergency outage event varies. However, the operational concept stays consistent. The level of recovery resources can be adjusted as needed.

3.2 Assumptions and Considerations

The (ERP) – Base Plan and the Major Outage Restoration Annex (Annex A), describe the general assumptions and considerations. Identified below are additional assumptions and considerations regarding response to a cybersecurity or terrorist attack, which include, but are not limited to, the following:

- Cybersecurity and terrorism incidents can substantially disrupt not only security measures and the community's resilience but also electrical infrastructure and facilities.
- Terrorist attacks may or may not be preceded by a warning or a threat and may at first appear to be an ordinary power outage or system failure incident.
- Information on such incidents should be accurate, relevant, timely, and actionable.
- Threat or incident information should be shared with critical infrastructure customers.
- These incidents create challenges that are beyond normal day-to-day operational protocols, as well as tactical and operational requirements.
- Acts of terrorism and cybersecurity attacks may adversely impact the availability of local public safety personnel, equipment, facilities, and communications systems.
- Mutual Aid Agreements (MAA) or Memorandum of Agreements (MOA) are maintained and activated when the scope of the incident requires additional resources beyond LUMA's capabilities.
- LUMA utilizes the National Incident Management System (NIMS)/ Incident Command System (ICS).
- Cybersecurity and terrorism incidents or events will require federal notification and assistance.

Attack Motivator	Complexity and Required Capability	Operational Impact	Probability
Financial Gain	Low – Moderate	Low	High
Recognition & Achievement	Medium	Low – Moderate	Low
Political Motivation	High	Low – Moderate	Moderate
Corporate Espionage	High	Moderate	Low – Moderate
Insider Threat	Low – Moderate	Moderate - High	Moderate
State Actors	High	High	Low – Moderate

Table 1: Potential Motivators ranked by complexity of attack, potential operational impact, and probability of occurrence from a utility perspective.

4 Concept of Operations

In the event of a cybersecurity or terrorist attack that results in or may result in power outages, damage to facilities, or the compromise of critical or confidential data, LUMA promptly assesses the impacts on the T&D infrastructure or operations of the system and takes the necessary steps to mitigate the cascading effects of the ongoing power outages and implement restoration protocols. To ensure response integration, the Puerto Rico Emergency Management Bureau's (PREMB) Incident Levels and LUMA's Event Types are utilized and identified in the LUMA ERP - Base Plan.

LUMA has also implemented a Cybersecurity Incident Response Plan (CSIRP), which is set into motion to detect, analyze, contain, eradicate, and recover from a cyber event. This process is followed and —in conjunction with the ERP— described below to mitigate and respond to adverse impacts on business operations.

There are five (5) Event Types and Activation Levels. Please reference the Base Plan – Appendix A. During a cybersecurity or terrorist attack that is most likely to be a no-notice event, an Event Type is chosen before an Activation Level.

4.1 LEOC Activation

The Chief Information Officer (CIO) is responsible for analyzing the severity, complexity, and size of the incident to determine if a cybersecurity event requires the activation of the LUMA Emergency Operations Center (LEOC). The CIO provides a recommendation through the CSO to activate the Crisis Management Committee (CMC). The CMC evaluates the threat and decides to activate the Incident Commander (IC). IC is responsible for analyzing the severity, complexity, and size of the incident with the collaboration and input of the Command Staff to determine if a cybersecurity or Terrorism event requires the activation of additional personnel.

4.1.1 No- Notice Incidents

A no-notice incident occurs unexpectedly or with minimal warning. No-notice incidents do not provide emergency responders enough time to prepare for the specific event. A cybersecurity or terrorist attack is

generally an example of a no-notice incident. During a no-notice event, the determination of an Event Type is needed before the establishment of an Activation Level. This is done by the IC once designated by the CMC.

4.2 LUMA Event Types

The IC may deem it necessary to escalate or de-escalate an Event Type or Activation Level. This is dependent on changes in circumstances or actual conditions differing from projected conditions. The Event Types are as follows:

- Event Types 4 and 5 are Non-Emergency Events.
- Event Types 1, 2, and 3 are Emergency Events.
- Event Type 1 represents catastrophic emergency conditions.

The LUMA Event Types and their anticipated operating conditions are described in Section 6 of the Base ERP and Section 7 of Annex A.

4.3 Restoration Operations

Restoration Operations conducted in response to an event impacting LUMA's distribution and transmission scheme are the responsibility of the Planning and Dispatch Team. Directives from the LEOC follow the LUMA Restoration Strategy and the Concept of Operations, both of which can be found in full in the Major Outage Restoration Annex (Annex A, Sections 6 and 7).

4.3.1 Approach

Cybersecurity and terrorist attacks are geared toward breaking laws or being unlawful. Therefore, the response includes local and federal Law Enforcement. Following the dispatch notification regarding the cybersecurity or terrorist incident, an emergency shall be declared by the LUMA Energy Chief Executive Officer (CEO) or their designee.

4.3.2 Mobilization of Personnel

If it is not possible to effectively manage the attack or incident through normal operating procedures, the LUMA Emergency Roster (LER) is activated by the CMC at the direction of the LUMA CEO.

The IC shall subsequently establish an Event Type relative to the type and complexity of the event, resources that may be needed, and the expected impacts of the event. The LUMA Emergency Roster Structure (Appendix A in the ERP – Base Plan) is used to aid the IC in determining the staff required for emergency operations based on the Event Type. The IC then determines the required Command and General Staff needed to activate the LEOC.

LUMA may be required to institute a rapid deployment of local and federal resources in the safest manner possible, depending on the event classification. The most critical component to mobilizing personnel is the flexibility to adapt to optimum levels as the incident changes. Notifications are made in accordance with the LUMA Performance Metrics for the Mobilization of Personnel located within Annex A.

The transition from response operations to restoration operations is considered when the following are addressed:

- Mobilizing/demobilizing our organization and resources as directed by Law Enforcement.
- Overseeing the deployment and direction of our staff in the performance of the specific tasks associated with their respective function.
- Making available a well-trained workforce to staff our respective functions.
- Adhering to all applicable environment, health and safety rules, regulations, and procedures.

After an interruption and activation of the ERP, the restoration of electrical services is carried out by following four basic steps:

- Responding with appropriate resources to address emergency and life-threatening conditions regarding.
- Damage Assessment (DA) (Rapid and Detailed Assessment)
- Prioritization of Restoration
- Disseminate timely and accurate communications of system conditions.

4.3.3 Damage Assessment

DA is a key component of restoration operations. The DA process utilizes DA Teams, or additional support as needed, to physically inspect and report damages on overhead primary, secondary, transmission, and substation assets. Assessment personnel is managed through the DA Branch, and they provide access to their reports to the Planning & Intelligence (P&I) Section, the Operations Section, and the Regional Commanders, who determine resources and equipment requirements to make the repairs and restore services. The order of DA evaluation is based on the restoration priority list and interconnection of assets.

4.3.4 Restoration

In accordance with Law Enforcement safety protocols for cybersecurity and terrorist attacks, LUMA teams and restoration crews are dispatched and respond with priorities identified within the ERP.

Prioritization

Outages are prioritized by:

- Considerations of safety conditions.
- Number of damages to LUMA facilities or infrastructure.
- Critical Community Lifelines, customer type, and the number of affected customers.
    - LUMA identifies a summary of Major Outage Event Performance Metrics located within the ERP, Annex A.

Situational Assessment

LUMA completes an evaluation of the system through the Supervisory Control and Data Acquisition System (SCADA), Outage Management System (OMS), and reported outages from LUMA customers. During an emergency outage incident or event, the LUMA Public Information Officer (PIO) provides situational awareness messaging to internal and external stakeholders.

4.3.5 Make Safe Protocols

During a minor or major event, the number of resources that are trained and readily available may be limited, and the demand could greatly exceed those available. LUMA ensures “make safe” actions are taken

and acknowledges it may be necessary to contract for additional resources to support “make safe” and restoration activities.

5 Estimated Time of Restoration

A cybersecurity or terrorism incident that causes the T&D System to fail must be addressed as soon as possible. This type of emergency outage event may impede restoration operations depending on the criticality of system infrastructure, system sensitivity, and public health. Municipal emergency response resources assist LUMA in gaining detailed information regarding the status of affected T&D systems to provide status updates and reports to partners, as well as the community, throughout the incident.

The flexibility of an event requires a strategic, deliberate, planning-oriented posture, which allows a utility to plan resource needs, operational periods, strategic objectives, staff fatigue, and external communications. The expected actions related to Estimated Times of Restoration are found in Annex A of the ERP, Section 8.

6 Organization

This section describes the key functions of the various components and positions of the organizational structure. An orderly and consistent flow of information between operations, communications, logistics, and partner support organizations is necessary in times of emergency outage events. The organizational charts indicating the lines of authority and the interrelationship between the organizational groups can be found in Appendix A of Annex A.

6.1 LUMA Leadership

LUMA leadership maintains an ongoing and open dialogue to discuss and share information about the impact a cybersecurity or terrorism emergency outage event has on the T&D System. This dialogue ensures full situational awareness among leadership teams and provides a platform to facilitate discussions on the possible exchange of staff resources and other support functions between entities.

This approach provides the mechanism for consistent messages to employees, customers, and other external stakeholders. Following a cybersecurity or terrorism incident, the LUMA leadership team and the CMC activate the applicable functional areas as needed.

6.2 LUMA Emergency Roster

The organizational structure of LUMA during outage restoration can be found in Appendix A of Annex A. Refer to the LUMA ERP – Base Plan for a list of roles and responsibilities.

7 Direction, Control, and Coordination

This Annex provides the framework for the systematic response when cybersecurity or terrorism incidents arise, and emergency restoration operations are required. Determination of an appropriate response is

based on multiple factors which include a coordinated response utilizing the ICS and working together with stakeholders and various community or federal agencies.

A cybersecurity or terrorist incident may require assistance from off-island and federal agencies. Utilizing MAAs to receive these resources allows the operation and demobilization process to run smoothly. Tracking the release of resources no longer required to support the response is essential for accountability and managing incident control. This assists in reducing the loss of resources, limiting operating costs, and ensuring retention and availability of resources for other activities and assignments as needed.

The ERP and its Annexes and Appendices identify the framework to respond to and recover from natural or man-made events. For additional information related to direction, control, and coordination, refer to the ERP – Base Plan, Section 8.

8 Communications

LUMA provides timely, accurate, and consistent communications following a cybersecurity or terrorist attack. Emergency communications may include alerts and warnings from verified emergency notifications. Communications may include information about protective measures, LUMA response and restoration status, available assistance, and other matters affecting LUMA's response and recovery.

The LUMA PIO communicates timely and accurate information. LUMA communicates information through a variety of methods, including but not limited to the following:

- LUMA’s website and customer app
- News media
- Social media, including the use of Twitter, Facebook, and Instagram, among others.

LUMA has established a consistent messaging platform that is flexible enough to allow for internal or external expansion, depending on the Activation Level and Event Type.

9 Demobilization

This Annex provides the framework for the systematic response to emergencies due to cybersecurity or terrorist attacks when emergency restoration operations are required. Determination of an appropriate response is based on multiple factors, which include:

- Approach to determining response efforts between roles and responsibilities.
- Response efforts in accordance with the type of event.
- Coordinated response utilizing the NIMS and the ICS.

The IC is responsible for initiating the de-escalation/demobilization process. Demobilization is the orderly, safe, and efficient return of operations, facilities, and resources to their pre-event status. Demobilization planning is an on-going process that facilitates accountability and ensures efficient resource management.

Tracking resource requirements and releasing those resources that are no longer required to support the response is essential for accountability and managing incident control. This assists in reducing the loss of resources, and operating costs, and ensuring the retention and availability of resources for other activities and assignments as needed.

The Planning & Intelligence Section Chief (PSC) develops demobilization plans and ensures they are implemented as instructed by the IC.

The emergency response operations may be fully demobilized when:

- All event-related jobs are assigned.
- Centralized Dispatch is managing the event.
- All non-regional crews are released.

10 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness integrated into LUMA's daily operations, not just during emergency events. Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, Emergency Preparedness Department staff, and PREMB personnel; and maintaining updated contact information of personnel and organizations that may assist in LUMA's restoration efforts. Every employee is expected to participate in preparedness activities throughout the year.

The Emergency Preparedness Department maintains the ERP-related training database and coordinates ERP role-related training. Training, drills, and exercises are designed and conducted to develop and improve the knowledge and skills of personnel assigned to emergency response activities and support the safe and reasonably prompt completion of all required actions during ERP activations.

The LUMA exercise program is consistent with the Homeland Security Exercise Evaluation Program (HSEEP) developed by the Federal Emergency Management Agency (FEMA). The HSEEP methodology is defined and implemented using seven exercise types, broken into the categories of discussion-based exercises and operations-based exercises. LUMA employs a variety of these exercise types based on the exercise goals and objectives. The goal of conducting exercises is to enhance training, improve familiarization, evaluate, or validate plans, policies, and procedures, increase capabilities, and practice skills in a no-fault, risk-free environment.

11 Annex Development and Maintenance

This Annex is a living document. The development and maintenance of this Annex are in conjunction with the LUMA ERP – Base Plan. Proposed changes should be sent to the Emergency Preparedness Department for approval and inclusion.

Please reference the ERP – Base Plan, Section 13, Plan Development and Maintenance, for additional information.

12 Acronyms and Terms

12.1 Acronyms

Acronym	Term
CEO	Chief Executive Officer
CMC	Crisis Management Committee
DA	Damage Assessment
EOC	Emergency Operations Center
ERP	Emergency Response Plan
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
MAA	Mutual Aid Agreement
MOA	Memorandum of Agreements
NIMS	National Incident Management System
OMA	Operational Management Agreement
OMS	Outage Management System
P&I	Planning & Intelligence
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau

Acronym	Term
PSC	Planning & Intelligence Section Chief
SCADA	Supervisory Control and Data Acquisition
T&D	Transmission & Distribution

12.2 12.2 Term

1) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
2) **Cybersecurity** – The practice of protecting critical systems, networks, programs, and sensitive information from digital attacks.
3) **Damage Assessment** – A mechanism utilized to determine the magnitude of damage and impact of disasters.
4) **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
5) **Emergency or Emergency Event** – Any outage event, as per the T&D Operational Management Agreement (OMA); declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LER.
6) **Impede** – To delay or hinder something or a process.
7) **Incident Action Plan**– Includes the overall incident objectives and strategies established by the IC. The Planning Section is responsible for developing and documenting the IAP.
8) **Incident Commander** – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.
9) **Incident Command System** – Coordinated and collaborative incident management construct specifically designed and made a part of the NIMS under FEMA.
10) **Joint Information Center** – A central point of contact for new media and interest parties to coordinate incident information activities.
11) **LUMA Emergency Roster** – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation. Includes those in the Emergency Operations Centers (EOCs) and those in the field.
12) **Terrorism** – The unlawful use of threat violence, especially against the public or government as a politically motivated means of attack, coercion, and intimidation.

Emergency Response Plan

Annex F – Activation Guide

LUMA ENERGY

May 31, 2024

Annex F – Activation Guide

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1 Purpose

The purpose of LUMA's Emergency Response Activation Guide Annex (Annex F) is to provide a management structure, responsibilities, emergency assignments, and general procedures to follow during an emergency.

Annex F provides guidance to assist in protecting lives and property and maintaining continuity of service throughout the electric grid when affected by any incident or event. Additionally, Annex F applies to LUMA personnel and to any staff of LUMA, affiliate company employees, contractors, mutual aid resources, or any other personnel working at the direction or under the authority of LUMA. A vital feature of Annex F is scalability, which allows for expansion and retraction of responding resources depending on the severity of the emergency. Many emergencies are manageable at a local or internal level but can quickly escalate to a system-wide emergency.

2 Scope

Annex F applies to emergency events caused by any event, hazard, or threat that results in, or could result in, a major impact on the integrity of the Transmission and Distribution System (T&D) System or any other disruption of electrical service to LUMA customers and require activation of the LUMA Emergency Operations Center (LEOC). Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

LUMA defines an Emergency Outage Event as Types 3, 2, and 1 Events, as described in the Event Classification and LEOC Activation Tables found in Annex A, Tables 3 through 5. Non-emergency outage events, or Types 5 and 4 outage events, may not result in an activation of a physical LEOC found in Annex A, Tables 6 and 7.

3 Situations and Assumptions

3.1 Situation

The success of LUMA's response to an emergency event is predicated on LUMA's commitment to prepare and implement procedures outlined within Annex F and the Emergency Response Plan (ERP) – Base Plan. The number of customers affected, and the magnitude of an emergency event vary, but the operational concept stays consistent. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of Annex F. The level of recovery resources can be adjusted as needed.

Identified below are additional information and considerations regarding LEOC activation, but are not limited to the following:

- The primary LEOC is located at 1110 Av. Juan Ponce de León, San Juan, 00907, Puerto Rico.
- LUMA Energy provides electric services to approximately 1,470,000 customers in 78 municipalities in Puerto Rico.
- LUMA is responsible for the development and maintenance of the ERP.

- A variety of major outage events can adversely impact the integrity of Puerto Rico's Transmission and Distribution (T&D) System, triggering a LEOC activation.
- LUMA will manage major outage events and emergency operations from the LEOC.
- The LEOC has the capability to communicate with municipal, Government of Puerto Rico, and federal agencies when needed in times of emergency.
- Quick restoration of electric service is a customer expectation and a LUMA commitment.

3.2 Assumptions and Considerations

LUMA's ability to respond to and recover from any type of incident that may affect the T&D System is critical. The concepts for the response, restoration, and recovery are outlined within the ERP – Base Plan and Annex A, Major Outage Restoration. Identified below are additional assumptions and considerations regarding LEOC activation which include, but are not limited to, the following:

- LUMA is responsible for the development and maintenance of the Emergency Response Plan (ERP). The ERP will be activated when a LEOC activation occurs.
- In the event of an emergency or disaster, LUMA response personnel and their families may be impacted, affecting the accessibility of needed human resources in the LEOC and the field.
- An emergency outage event or major outage may occur at any time of the day or night, regardless of weekends or holidays, with little to no warning, requiring a LEOC activation.
- Response to all emergency outage events should be guided by the principles of the National Response Framework (NRF), National Incident Management System (NIMS), and the Incident Command System (ICS).
- Due to the geography of the island, resources of LUMA and Mutual Aid partners may be limited to what is on the island at the time of the emergency outage event, and it may take days or weeks to receive resources from the mainland.

4 Concept of Operations

Day-to-day outages do not require a formal activation of the LEOC. When incidents increase in complexity and become typed as emergency outage events, a higher level of coordination and resources are required outside of the immediate capabilities or availability. During these situations, LEOC may be activated to support required operations. The LEOC is the physical location from which all response activities are coordinated. It is activated and staffed based on the needs of the incident.

In the event of an incident that causes an emergency outage event, LUMA will rapidly assess the impacts on the T&D infrastructure. At this time, LUMA will take the necessary actions to restore community lifelines as rapidly as possible, minimizing the impact on the citizens of Puerto Rico.

4.1 Emergency Response Organization

LUMA Emergency Response Organization (ERO) is designed to enable effective and efficient emergency management and coordination that is both internal and external through a flexible and standardized management structure that is scalable. Therefore, it can be utilized throughout day-to-day operations and during large-scale emergency outage events.

The ERO is aligned with the National Incident Management System (NIMS) and utilizes an Incident Command System (ICS) structure. The utilization of ICS establishes lines of supervisory authority and formal reporting relationships that define clear lines of communication between different functional groups.

The number of LEOC personnel and mobilized resources will be dependent upon the size, scale, and complexity of the emergency outage event. There are three (3) defined levels to the ERO. They are classified as Strategic, Operational, and Tactical and are defined as:

- **Strategic Level**: Provides LUMA's strategic guidance for response to the LEOC staff as the LUMA Crisis Management Committee (CMC) through the Crisis Management Leader (CML). The strategic level of the ERO does not manage the emergency response or tactical operations.
- **Operational Level**: Develops LUMA's response to the emergency and oversees the implementation of the Incident Action Plan (IAP). This group consists of the LEOC staff and can include the Regional Operations Command Center (ROCC), when activated.
- **Tactical Level**: Implements LUMA's response to the emergency and reports to the ROCCs, when activated, or the LEOC. This group is composed of the System Emergency Response Teams (SERTs), damage assessment teams, and others.

4.2 Activation

The efficient activation of emergency response personnel is critical to the success of any response. Storms and hurricanes can affect LUMA operations outside daily steady-state operational boundaries. During significant emergencies that result in a substantial impact on T&D operations or a state/federally declared island-wide emergency, LUMA will activate the CMC to appoint an Incident Commander (IC). The IC is responsible for activating the Command Staff and analyzing the severity, complexity, and size of the incident together to determine if the severe weather event triggers the activation of the LEOC.

4.2.1 Forecasted Potential Incidents vs. No-Notice Incidents

Forecasted Potential Incidents and Scheduled Events

Forecasted potential incidents allow for a preparedness window before the incident happens to posture the organization for a response. These incidents will be atmospheric most of the time. Forecasted events, such as scheduled protests, sporting events, conventions, etc., have the potential to result in an unplanned incident. For these types of incidents, a LEOC Activation Level should be assigned first, followed by assigning an Event Classification Type, if needed. An Event Classification Type may be chosen once an incident starts to negatively affect any part of the T&D System.

No-Notice Incidents

A no-notice incident is one that occurs unexpectedly or with minimal warning. The lack of warning and the quick response time required introduces distinct challenges. No-notice incidents do not provide emergency responders sufficient time to prepare for the specific incident. This greatly affects LUMA's ability to pre-position needed assets and resources, as well as warn and direct the public. Some examples of no-notice incidents include earthquakes, tsunamis, chemical spills, explosions, blackouts, and terrorist attacks. For a no-notice incident, the determination of an Event Classification Type is needed first, followed by the establishment of the LEOC Activation Level.

It is important to re-evaluate the LEOC Activation Level and Event Classification Type every 12-24 hours, at a minimum. The Activation Decision Flowchart (Figure 1) outlines these processes.

4.3 Response Operations

The effective and timely activation of emergency response personnel is critical to the success of the response. During significant emergencies that result in a substantial impact on T&D operations or a state/federally declared island-wide emergency, LUMA will activate the CMC to appoint an IC. The IC will activate the Command Staff and General Staff to support the needs of the response effort.

LUMA assesses the impacts on the T&D infrastructure. After the assessment, LUMA takes the necessary actions to restore Community Lifelines as rapidly as possible and minimize its impact on the citizens of Puerto Rico. LUMA utilizes Event Types (Base Plan Appendix A) for major events and phases of response.

4.3.1 Scope

If it is not possible to effectively manage an event through normal operating procedures, the LUMA Emergency Roster (LER) is activated at the direction of the CMC or the LUMA CEO after naming the LUMA IC. Due to the size and nature of the activation process, it is intended to be a cascading activation to maximize response efficiency and consistency.

4.3.2 Emergency Declaration Process

The emergency response process begins with an evaluation of system conditions that contribute to identifying the Event Type and Activation Level. The order of determining an Event Type and Activation Level may be dependent on the cause of the activation: a forecasted potential incident or a no-notice incident.

At least one of the following conditions should be met to request a CMC meeting to determine if LEOC should be activated.

- Developing conditions within 120 hours of arriving in Puerto Rico that could present a potential risk to the T&D system of < 10% (70,000) customer outage.
- No notice event with severity damage within a specific district or region that restoration activities are carried out within 48-72 hours.
- Adverse events such as demonstrations, marches, riots, or any situation with high media visibility or heightened physical security alert posture.

The Corporate Services Officer (CSO) will recommend convening the CMC when one of these circumstances occurs to discuss it and determine if LEOC should be activated.

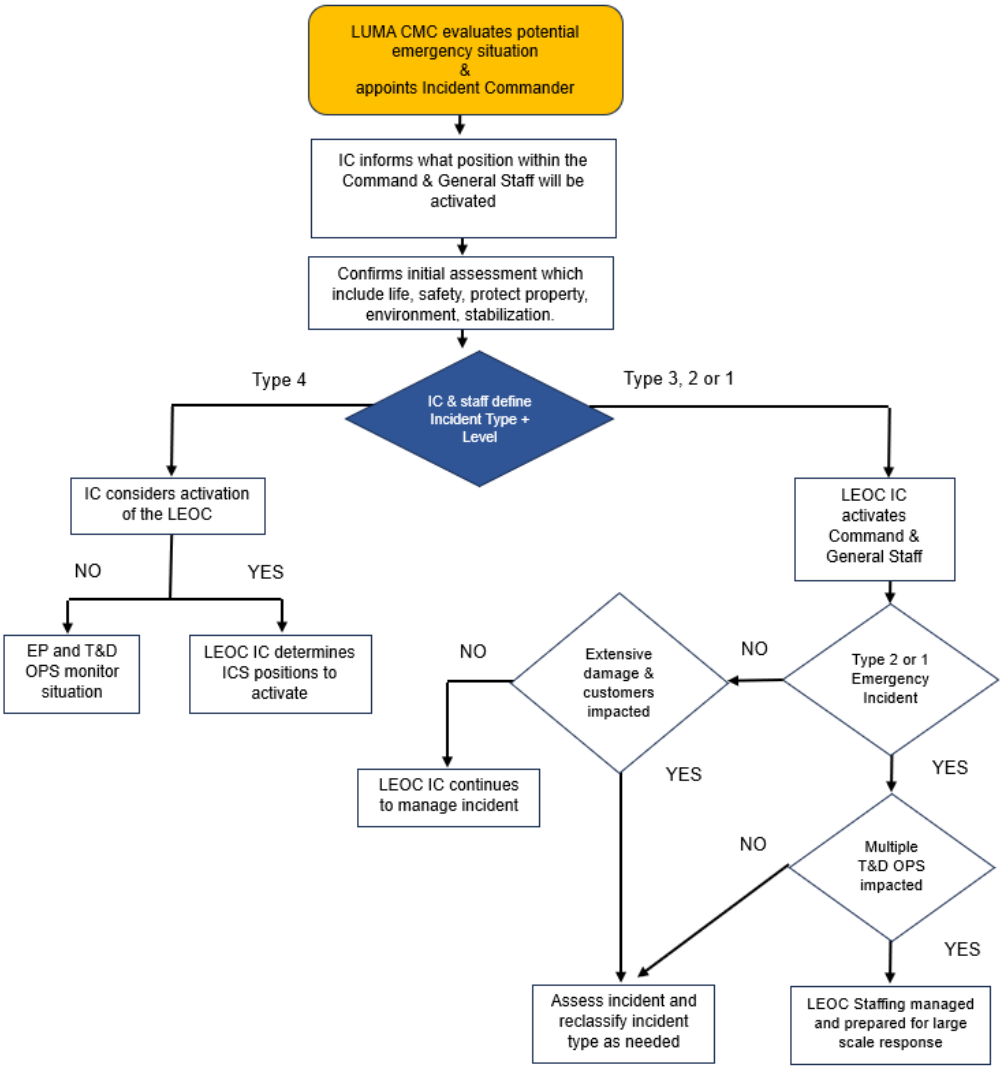

Figure 1: Emergency declaration flowchart.

4.3.3 LER Activation

If it is not possible to effectively manage an event through normal operating, the LUMA Emergency Roster is activated in the direction of the CMC or the LUMA CEO by naming the LUMA IC. Due to the size and nature of the activation process, it is intended to be a cascading activation to maximize response efficiency and consistency.

LUMA employees on the LEOC standby list for the current period will be contacted by the Emergency Preparedness office at least 72 hours before the arrival of a system with high potential development moving toward Puerto Rico. The intent is to give situational awareness and provide ample time to these employees to implement their family action plan before reporting to the LEOC if recalled. These announcements could

be made, as well as, for special events with the potential to escalate LUMA's physical or cyber security posture.

For No-Notice events, if it causes a total or significant (>25% (350,000) customer black-out, LER personnel on standby status should self-report as soon as possible.

4.3.4 Weather Updates

Emergency Preparedness will commence sending the weather update to the CMC and other personnel when there is a disturbance or tropical depression with a high chance (>60%) of cyclone formation with models showing that it is heading to the Caribbean with an estimated arrival time within 120 hrs. or less.

The CMC weather update summarizes the system's current situation, forecast, and potential impact. Additionally, it will have wind speed probability and warnings/cone graphics. Weather updates will cease once there is no direct impact on current weather conditions. Nevertheless, it does not mean that the response level will change since other considerations take effect on this status.

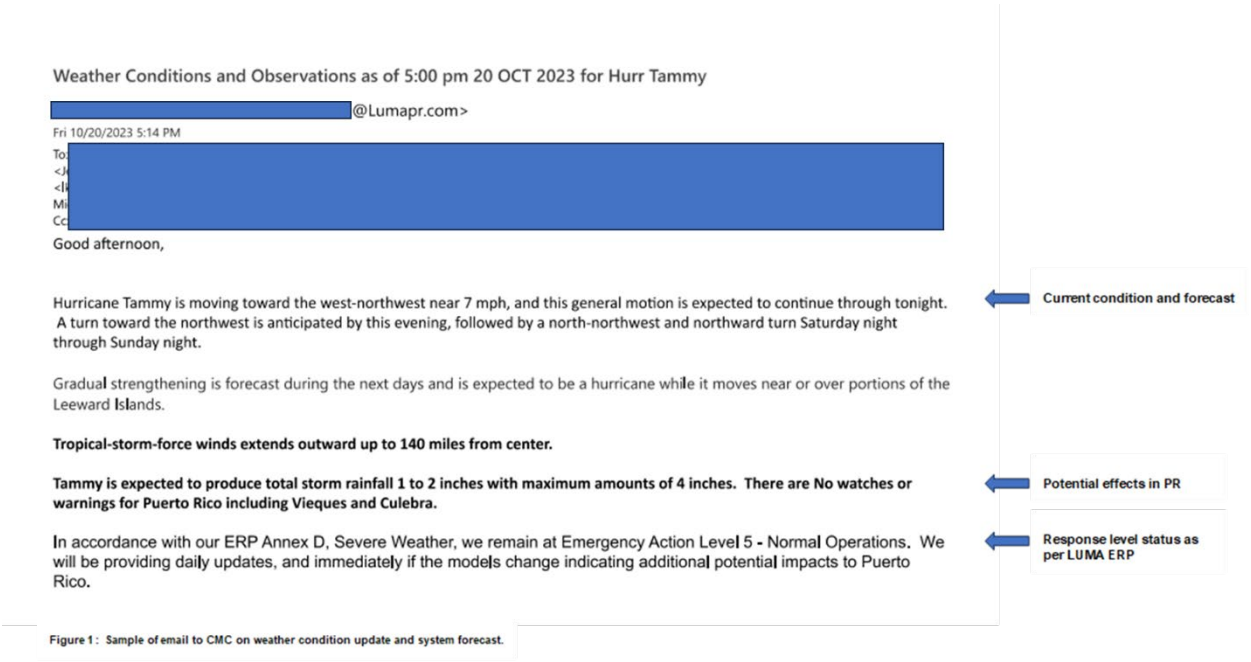

Figure 2: Weather conditions notification email example.

5 LEOC Activation Process

This Annex describes general procedures for the activation of the LEOC at the request of the Incident Command. Upon activation at any level, the LEOC serves as the centralized location to monitor and report the impact of the emergency while providing communications between the LEOC, the ROCC's, stakeholders, government entities, and customers. The LEOC is the focal point for the coordination, and support of emergency response and recovery activities for LUMA.

The effective and timely activation of the LEOC is critical for the success of the response.

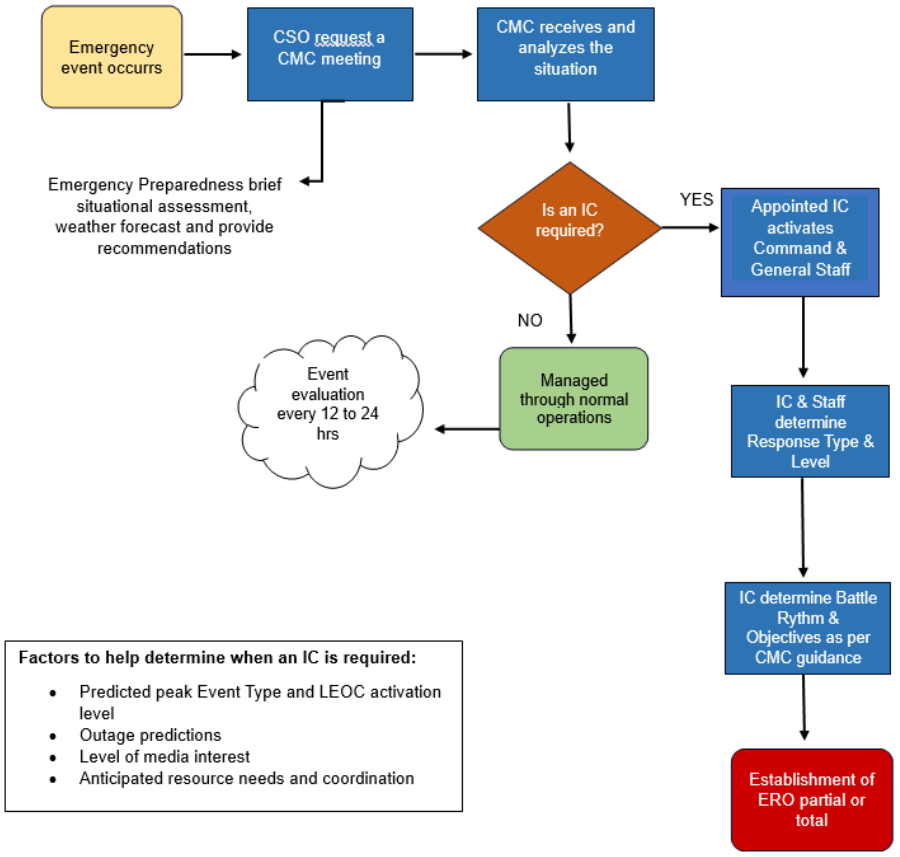

Figure 3 Process for the activation flowchart.

6 Acronyms and Terms

6.1 Acronyms

Acronym	Term
CMC	Crisis Management Committee
CML	Crisis Management Leader
CSO	Corporate Services Officer
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
NIMS	National Incident Management System
NRF	National Response Framework

6.2 Terms

13) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
14) **Critical Facilities** – Identified as Level 1, 2, or 3 facilities provide services that are critical to the health and safety of the public and are tied to at least one of the seven critical Community Lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.
15) **Damage Assessment** – A mechanism utilized to determine the magnitude of damage and impact

of disasters.

16) **Demobilization** – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.
17) **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
18) **Emergency or Emergency Event** – Any outage event, as per the T&D OMA; declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LUMA Emergency Roster.
19) **Emergency Operations Center (EOC)**– The physical locations at which coordination of information and resources to support incident management activities occurs.
20) **Emergency Response Plan** – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.

Emergency Response Plan

Annex G – Communication Guidelines

LUMA ENERGY

May 31, 2024

Annex G – Communication Guidelines

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1 Purpose

The purpose of LUMA's Emergency Response Communication Guidelines Annex (Annex G) is to provide a management structure, responsibilities, emergency assignments, and general procedures to establish communications during emergencies.

LUMA recognizes the need for interagency communication, interoperability, and cooperation, as well as within the company. Today's public safety realities highlight the need for agencies to work together to establish communications interoperability and mutual aid plans—not only across traditional jurisdictional boundaries—but across disciplines as well. Annex G provides guidance about how information will be disseminated within the organization during various emergencies, ensuring that employees, stakeholders, and other relevant parties are informed, safe, and can respond effectively.

The principal objective of this Annex is to provide key decision-makers from LUMA and various agencies with a real-time means of direct communication.

2 Scope

Annex G applies to emergency events caused by any event, hazard, or threat that results in, or could result in, a major impact on the integrity of the ordinary communication system that requires the implementation of this Annex. LUMA Emergency Operations Center (LEOC) activation is not necessarily required as the situation may only be a communication failure. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

3 Situations and Assumptions

3.1 Situation

The success of LUMA's response to a Major Outage is predicated on LUMA's commitment to prepare and implement procedures outlined within Annex G and the Emergency Response Plan (ERP) – Base Plan. The number of customers affected, and the magnitude of a Major Outage Event vary. However, the operational concept stays consistent. The execution of the appropriate responses to affect rapid and safe recovery is dependent upon the ability to effectively communicate with LUMA key personnel, partner agencies, and other important players. The level of recovery resources can be adjusted as needed.

Identified below are additional information and considerations regarding LEOC activation, but are not limited to the following:

- The primary LEOC is located at 1110 Av. Juan Ponce de León, San Juan, 00907, Puerto Rico.
- LUMA Energy provides electric services to approximately 1,470,000 customers in 78 municipalities in Puerto Rico.
- LUMA is responsible for the development and maintenance of the ERP.
- A variety of major outage events can adversely impact the integrity of Puerto Rico's Transmission and Distribution (T&D) System, triggering a LEOC activation.

- LUMA will manage major outage events and emergency operations from the LEOC.
- The LEOC has direct communications with GeneraPR and Puerto Rico Electric Power Authority (PREPA) Emergency Operations Centers (EOCs) using line lines and alternate means such as chats, emails, interagency coordinators, and satellite phones, among others. Figure 2 illustrates the process.
- The LEOC has the capability to establish alternate communications systems with municipal, Government of Puerto Rico, and federal agencies when needed in times of emergency.
- Quick restoration of electric service is a customer expectation and a LUMA commitment.

3.2 Assumptions and Considerations

LUMA's ability to respond to, and recover, from any type of incident that will affect the T&D System is critical. The concepts for the response, restoration, and recovery are outlined within the ERP – Base Plan and Annex A- Major Outage Restoration. Identified below are additional assumptions and considerations regarding LEOC activation, which include, but are not limited to, the following:

- LUMA is responsible for the development and maintenance of the ERP. The ERP will be activated when a LEOC activation occurs.
- In the event of an emergency or disaster, LUMA response personnel and their families may be impacted, affecting the accessibility of needed human resources in the LEOC and the field.
- An emergency outage event or major outage may occur at any time of the day or night, regardless of weekends or holidays, with little to no warning, requiring a LEOC activation.
- Response to all emergency outage events should be guided by the principles of the National Response Framework (NRF), National Incident Management System (NIMS), and the Incident Command System (ICS).
- Due to the geography of the island, resources of LUMA and Mutual Aid partners may be limited to what is on the island at the time of the emergency outage event, and it may take days or weeks to receive resources from the mainland.
- Traditional means of communication might not be available, but knowledge of the use of alternate systems is paramount to preserve information flow and maintain situational awareness at all levels.

4 Concept of Operations

Day-to-day outages do not require a formal activation of the LEOC. When incidents increase in complexity and become typed as emergency outage event, a higher level of coordination and resources are required outside of the immediate capabilities or availability. On the other hand, the types of emergencies described in the base plan do not necessarily involve a disruption of normal communications, but we must plan for these potential communication failures.

In the event of an incident that causes an emergency outage event, LUMA will rapidly assess the impacts on the T&D infrastructure. At this time, LUMA will take the necessary actions to restore community lifelines as rapidly as possible, minimizing the impact on the citizens of Puerto Rico. However, to achieve this, we must have a reliable system of communication that is accompanied by an alternative plan that allows for rapid reaction and coordination at all levels.

4.1 Activation

The efficient activation of emergency response personnel is critical to the success of the response. During significant emergencies that result in a substantial impact on T&D operations or a state/federally declared island-wide emergency, LUMA will activate the Crisis Management Committee (CMC) to appoint an Incident Commander (IC). The IC is responsible for activating the Command Staff and analyzing the severity, complexity, and size of the incident together to determine if the severe weather event triggers the activation of the LEOC.

4.1.1 Forecasted Potential Incidents vs. No-Notice Incidents

Forecasted Potential Incidents and Scheduled Events

Forecasted potential incidents allow for a preparedness window before the incident happens to posture the organization for a response. These incidents will be atmospheric most of the time. Forecasted events, such as scheduled protests, sporting events, conventions, etc., have the potential to result in an unplanned incident. For these types of incidents, a LEOC Activation Level should be assigned first, followed by assigning an Event Classification Type, if needed. An Event Classification Type may be chosen once an incident starts to negatively affect any part of the T&D System.

No- Notice Incidents

A no-notice incident is one that occurs unexpectedly or with minimal warning. The lack of warning and the quick response time required introduces distinct challenges. No-notice incidents do not provide emergency responders sufficient time to prepare for the specific incident. This greatly affects LUMA's ability to pre-position needed assets and resources, as well as warn and direct the public. Some examples of no-notice incidents include earthquakes, tsunamis, chemical spills, explosions, blackouts, and terrorist attacks. For a no-notice incident, the determination of an Event Classification Type is needed first, followed by the establishment of the LEOC Activation Level.

It is important to re-evaluate the LEOC Activation Level and Event Classification Type every 12-24 hours, at a minimum. The Activation Decision Flowchart (Figure 1) outlines these processes.

4.2 Communication Operations

The effective and timely activation of emergency response personnel is critical to the success of the response. During significant emergencies that result in a substantial impact to T&D operations or a state/federally declared island-wide emergency, LUMA will activate the CMC to appoint an IC. The IC will activate the Command Staff and General Staff to support the needs of the response effort.

LUMA assesses the impacts on the T&D infrastructure. After the assessment, LUMA takes the necessary actions to restore Community Lifelines as rapidly as possible and minimize its impact on the citizens of Puerto Rico. LUMA utilizes Event Types (Base Plan and Appendix A) for major events and phases of response.

4.2.1 Scope

Communicating during emergencies is critical for ensuring effective coordination during all phases of the response, communities' wellbeing, and the safety of everyone involved in these operations. The scope of communications during emergencies includes:

- **Alerts and Warnings**: Providing timely and accurate alerts to the public about potential emergencies, such as severe weather, natural disasters, or public threats.
- **Emergency Notifications**: Disseminating information about the nature of the emergency, recommended actions, and other instructions to affected areas.
- **Coordination**: Facilitating communication and coordination among first responders, emergency services, government agencies, and other relevant organizations to ensure an effective response.
- **Resource Allocation**: Managing and communicating resource availability and allocation, including supplies, equipment, and personnel.
- **Community Engagement**: Engaging with the community to provide information, address concerns, and encourage preparedness and resilience.
- **Media Relations**: Coordinating with the media to ensure accurate and timely reporting of emergency information and updates.
- **Digital and social media**: Utilizing digital platforms and social media to reach a wider audience and provide real-time updates.

The scope of communications during emergencies is broad and multifaceted, and it plays a crucial role in saving lives and minimizing the impact of disasters and crises.

If it is not possible to effectively manage an event through normal operating procedures, the LUMA Emergency Roster is activated in the direction of the CMC or the LUMA Chief Executive Officer (CEO) by naming the IC. Due to the size and nature of the activation process, it is intended to be a cascading activation to maximize response efficiency and consistency.

4.3 Information Sharing

Information sharing is the timely, accurate, and actionable exchange of information between private organizations, public organizations, and Non-Governmental Organizations (NGOs) in multiple jurisdictions and disciplines. It is crucial for enhancing situational awareness, fostering effective response coordination, and preventing potential risks. Proper and timely key information assists in making appropriate decisions and planning based on current and reliable data with the purpose of mitigating adverse effects in emergency situations. LUMA is committed to sharing information with key stakeholders to assist them with their course of action and decision-making process.

Figure 1 describes how LUMA communicates with different partners to keep them informed about the status of restoration work and estimated recovery projections. Likewise, reports are received on the status of the situation and priority issues. Any issues that could potentially impact operations should be promptly communicated to LUMA.

Information Sharing

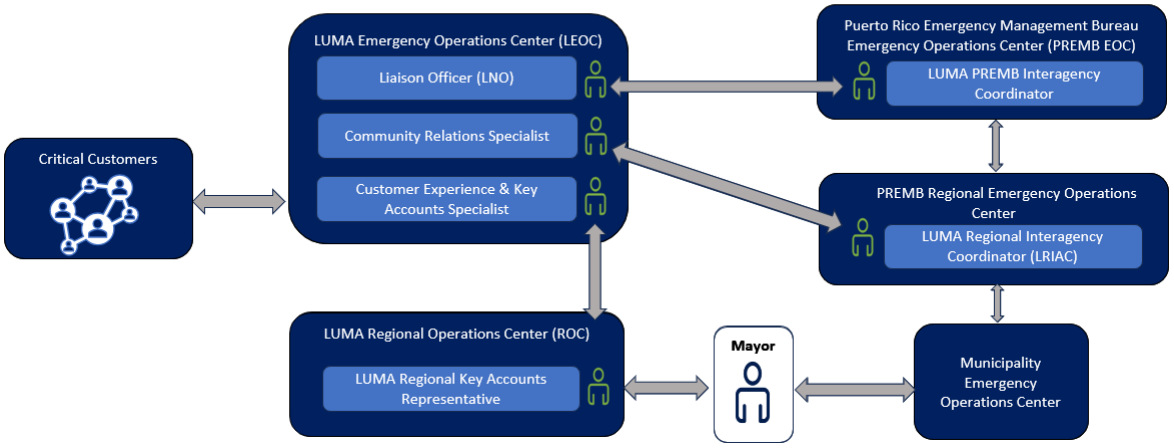


Figure 1: Information sharing flow between LUMA and key partners.

4.3.1 Key Accounts

Communication between LUMA, each of the 78 municipalities in Puerto Rico, and agencies with Critical Infrastructure are essential elements of effective emergency response. LUMA is committed to regular and transparent communications with all mayors, government officials, and critical accounts representatives in an emergency.

Key Accounts Representatives establish and maintain ongoing relationships with government officials, partner agencies housing critical facilities and stakeholders, aiding in emergency and outage planning. They organize annual meetings, at minimum, to verify the accuracy and completeness of contact information and critical facility locations. Key Account Representatives, additionally, collaborate with Emergency Preparedness Department Staff, the Puerto Rico Emergency Management Bureau (PREMB), and government agencies personnel annually to update critical facility lists, ensuring all changes are documented as well as socializing the ERP update that corresponds to that year's revision. In addition, they review the communication channels with the one-pager titled "Communications with Municipalities and in an Emergency." This document presents a flowchart and detailed description of the communication protocol during emergencies, ensuring situational awareness. For a comprehensive list of critical facilities and their levels during restoration events, please consult Appendix C of the Base Plan.

Before, during, and after an emergency, to ensure a coordinated response, it is critical that LUMA and municipalities/mayors follow the lines of communication established in accordance with the NIMS.

Key Accounts Representatives contact municipal officials and partner agencies during an incident to provide situational awareness information, including the status of emergency conditions, outage and restoration updates, and road blockages. This information encompasses damaged utility poles, blocked roads, downed power lines, and obstacles hindering access to critical facilities, creating urgency and risk. Additionally, they report on the presence and needs of emergency personnel and impacted critical facilities, in accordance with the LUMA Major Outage Metrics (found in Appendix A of Annex A).

4.3.2 Contact Centers

During emergency situations, there may be a need to increase staffing levels beyond the standard coverage at the Contact Center. In such cases, the Contact Center director will ensure sufficient staffing to handle the maximum influx of electric emergency calls efficiently and courteously. Staff augmentation can be achieved through various methods, including the deployment of live agents and automated systems, utilizing both internal and external resources. Prior to significant events, the Contact Center Operations Director will notify Contact Center advisors that outage-related calls will be prioritized over non-outage inquiries (such as flickering lights or billing concerns). Customers will be advised to call back once the volume of emergency calls subsides and will be redirected to self-service options through the Interactive Voice Response (IVR), MILUMA APP and MiLUMA app. Contact Center advisors are responsible for fielding electric emergency calls and furnishing restoration updates to customers, while also managing staffing levels and generating metrics reports.

Determining the necessity to augment Contact Center staff is contingent upon several factors, including storm severity, the number of customer outages, targeted call answer rates, lost customer calls, incoming governmental inquiries, service calls from critical facilities like hospitals, and any significant events impacting LUMA facilities or necessitating communication with customers or government entities.

Efficient operation of the Contact Center staff and technologies is guided by industry best practices and standards. Under normal conditions, the target call wait time is two minutes, with a maximum wait time of 20 minutes during emergencies, which may prompt the activation of additional personnel or contractors. Additionally, the percentage of abandoned calls is capped at 5% in steady-state scenarios but should not exceed 12% during emergencies, signaling the need for personnel or contractor augmentation.

Prior to the occurrence of an emergency event, the LUMA Customer Experience Department activates the outbound telephone calls to Life Preserving Equipment Dependent (LPE) Customers. The telephone messages are customized and contain event information and LUMA preparation actions. This information addresses potential power outages and provides recommended protective actions to seek assistance from local public safety officials and human service agencies, as necessary.

Step 1 – Contact the Billing Services team to get the up-to-date list of LPE Customers.

Step 2 – Use the list to work with the GIS Specialist to see which LPE Customers are impacted due to the incident.

Step 3 – Work with the Public Information Officer (PIO) to get approved customer communication to be used to contact the LPE Customers.

Step 4 – Use the list of impacted (LPE) Customers to send to the Contact Center to have advisors do call-outs. Ensure the Contact Center does this in a timely fashion and reports the results back to the Customer Experience & Key Accounts Specialist (CUSE LEOC position).

Step 5 – Provide updates to the LEOC on how many customers have been contacted.

These calls are in accordance with the LUMA Major Outage Metrics (found in Appendix A of Annex A). Personalized calls are attempted at least three (3) times. If there is no answer and when an answering service is available, the LUMA representative will leave a voice message. All of this is documented.

When the client refers additional needs, the LUMA representative will advise based on the information and refer to the Customer Experience & Key Account specialist at the command section of the LEOC, who will leverage their established relationships and refer the need to the appropriate agency or OMME.

4.3.3 PIO (Social Media and Public Announcements)

The PIO, Employee Communications Specialist, Digital Communications Specialist, and Customer Experience Specialist (PIO Team) have overall responsibility for crafting response information to be disseminated to external and internal stakeholders upon approval by the IC to: Media Outlets, Employees, and Customers.

The Communications functions provide a variety of critical information to LUMA customers and employees using a set of diverse communications resources, procedures, and interactions in advance of and immediately following an emergency event. The information varies from pre-event alert notifications and personal protective-action recommendations to post-event updates on projected outage impacts and restoration activities.

LUMA Standard Operational Guide: Public Information Officer Communication, Technical Document describes in detail the strategies that LUMA uses to disseminate information during emergencies. This document describes the content and frequency of the reports that are tailored to the recipient thereof.

4.3.4 PREMB, PREPA, PREB & GENERA-PR

During emergency events, LUMA, via its activated Interagency Coordinators, furnishes detailed reports to government agency representatives or officials regarding emergency conditions and restoration status in each affected region. The PREMB, situated in the PREMB EOCs, takes charge of, and supports emergency preparedness and response activities throughout the Government of Puerto Rico. When PREMB zones EOCs are activated, the IC, with facilitation from the LNO, triggers the LUMA Regional Interagency Coordinators (LRIACs). LRIACs primarily serve as LUMA's point of contact in the PREMB zones EOCs, conveying regional emergency priorities to the LEOC. Additionally, LRIACs aid PREMB zones EOCs in verifying if regional T&D System emergencies or outages have been reported to the LUMA Contact Center or LEOC. These LRIACs may receive support from a LUMA Regional Key Account Representative with established relationships with mayors during non-emergency periods. Figure 2 illustrates the communication among energy stakeholders.

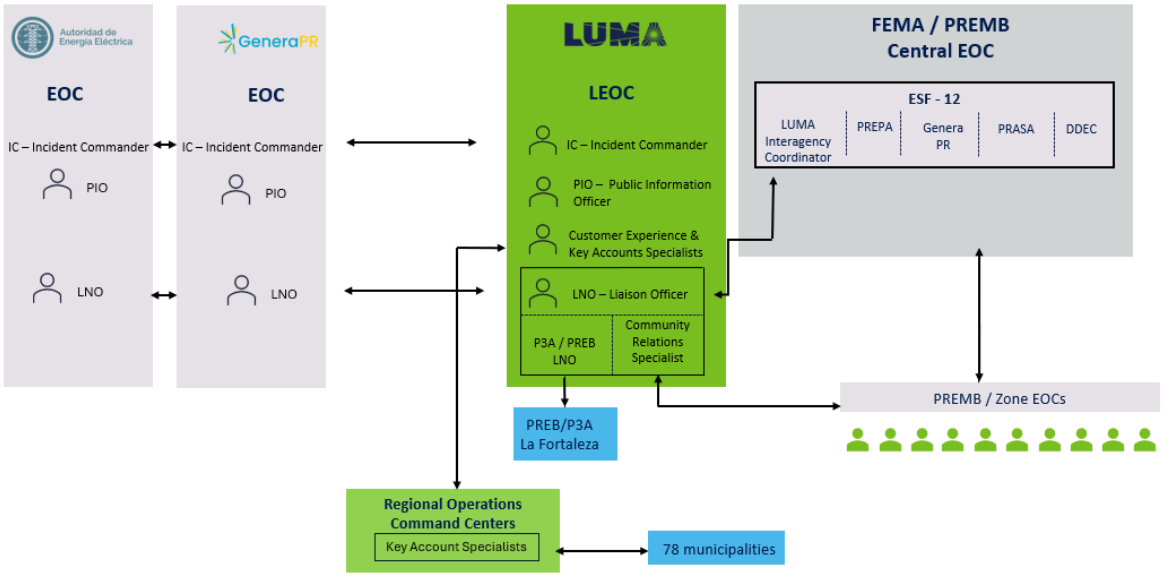


Figure 2: Communication among Energy Stakeholders

To track activity, the Commonwealth and Federal EOCs must be activated. Requests from elected officials outside of EOCs are not included.

File storm event information to PREB and Administrator, in accordance with the Major Outage Restoration Annex established in the reporting requirements during the event (section of tables 15-18).

5 Communication Plan

The need to communicate is immediate when an emergency occurs. Many different audiences must be reached with information specific to their interests and needs.

5.1 PACE

Maintaining operability, interoperability, and continuity of emergency communications is critical for emergency response, regardless of the operating conditions. Primary, Alternate, Contingency, and Emergency (PACE) communications plans are a tool for helping organizations prepare for backup communications capabilities in out-of-the-ordinary situations. PACE planning helps organizations establish options for redundant communications capabilities if primary capabilities are disrupted or degraded. Perfect situational awareness is not always possible, and communications may be impacted by environmental factors affecting infrastructure, equipment, and users. The PACE concept takes redundancy beyond the typical planning of having a primary means and a backup. A PACE plan is triggered when the primary capability becomes unavailable.

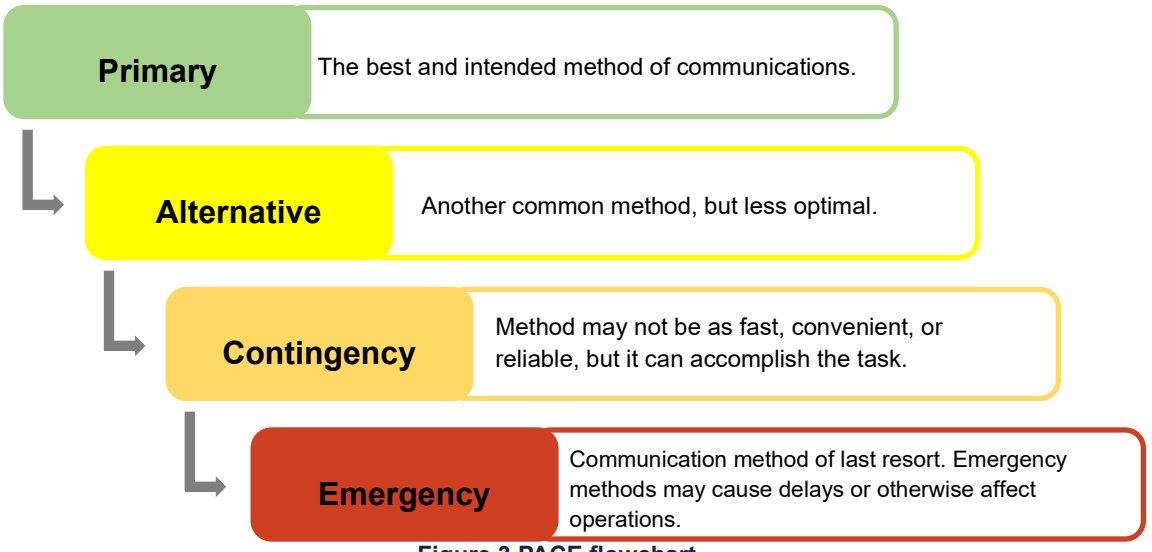


Figure 3 PACE flowchart.

Alternate forms of communications have been established for use if primary systems fail, including Landlines in the LEOC and the ROCC's, satellite telephones and FirstNet Cellular service, town hall meetings, and runners. A list of all numbers is shared with key stakeholders, mayors, PREPA, and Genera-PR. Telephones and FirstNet testing networks are done periodically. Table 1 depicts LUMA's PACE communication plan for situations of primary system disruption or degradation.

The effective and timely activation of the LEOC is critical for the success of the response.

PACE Communication Plan

Primary	Landlines	Cellphones	LAN	Wifi
Alternate	Cellphones	Hot Spots (Wifi)	First Net®	
Contingency	Satellite Systems			
Emergency	HF radios	Runners		

Table 1 PACE description.

5.2 Communication Readiness

Maintaining emergency communications capability before, during and after emergencies is critical for sharing life-saving information. LUMA has multiple backup communications capabilities to ensure that the mission can still be accomplished if primary systems are lost or degraded. It is important to properly test the backup system to achieve this level of preparedness.

LUMA's backup communication system is regularly tested and evaluated to confirm it is operational and reliable.

Annually, LUMA will conduct a communication-specific tabletop exercise (TTX) to evaluate the current plan, concept, and resources. As well as interoperable capabilities and gaps. Following the completion of a TTX, an AAR feeds into the process Improvement Plans (IPs) containing specific initiatives to improve communications interoperability in the participating community. The Exercise Methodology should be used with the general principles for planning and conducting effective exercises put forth by the Department of Homeland Security (DHS). It should also adhere to the Homeland Security Exercise and Evaluation Program's (HSEEP) guidelines.

5.2.1 FirstNet®

Built within AT&T, it is a network for first responders and those who support them. Subscribers always maintain priority across the LTE-Band 14 spectrum plus all AT&T's commercial LTE spectrum bands. LUMA employees with company cellphones have this service.

5.2.2 Satellite Systems for Wi-Fi

Information Technology (IT)/OT has a mini CRD, a portable FirstNet deployable kit contained in two ruggedized cases. This system allows you to create your own FirstNet Cellular and Wi-Fi hotspots, even in the most remote environment. The mini CRD will be located where it is most needed based on the LEOC IC guidance and priorities.

5.2.3 Satellites Phones

The use of satellite phones is for situations when all other telecommunication capabilities are unavailable. The use of this capability would allow the continuity of emergency operations and support all restoration activities in a safe and coordinated manner.

In the event of hurricanes or severely adverse weather conditions, all LUMA regions (ROCCs) and identified response personnel with satellite phones are instructed to have their satellite phones ready as a contingency measure according to the PACE plan.

The need for a satellite phone directory, both internally and externally, with stakeholders, stems from the inherent unpredictability and potential disruption of traditional communication channels during emergencies. Satellite phones offer reliable communication in remote areas or when traditional networks fail, making them vital for maintaining connectivity in crisis situations. By having an updated directory in the SharePoint of the Emergency Preparedness Department Satellite Phone List.xlsx, LUMA responders can quickly access essential contact information, ensuring efficient coordination and response efforts during emergencies. Continuous updates are crucial to reflect any changes in contact details, ensuring the accuracy and effectiveness of the communication network when it's needed most.

Each employee with an assigned satellite phone has the responsibility to inspect and test their satellite phone monthly, which serves the double purpose of testing the equipment and keeping the directory updated. Below are the steps to follow to ensure that the satellite phone works correctly when you need it.

- Check the antenna: One of the most common causes of problems with satellite phones is a damaged or improperly positioned antenna. Make sure the antenna is fully extended and pointing toward the sky. If you notice any damage to the antenna, contact the Emergency Preparedness office.
- Make sure you have a clear line of sight: Satellite phones require a clear line of sight for the satellite to function properly. Make sure you are outside and away from any obstructions, such as buildings or trees, that may be blocking the signal.

- Test the SIM card: If you are having problems with your satellite phone, the SIM card may be damaged or not inserted correctly. Remove the SIM card from your phone, inspect it for visible damage, and reinsert it, making sure it is seated correctly.
- Check the battery: A weak or dead battery can cause a variety of problems with your satellite phone. Make sure the battery is fully charged and in good working condition. If you suspect that your battery may be defective, contact the Emergency Preparedness office for further instructions.
- Restart your phone: If you are having problems with your satellite phone, a simple restart may solve the problem. Turn off your phone, remove the battery, wait a few seconds, then reinsert the battery and turn on the phone again. This will fix any temporary issues that may be affecting your phone's performance.
- Update Firmware – Outdated firmware can cause compatibility issues and other problems with your satellite phone. Please refer to your phone's user manual or contact your service provider for instructions on how to update your phone's firmware. IT/OT personnel can assist in updating it.
- Check for interference: Electronic devices, such as computers and other communications equipment, can cause interference with your satellite phone signal. If you are having problems with your satellite phone, try moving away from any potential sources of interference to see if the problem resolves itself.
- Try the phone in a different location: If you are having problems with your satellite phone, the problem may be related to your current location. Try using your phone in a different area to see if the problem persists. If the issue is location-specific, it may be due to a temporary issue with the satellite network or a local environmental factor.

5.2.4 Emergency Means of Communication

LUMA Interagency Regional Coordinators (LIARC) at each PREMB zone EOC and LUMA's Interagency Coordinator at PREMB EOC will have situational awareness from their assigned location. LIARC will share all relevant information with LEOC using these EOCs' means of communication to have a common operational picture with all responding assets. Also, LUMA can request PREMB assistance through PREPA to establish communication platforms where needed to expedite the recovery efforts. In situations where LEOC does not have communication, runners will be assigned to relay information and reports to and from PREMB's EOC. This will be dependent on PREMB's EOC battle rhythm, and LEOC needs as per the IC objectives.

6 Acronyms and Terms

6.1 Acronyms

Acronym	Term
CEO	Chief Executive Officer
DHS	Department of Homeland Security
EOC	Emergency Operations Center
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IP	Improvement Plans
IT	Information Technology
IVR	Interactive Voice Response
LEOC	LUMA Emergency Operations Center
LER	LUMA Emergency Roster
LPE	Life Preserving Equipment Dependent Customers
LRIAC	LUMA Regional Interagency Coordinators
NGO	Non-Governmental Organization
NIMS	National Incident Management System
NRF	National Response Framework
PACE	Primary, Alternate, Contingency, and Emergency
PIO	Public Information Officer

Acronym	Term
PREMB	Puerto Rico Energy Management Bureau
PREPA	Puerto Rico Electric Power Authority
ROCC	Regional Operations Command Center
T&D	Transmission and Distribution

6.2 Terms

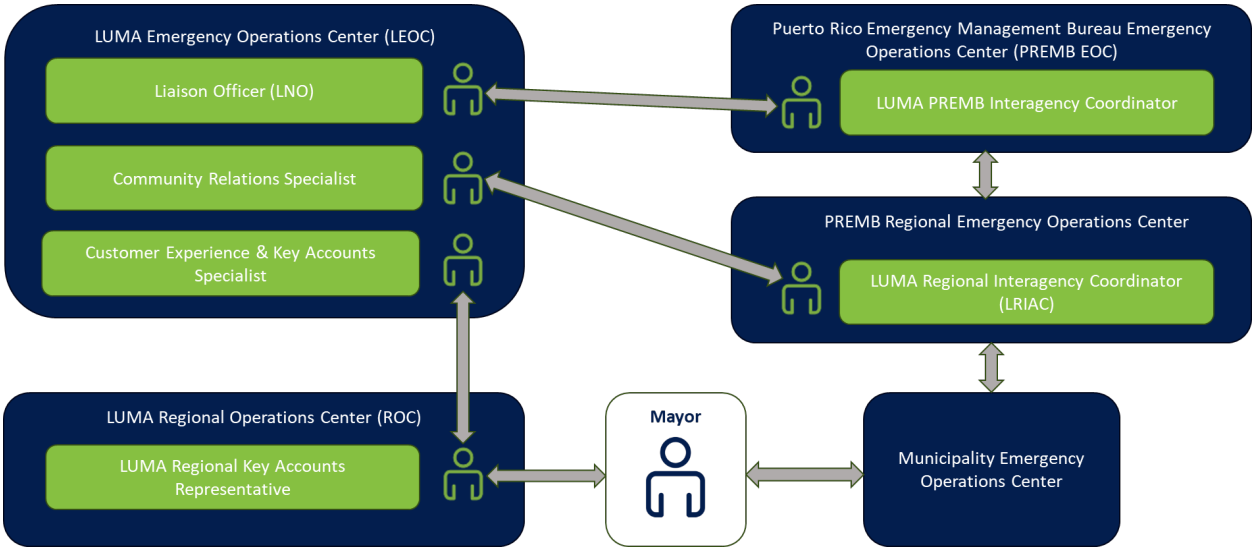
1) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
2) **Critical Facilities** – Identified as Level 1, 2, or 3 facilities provide services that are critical to the health and safety of the public and are tied to at least one of the seven critical Community Lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.
3) **Damage Assessment** – A mechanism utilized to determine the magnitude of damage and impact of disasters.
4) **Demobilization** – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.
5) **Disaster** – An occurrence of a natural catastrophe, technological accident, or human-caused event that has resulted in severe property damage, deaths, or multiple injuries and exceeds the response capability of the local jurisdiction and requires the Government of Puerto Rico, and potentially Federal, involvement.
6) **Emergency or Emergency Event** – Any outage event, as per the T&D Operational Management Agreement OMA; declared emergency or major disaster; or event, whether natural or man-made, that requires responsive action to protect life, property, or operational capacity where LUMA has deemed it an Emergency or necessary to activate the LER.
7) **Emergency Operations Center** – The physical locations at which coordination of information and resources to support incident management activities occurs.
8) **Emergency Response Plan** – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.
9) **Information Sharing** – For this guide, information sharing is the timely, accurate and actionable exchange of information within LUMA as well as between private organizations, public organizations, and the public.
10) **Major Outage Event** – An event because of which (i) at least two hundred and five thousand (205,000) T&D Customers are interrupted for more than 15 minutes or (ii) at any point in time during the event, there are one thousand five hundred or more (≥1,500) active outage events for the T&D System, which are tracked in the Outage Management System (OMS).
11) **Situational Awareness** – The ability to identify, process and comprehend critical information about an incident.

Appendix A – Governmental Stakeholder Communications

This is an example of the (2-sided) one pager distributed yearly by the Key accounts representatives with Municipal leaders to review the communication channels during an emergency.

Communications with Municipalities in an Emergency

Communication between LUMA and each of the 78 Municipalities in Puerto Rico is an essential element of effective emergency response. LUMA is committed to regular and transparent commutations with all mayors in an emergency. To ensure a coordinated response, it is critical that LUMA and Municipalities/Mayors follow the lines of communication established in accordance with the NIMS. An overview of the key roles involved in this process is outlined below:



LUMA's Emergency Response Plan (ERP) outlines how LUMA will communicate with government officials in an emergency:

Notifications

During an emergency event, through its activated Interagency Coordinators, LUMA provides reports to government agency representatives or other government officials that contain detailed information related to emergency conditions and restoration status for each affected region. During emergency events, the PREMB, based on the PREMB EOCs, directs, and supports emergency preparedness and response activities across the Government of Puerto Rico.

Representatives of PREPA and other agencies may also be activated in the PREMB EOC during incident response. The activation of the LEOC may coincide with the PREMB EOC, and the LUMA PREMB

Interagency Coordinator may be requested in their EOC. The role of the LUMA PREMB Interagency Coordinator is to facilitate formal and informal two-way communication between LUMA and PREMB.

LUMA Regional Interagency Coordinators

When PREMB Zones EOCs are activated, the LNO activates the LUMA Regional Interagency Coordinators (LRIACs). The primary role of an LRIAC is to be the LUMA point of contact in the PREMB zones EOCs to communicate regional emergency-related priorities to the LEOC. The LRIACs also assist the PREMB zones EOCs in determining if regional T&D System emergencies or outages have been reported to the LUMA Contact Center or LEOC. The LRIACs may be supported by a LUMA Regional Key Account Representative that has established steady-state relationships with mayors.

Meetings with Government of Puerto Rico Officials

Throughout the year, LUMA meets with Government of Puerto Rico officials, federal partners, and other stakeholders. Documentation of the exercises, workshops, and meetings, such as presentations, attendance lists, meeting minutes and action items, and statuses of identified action items are submitted.

Communication with Municipal Officials

During an emergency event, through the activated LRIACs, LRIACs provide updates to PREMB zones Emergency Managers. LUMA Regional Key Accounts Representatives provide updates to municipal representatives or their designers that contain detailed information related to emergency conditions and restoration performance for each affected municipality. Methods of communication may be carried out by, but are not limited to, the following:

- Scheduled conference calls with municipal officials, including emergency managers.
- Community Liaison communications (telephonic, electronic, or face-to-face) with municipal officials, including emergency managers.

The type of information shared will include situational awareness information regarding the affected municipality. Such as the status of emergency conditions, outage and restoration information, priority down wire locations, critical facilities

impacted by the emergency event, and notification reports in accordance with the LUMA Major Outage Metrics.

Emergency Response Plan

Annex H – Preparedness Training

LUMA ENERGY

May 31, 2024

Annex H – Preparedness Training

Table of Contents

1 Purpose

LUMA's Emergency Preparedness Training Annex H is designed to increase disaster preparedness and response capabilities, resulting in the safe and reasonably efficient restoration of service during an emergency event. The program is based on a continuous cycle of plan development and exercising the plans and procedures to ensure they are effective. This annex considers the range of preparedness activities within the Preparedness Cycle and, along with the guidance provided by senior leaders, identifies and sets preparedness priorities and schedules preparedness activities.

2 Scope

This Annex establishes the requirements for the Emergency Preparedness Training Plan at LUMA. Training is one of the most important elements of a comprehensive emergency preparedness program. This Annex applies to all LUMA employees.

3 Situations and Assumptions

3.1 Situation

It is LUMA's policy to prepare employees for both personal (including family) and company emergency preparedness and response procedures. Every employee is expected to participate in preparedness activities throughout the year, including planning, training, and exercise activities related to their assigned Emergency Response Plan (ERP) role. Creating a culture of preparedness results in operational excellence during activations of the ERP. This commitment underscores the organization's dedication to ensuring the safety and well-being of its workforce and the communities it serves.

Identified below are additional information and considerations regarding LUMA Emergency Operation Center (LEOC) activation, but are not limited to the following:

- The primary LEOC is located at 1110 Av. Juan Ponce de León, San Juan, 00907, Puerto Rico.
- LUMA Energy provides electric services to approximately 1,470,000 customers in 78 municipalities in Puerto Rico.
- LUMA is responsible for the development and maintenance of the ERP. Regular reviews and updates to the ERP will occur to reflect lessons learned from exercises, real-world incidents, and advancements in emergency management best practices.
- A variety of major outage events can adversely impact the integrity of Puerto Rico's Transmission and Distribution (T&D) System, triggering a LEOC activation.
- Every employee is expected to actively engage in preparedness activities throughout the year, including planning, training, and exercise activities relevant to their assigned roles within the Emergency Response Plan (ERP).
- LUMA operates in compliance with relevant regulations and standards governing emergency preparedness and response in the utility sector.

3.2 Assumptions and Considerations

LUMA's ability to respond to and recover from any type of incident that may affect the T&D System is critical. The concepts for the response, restoration, and recovery are outlined within the ERP – Base Plan and Annex A, Major Outage Restoration. Identified below are additional assumptions and considerations regarding LEOC activation, which include, but are not limited to, the following:

- LUMA is responsible for the development and maintenance of the ERP. The ERP will be activated when a LEOC activation occurs.
- In the event of an emergency or disaster, LUMA response personnel and their families may be impacted, affecting the accessibility of needed human resources in the LEOC and the field.
- An emergency outage event or major outage may occur at any time of the day or night, regardless of weekends or holidays, with little to no warning, requiring a LEOC activation.
- Response to all emergency outage events should be guided by the principles of the National Response Framework (NRF), National Incident Management System (NIMS), and the Incident Command System (ICS).
- Due to the geography of the island, resources of LUMA and Mutual Aid partners may be limited to what is on the island at the time of the emergency outage event, and it may take days or weeks to receive resources from the mainland.
- Effective emergency response often requires collaboration among multiple departments. The training annex assumes the need for cross-departmental coordination and cooperation to ensure comprehensive preparedness.
- The training will accommodate cultural and linguistic diversity among participants, ensuring that training materials and methodologies are accessible and inclusive.

4 Concept of Operations

Day-to-day outages do not require a formal activation of the LEOC. When incidents increase in complexity and become typed as emergency outage events, a higher level of coordination and resources are required outside of the immediate capabilities or availability. In the case of a LEOC activation personnel must be trained and prepared for the emergency role within the operation.

This section encompasses all aspects of emergency training, including planning, execution, evaluation, and refinement, to ensure effective preparedness and response capabilities. The primary objective of the emergency training annex is to enhance the preparedness and response capabilities of LUMA personnel and stakeholders by providing comprehensive and realistic training scenarios.

Training courses are catered to a diverse audience, including LUMA staff, and partner agencies, with tailored training modules based on their roles and responsibilities.

The training annex establishes mechanisms for ensuring the continuity and sustainability of training efforts over time, including regular updates to training materials, refresher courses, and ongoing professional development opportunities for personnel.

5 Objectives

The objectives of this Annex are the following:

- Emergency Awareness: Ensure all staff understand various emergency scenarios and are aware of potential risks.
- Response Protocols: Train employees in clear and effective procedures to follow during emergencies to ensure a swift and coordinated response.
- Leadership and Decision-Making: Develop leadership skills to empower designated individuals to make informed decisions during emergencies.
- Exercise the training: Conduct regular simulated emergency drills to test the effectiveness of the training and identify areas for improvement.
- Post-Emergency Protocols: Train employees on post-emergency procedures, including reporting, debriefing, and recovery efforts.
- Continuous Improvement.

6 Responsibilities

LUMA will commit to the availability of resources to ensure that employees receive emergency preparedness training and that their skills align with their emergency job requirements. This includes providing ongoing professional development, and resources for skill enhancement. Training will be relevant, accessible, and adapted to evolving trends and best practices. Employees will receive emergency preparedness training during the following circumstances:

- Whenever a person is hired.
- Whenever an employee is given a new job assignment.
- When new trends or best practices are introduced.

6.1 LUMA Administration

The administration is dedicated to allocating the essential funds and scheduling dedicated time to ensure the effectiveness of emergency preparedness and response training. This commitment encompasses providing paid work hours for training, utilizing language-appropriate materials, and facilitating access to required equipment for online courses, particularly when daily job responsibilities do not inherently involve computer access.

6.2 Emergency Preparedness Department

- Oversee LUMA Emergency Preparedness Training Annex H, including the development, implementation, and evaluation of the annex.
- Provide consultative assistance on general emergency preparedness and response courses, provided by LUMA.
- Provide technical assistance to emergency preparedness and response course instructors.
- Review emergency preparedness and response courses to ensure proper qualifications of the trainer and training content.

- Ensure accessibility considering diverse needs, such as language proficiency or access and functional needs.
- Maintain accurate information on training offered to employees through the Workday.
- Assign, when necessary, emergency preparedness and response training through the Workday.
- Complete attendance process and award completed training hours through Workday.
- Update and modify this Annex, policies, and procedures that pertain to LUMA emergency preparedness, as necessary.

6.3 Leadership

Directors, Managers, and Supervisors will be given the mandatory and emergency assigned role training. They will commit necessary resources to ensure employees understand the responsibilities below and the reasons for them:

- Participating in the mandatory individual training, drills, and exercises.
- Follow up on trainings, drills, and exercises reminders from the Emergency Preparedness Department.
- Providing physical resources and psychosocial support that promote safe work.
- Providing performance feedback and effective recognition and discipline techniques.
- Conducting on-the-job training, as necessary.

6.4 Employees

Per the Policy and Procedure for Emergency Preparedness Trainings, every LUMA employee is expected to participate in preparedness activities throughout the year, including planning, training, and exercise activities related to their assigned ERP role. Creating a culture of preparedness results in operational excellence during activations of the ERP.

LUMA employees are required to complete the Federal Emergency Management Agency (FEMA) ICS training, IS 100 & 200, at a minimum, which provides a foundational overview of ICS and how LUMA prepares, responds, and recovers from emergency events.

7 Training and Accountability

Emergency training is crucial for LUMA employees as it enhances preparedness to handle power-related crises, minimizes response time during outages or emergencies, ensures efficient coordination among the personnel, and improves the overall response to incidents. This contributes to the resilience of the electric grid, helping restore power swiftly and minimizing disruptions for customers during unforeseen events.

To uphold compliance with the Policy and Procedure for Emergency Preparedness Trainings for the safety of the LUMA community, disciplinary measures may be enforced against individuals who neglect these guidelines. Possible actions encompass verbal or written reprimands and, in extreme cases, may extend to termination or dismissal.

8 Training Plan

Completion of mandatory emergency training courses ensures that all LUMA personnel possess essential knowledge of response procedures, the NIMS, job-related tasks, and the safe execution of operations. The Emergency Preparedness Department categorizes these courses for each job classification, assigning relevant training through formal classroom sessions or Workday Learning. Supervisors could assign additional training based on job analyses to enhance personnel preparedness.

9 Documentation

An organized record-keeping system will be employed to manage all records and documents, ensuring they are easily retrievable, identifiable, and maintained in an orderly manner. Records must be current, accurate, legible, and appropriately dated, including revision dates, when applicable. Moreover, they should be relevant, applicable, and compliant with regulatory or legislative requirements. Workday will serve as the repository for training records of all employees.

10 Learning Management System

Workday is a cloud-based platform that includes training and certification management. It is the centralized system where LUMA stores and tracks employee training and certification records to monitor compliance, plan future training, and ensure workforce readiness. Employees can access and update their training information, search for course offers, and enroll in either self-directed or in-person offers.

11 Types of Training

Every employee is expected to participate in preparedness activities throughout the year, including planning, training, and exercise activities related to their assigned ERP role. These components complement each other, contributing to a well-rounded training program that addresses individual competencies, external industry advancements, and the collective efficiency of the team.

11.1 Individual or self-directed training:

- Does not require in-person classroom training.
- Focuses on enhancing the skills and knowledge of each team member.
- Tailored to individual roles and responsibilities.
- Examples include job-specific skill development, personal growth, and task proficiency.

11.2 External Training:

- Involves learning experiences conducted by external experts or resources.
- Can include workshops, seminars, or courses organized outside the organization.
- Provides exposure to industry best practices and new perspectives.

11.3 Collective Training:

- Concentrates on improving teamwork, communication, and coordination among team members.
- Often involves group exercises, simulations, or team-building activities.
- Aimed at fostering a collaborative and cohesive work environment.

11.4 Emergency Role-Specific Training

LUMA provides position-specific training for personnel whose response or restoration responsibilities differ from tasks they normally perform on a regular basis. In addition to skill-based training related directly to their ERP assignment, the training includes ICS protocols for Command staff and General staff in the LEOC and Regional Operations Command Centers (ROCCs).

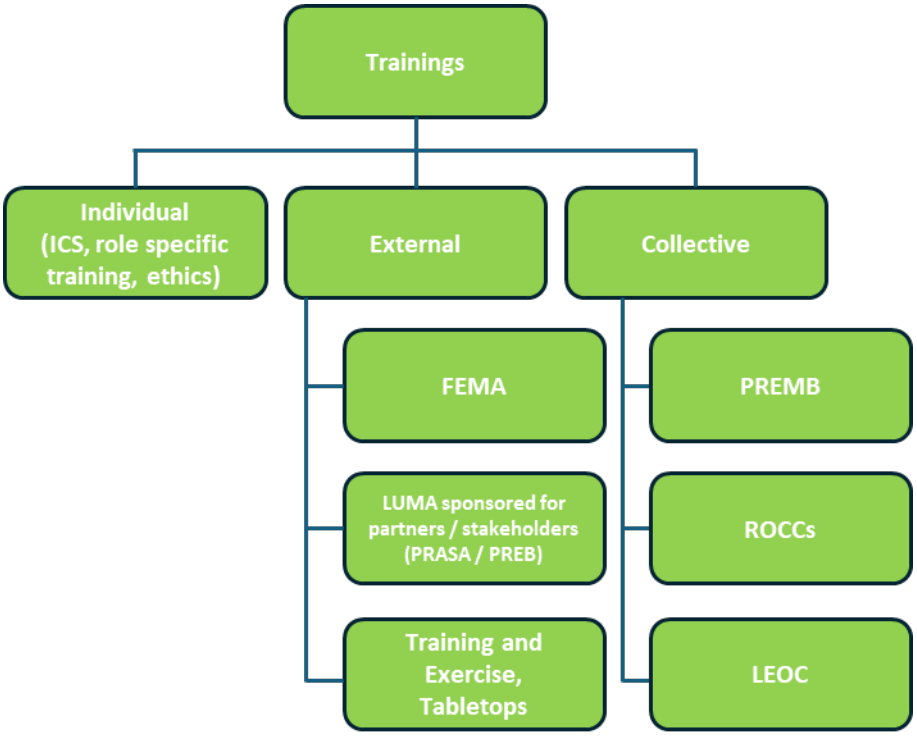


Image 1: Types of training.

12 Evaluation

LUMA is committed to continuous improvement, exemplified by our rigorous evaluation processes that ensure ongoing refinement and excellence in all aspects of our work. By implementing a robust evaluation process and a well-rounded training plan, the Emergency Preparedness Department can enhance the effectiveness of disaster response training and better prepare responders for real-world challenges.

12.1 Individual Training Evaluation

The Emergency Preparedness Department has established an assessment protocol to identify possible areas of improvement and validate knowledge. This is achieved by:

- Assessing participants' understanding of key concepts related to disaster response, including incident command, triage, and specific response procedures.
- Using quizzes or written assessments to measure comprehension and retention of critical information.
- Conducting tabletop and practical exercises to evaluate participants' ability to apply learned skills in simulated disaster scenarios.
- Distributing a questionnaire or evaluation after the training and exercises to evaluate the instructor and provide a space for suggestions from participants. Appendix A contains an example of such a questionnaire.

12.2 Training Evaluation

Constant assessments of the training annex's efficacy will gauge its success in enhancing employee safety and performance within the realm of emergency response. A meticulous evaluation, when thoughtfully crafted and executed, will pinpoint strengths in the training plan while also revealing areas requiring adjustment or enhancement.

Pre-Training Assessment:

- Achieved by conducting a needs assessment to identify specific skills gaps, roles, and responsibilities and tailoring the training content based on the identified needs and the types of disasters the team may encounter.
- Ensuring that participants have ongoing access to updated information and resources after the training.

Post-Training Support:

- Establishing a system for ongoing support and feedback to reinforce learning skills.
- Offering refresher courses, periodic drills, and opportunities for continuous improvement.
- Evaluation will include analysis of employee attendance at training sessions. Training will not work for an employee who does not show up. Absenteeism can signal a problem with the worker, but it can also indicate a weakness in training content and presentation.

13 After Action Report

The After-Action Report (AAR) serves to evaluate the effectiveness of a response or training, identify strengths and areas for improvement, and document lessons learned. It helps in refining future training programs by providing a structured analysis of what worked well and what could be enhanced. This section aids in continuous improvement, ensuring that training objectives align with organizational goals and participant needs.

13.1 AARs' goals

- Better collaboration and discussions: AARs encourage all staff to participate in team discussions. AARs help them learn more about themselves and develop effective strategies for working collaboratively.
- Results-oriented work: By introducing a collaborative learning narrative, AARs help employees visualize and focus on the results of their work. This makes it easier to identify ways to maintain effective strategies and improve those that have failed.
- Better Risk Management: The AAR process focuses on providing leaders with tools to help their teams overcome current and future obstacles in the workplace. Facilitates change and creates opportunities to develop risk management skills.

13.2 AAR process

The Emergency Preparedness Department oversees these reviews and achieves the expected goals by:

- Communicating the review - To make the review a priority, the emergency preparedness department organizes logistics meetings as early as possible. It is crucial to accommodate key players' schedules, ensuring their attendance. In situations where in-person meetings are not feasible, the alternative is to conduct them remotely.
- Gather supporting materials - Collecting all pertinent materials for the meeting, such as project plans, budgets, timelines, and other event-related data. Sharing these materials with attendees at least a day before the review informs them about expectations and facilitates preparation.
- Explain what was expected to happen – Review the event plan and discuss the expected results to occur because of the actions.
- Discuss what happened – Using event performance data to discuss what really happened. This step serves to present the facts objectively, without passing judgment or drawing conclusions.
- Outlining what went well and explaining why – After explaining what happened as part of the event you're discussing, focus on what went well. Once all the positive factors are identified, brainstorm ideas to repeat the same success again.
- Explain what failed and why – Aiding the team in understanding how to enhance overall efficiency and performance. Thoroughly review supporting materials to determine strategies for improvement in subsequent events.
- Share conclusion and learning materials - In this way, you make it possible for everyone within the LUMA to learn new strategies to avoid specific mistakes when participating in various events, helping the organization grow. The way the lessons learned are shared within the organization is through the report, After Action Report. This report identifies areas where the ERP has areas for improvement. Make recommendations for improvement and capture lessons learned.

14 Training Calendar

A yearly training calendar is a valuable tool for organizations and individuals alike. It helps plan, organize, and implement training activities throughout the year. Here are some key reasons highlighting the importance of a yearly training calendar:

- Strategic Alignment:

  - Ensures that training initiatives align with the overall strategic goals and objectives of the organization.
  - Helps in prioritizing and addressing specific skill gaps or knowledge areas essential for business success.
- Consistency and Continuity:
  - Provides a structured approach to training, promoting consistency in the delivery of learning programs.
  - Enables a continuous learning environment, preventing gaps in employee development.
- Resource Planning:
  - Allows for efficient allocation of resources such as trainers, training materials, and facilities.
  - Helps organizations manage budget constraints by planning and distributing training costs over the course of the year.
- Employee Development:
  - Supports the ongoing development of employees by offering a variety of training programs.
  - Facilitates career planning and progression by addressing the diverse needs of employees at different levels and roles.
- Compliance and Regulatory Requirements:
  - Ensures that mandatory training, compliance-related sessions, and regulatory requirements are scheduled and completed on time.
- Adaptability to Change:
  - Allows organizations to adapt training plans in response to changing business needs, industry trends, or technological advancements.
  - Promotes agility in responding to emerging skill requirements.
- Evaluation and Feedback:
  - Provides a framework for evaluating the effectiveness of training programs.
  - Allows for the collection of feedback, enabling continuous improvement in training methodologies.
- Measurable Outcomes:
  - Facilitates the establishment of clear learning objectives and measurable outcomes for each training program.
  - Supports the assessment of the return on investment (ROI) in terms of improved performance and productivity.

The yearly training calendar serves as a roadmap for learning and development activities, ensuring that organizations and individuals invest their time and resources strategically to achieve long-term success.

The training plan is categorized into individual, external, and collective. Individual training refers to the process of acquiring new skills, knowledge, or competencies to improve capabilities and performance. This type of training is often tailored to an individual's specific needs, goals, and career aspirations. It also benefits organizations by fostering a culture of continuous improvement and innovation. Section or external training generally refers to training initiatives or programs designed for specific sections or departments within a LUMA. These training efforts are designed to address a particular section or functional area’s unique needs, challenges, and objectives. Collective training is essential to build a cohesive and high-performing team. It contributes to improving teamwork, increasing productivity and a positive organizational culture. By focusing on the collective development of a group, LUMA can strengthen its overall capabilities and achieve better results.

15 Annex Development and Maintenance

This Annex is a living document. Development and maintenance of this Annex are in conjunction with the LUMA ERP. Proposed changes should be sent to the Emergency Preparedness Department of Operations for approval and inclusion.

Please reference the LUMA ERP – Base Plan, Section 13, Plan Development and Maintenance, for additional information.

16 Acronyms and Terms

16.1 Acronyms

Acronym	Term
AAR	After Action Report
CPG	Comprehensive Preparedness Guide
EOP	Emergency Operations Plan
ERP	Emergency Response Plan
FEMA	Federal Emergency Management Agency
ICS	Incident Command System
IP	Improvement Plan
LEOC	LUMA Emergency Operations Center
NIMS	National Incident Management System
NRF	National Response Framework
ROCC	Regional Operations Command Center
ROI	Return of Investment
T&D	Transmission and Distribution

16.2 Terms

1) **After Action Report** – A document intended to capture observations of an exercise/event and make recommendations for post-exercise improvements. The final AAR and Improvement Plan (IP) are published and distributed jointly as a single AAR/IP.
2) **Assumptions** – Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
3) **Business Continuity** – A set of activities that identifies potential impacts that threaten an organization and provides a framework for building resilience with the capability for an effective response that safeguards the interests of its key stakeholders, reputation, and value-creating activities.
4) **Capability** – The ability to achieve a specific outcome with an applicable combination of planning, organization, resources, and trained and exercised personnel. Emergency Management and Business Continuity capabilities are those that are needed collectively to prepare for, respond to, and recover from events with the potential of impacting the operational and business functions of LUMA.
5) **Check-In** – The process necessary to receive and begin accounting for incoming external resources to enable them to participate in emergency restoration activities safely and effectively.
6) **Comprehensive Preparedness Guide (CPG) 101** – Provides FEMA Guidance on fundamental planning and developing emergency operations plans (EOPs).

Appendix A - Individual Training Evaluation

TRAINING EVALUATION FORM

ICS 300

1. The training met my expectations.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

2. I will be able to apply the knowledge learned.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

3. The content was organized and easy to follow.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

4. The materials distributed were useful.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

5. The trainer was knowledgeable.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

6. The trainer met the training objectives.

   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

7. Class participation and interaction were encouraged.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

8. Adequate time was provided for questions and discussion.
   - Strongly Agree
   - Agree
   - Neutral
   - Disagree
   - Strongly disagree

9. How would you rate the training overall?
   - Excellent
   - Good
   - Average
   - Poor
   - Very poor

10. What aspects of the training could be improved?

_____

_____