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

May 30, 2025

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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:

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:

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;

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]

("Energy Bureau"), in *Exhibits 1 and 2*, LUMA's 2025 annual report on emergency response preparedness for the Puerto Rico transmission and distribution system ("T&D System") (*Exhibits 1* and 2, the "2025 LUMA Emergency Response Preparedness Report").

In accordance with Section 6(m) of Act 83, LUMA's 2025 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 2025 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 2025 Annual T&D Emergency Preparedness Report, including *Exhibits 1 and 2*, to the Governor and both Houses of the Legislative Assembly.

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).

WHEREFORE, LUMA respectfully requests that the Energy Bureau consider and accept LUMA's 2025 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.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 30th day of May 2025.

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, <u>arivera@gmlex.net</u>, Mirelis Valle, mvalle@gmlex.net, and Natalia Zayas Godoy, <u>nzayas@gmlex.net</u>, and counsel for GeneraPR LLC, Jorge Fernández, jfr@sbgblaw.com, and Alejandro López, <u>alopez@sbgblaw.com</u>.



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/s/ Yahaira De la Rosa Algarín Yahaira De la Rosa Algarín RUA NÚM. 18,061 yahaira.delarosa@us.dlapiper.com

Exhibit 1

Summary of Annual T&D Emergency Preparedness Report forming part of LUMA's 2025 Emergency Response Preparedness Report

May 30, 2025

LUMA Energy





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1.0 Introduction

On April 30, 2025, LUMA was recognized with the **Chartwell's 2025 Excellence in Emergency Management Gold Award**. LUMA will be accepting the award during the PowerUp: Chartwell's Outage Conference in October 2025. LUMA won the Gold Award for Excellence in Emergency Management for its transformative journey designed to strengthen its emergency preparedness and response capabilities with efforts undertaken by LUMA between January 2024 and February 2025.

Emergency preparedness is a daily, year-round focus for the men and women of LUMA. Our 4,500 strong team remains steadfastly focused on ensuring we can respond as quickly and safely as possible to storm-related outages. We understand the impact any outage can have, and we are committed to doing everything we can to minimize the size and duration of emergency-related outages on our 1.5 million customers, while prioritizing their safety and the safety of our workforce.

The reality is, however, that Puerto Rico's electric system is extremely fragile and susceptible to weatherand equipment failure-related outages due to decades of mismanagement and neglect under the previous operator, PREPA. Despite the legacy challenges that face the island's electric system, **every day we are taking actions to rebuild and strengthen the overall grid to be more resilient** by modernizing substations, upgrading transmission and distribution infrastructure, increasing vegetation management efforts, and installing additional distribution automation devices. Through our actions which have resulted in real, meaningful improvements to customers' electric service, we have made historic progress to build the stronger, safer, more reliable energy future all Puerto Ricans expect and deserve. In addition to making the necessary repairs and upgrades to strengthen system infrastructure, **we are continuously preparing every member of the LUMA team to effectively respond to emergencies** through trainings and mock emergency drills, close coordination with our local and federal partners, and other activities to ensure our restoration efforts are as safe and fast as possible.

As part of our preparedness efforts, we filed the fifth edition of our Emergency Response Plan (ERP) with the Government of Puerto Rico and the Puerto Rico Energy Bureau (PREB). Our 2025 ERP outlines the series of actions we are taking to prepare and respond to emergency events, such as hurricanes, earthquakes, and severe weather conditions, following industry best practices, including the National Incident Management System (NIMS) established by the Federal Emergency Management Agency (FEMA).

Key actions LUMA has performed throughout the year to help prepare for and respond to natural disasters and major emergency events include:

- Conducting mock emergency exercises to practice response coordination with external partners, including the Puerto Rico Emergency Management Bureau (PREMB), FEMA, the Puerto Rico Electric Power Authority (PREPA) and the Central Office for Recovery, Reconstruction and Resiliency (COR3),
- Maintaining active participation in industry forums, such as Chartwell's Emergency Management Leadership Council, where we engage monthly with peers in the utility sector to share best practices, identify emerging risks, and strengthen our preparedness strategies. This collaboration allows LUMA to stay aligned with national standards and continuously enhance our emergency management approach.



- Completing over 39,433 employee hours of FEMA training and having over 2,394 field workers who are trained and prepared to respond and restore power to customers as quickly and safely as possible,
- Increased inventory to \$400 million in materials in warehouses, including more than 31,000 poles,
 9.9 million feet of wire, and over 6,300 transformers ready to respond to an emergency.
- Maintaining regular outreach to hospitals and critical facilities and contacting lifeline customers directly and proactively during emergencies.
- Establishing pre-positioned contracts before disaster events to enable LUMA to engage additional personnel, equipment, and/or material in support of a Type 1, 2, 3 Events to mitigate, repair, or restore the system.
- Revising the Life Preservation Equipment (LPE) customer database, on a monthly basis, to timely notify beneficiaries of the upcoming lapse of documentation that makes them eligible. This monthly review is a force multiplier prior to an announced Type 1, 2, and 3 event enabling critical customers directly and proactively during emergencies, following the Standard Operating Guide (SOG) referenced in section 10, Communications, of the ERP Base plan.
- Retaining mutual aid agreements for Type 1 and 2 Events, as cooperative support if additional resources beyond the pre-positioned contracts are needed with our response and restoration efforts.
- Implementation of WebEOC, as an Emergency Management tool. The WebEOC platform has been implemented to enhance situational awareness, streamline information sharing, and improve coordination across all Incident Command System (ICS) components and external partner agencies, such as the Puerto Rico Emergency Management Bureau (PREMB). In addition to the vendor initial training, an in-house sustainment training program was developed to ensure personnel are proficient in using WebEOC during training, exercises and actual emergency events.

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 28,600 broken and damaged utility poles with infrastructure that can withstand 160 mph winds,
- Cleared vegetation from over 6,199 miles of powerlines to mitigate threats to safety and reliability,
- Installed over 10,300 automation devices to reduce the impact and duration of outages, and
- Started or completed upgrades at 71 substations and reduced large-scale substation outages by more than 60% through LUMA's Substation Initiatives.

As part of our emergency preparedness efforts, LUMA, as an agent of PREPA, is 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 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 30, 2025, constitute LUMA's 2025 Emergency Response Preparedness Report in compliance with Section 6(m) of Act 83.



The ERP establishes the structure, processes, and protocols for preparing for, managing, and responding to major electric outages, emergencies, and other incidents that may disrupt the Transmission and Distribution (T&D) system's operations and services. These incidents include hurricanes, storms, atmospheric disturbances, floods, earthquakes, and fires. The ERP consists of a Base Plan that provides the overarching framework, protocols, and procedures applicable to all hazards, supported by specialized annexes that address specific emergency scenarios: 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 preparedness is not just procedural, it is cultural. Emergency response is embedded in every employee's role, and key positions are staffed with depth to ensure continuity in long-term operations. From the LUMA Emergency Operations Center (LEOC) to the seven Regional Operations Command Center (ROCCs), LUMA's operational readiness reflects our responsibility to protect Puerto Rico's electric grid and restore service safely and efficiently in any emergency.

LUMA has been actively engaged in the updating and implementation of the ERP, the operational readiness of the LEOC and contingency planning for the ROCCs. Additionally, LUMA has focused on developing comprehensive plans, processes, procedures, and resources to be used before, during, and after emergency events. As a result of these ongoing efforts, LUMA is well positioned to deliver a timely and effective response to any emergency, ensuring services are restored to customers as prescribed in the Major Outage Restoration – Annex A in the ERP.

Since June 2024, LUMA has conducted several emergency preparedness and readiness activities and training across the organization to ensure our personnel, facilities, and operations are equipped to respond to natural disasters and other emergency situations, such as the upcoming hurricane season and other atmospheric disturbances, including floods, that may affect the island. These efforts include, but are not limited to:

Employee Training and Emergency Response Activities

- **Responding to several storms and system outages**, including Tropical Storm Ernesto, the December 31, 2024, Island-wide Outage Event, and most recently the April 15, 2025, Island-wide outage event. The LEOC was activated with our employees demonstrating our proficiency in both announced and non-notice events.
- Implementing a series of drills aimed at training personnel and enhancing the use of the WebEOC emergency management platform. These include: A functional exercise with LUMA's Legal and Customer Experience (CX) departments and the Caguas Regional Operations Command Center (ROCC) to address procedures related to Act 107-2020, as amended, Municipal Code, under Article 1.018 (v); A functional exercise with 48 Interagency Coordinators performing duties at the PREMB Central and ten (10) Zone Emergency Operations Center (EOCs) to integrate the outage notification process between PREMB, which captures the 78



municipal emergency offices, and LUMA, and; a functional exercise with the Public Information Officer (PIO) team to strengthen crisis communication strategies and coordination using WebEOC.

- Addressing Puerto Rico General Elections as a planned event. On November 5, 2024, the LEOC activated to handle potential power outages during Puerto Rico's General Elections. This activation was preceded by months of planning with the State Elections Commission (CEE) to prepare over 1,300 voting centers, Permanent Registration Boards (JIP), Temporary Registration Boards (JIT), and election command centers. This was LUMA's first use of the WebEOC platform to track and coordinate response efforts. LUMA received a letter of recognition from the interim CEE President of the preparation and execution of T&D related events during the General Election.
- Participating in the FEMA-sponsored two-week event, Caribbean Readiness initiative, aimed at strengthening preparedness capabilities to ensure that the island's emergency response structure is ready to support any type of emergency incident.
 - PR Readiness Initiative Workshop Week Power Task Force & Critical Infrastructure Prioritization Workshop on May 1, 2025
 - PR Readiness Initiative Private Sector Workshop on May 6, 2025
 - PR Readiness Initiative Stakeholder Engagement Operational Integration & Responder Communications on May 8, 2025
 - PR Readiness Initiative Stakeholder Engagement Infrastructure, Emergency Services, Air Operations on May 5, 2025
 - Puerto Rico Energy Infrastructure Brief on May 8, 2025
 - PR Readiness Initiative Stakeholder Engagement Private Sector, Mass Care, Initial Recovery, Section Break Outs on May 9, 2025
- Conducting the Emergency Mock Drill with external emergency response partners, on February 28, 2025, complying with the OMA, Annex I, Scope of Services, that specifies in pages I-11 and I-12, under paragraph VII. Emergency Response. B.9. conducting periodic drills, including as required by Applicable Law; at a minimum, Operator shall conduct at least one system wide test of the Emergency Response Plan processes and procedures, technical and communications equipment, and personnel readiness ("Emergency Mock Drill") per year, which shall take place three (3) months prior to the commencement of the Atlantic Hurricane Season. The Emergency Mock Drill taking place before the Atlantic Hurricane Season will replicate a category 5 Hurricane with a planned direct hit to Puerto Rico. Participants and observers included the following:
 - Puerto Rico Energy Bureau (PREB)
 - Public-Private Partnerships Authority (PA3)
 - o Department of Economic Development and Commerce (DDEC/ESF-12 Lead)
 - Department of Public Safety (DPS)
 - Puerto Rico Department of Health (PRDoH)
 - U.S. Department of Energy (DOE)



- Puerto Rico Emergency Management Bureau (PREMB)
- Central Office for Recovery, Reconstruction, and Resiliency (COR3)
- Puerto Rico Electric Power Authority (PREPA)
- o GeneraPR
- Critical Infrastructure Security Agency (CISA)
- Financial Oversight and Management Board for Puerto Rico (FOMB)
- National Weather Services (NWS) with pre-recorded videos
- o Hon. William Alicea Perez, Mayor of the municipality of Aibonito with pre-recorded video
- Hospital Pavia-Caguas with a pre-coordinated inject scenario
- Conducting tabletop exercises with different ICS LEOC components to address AAR findings and areas for improvement: the Procurement department to address processes to execute contracts, and a second one with the Corporate Communications department to exercise the Communications SOG and compliance with Major Outage Restoration, Annex A.
- Conducting six (6) tabletop exercises with ROCCs focusing on WebEOC training.
 - ROCC Caguas February 6, 2025
 - o ROCC Ponce March 12, 2025
 - ROCC Mayaguez March 19, 2025
 - ROCC Arecibo March 26, 2025
 - ROCC Bayamon April 10, 2025
 - o ROCC San Juan April 11, 2025
- Completing FEMA training: as of March 31, 2025, 99.5% of employees have completed both ICS-100 and ICS-200 training; 95% of those required (LEOC and ROCC personnel) have ICS 700 and 800; and 91% have ICS 300.
- 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.
- Developing and publishing the Emergency Preparedness 365 Campaign to promote yearround emergency preparedness at LUMA. This includes monthly tips to educate and engage all employees, ensuring readiness at home and at work. Tips are shared via intranet or bulletin with references for more information.
 - January ERP, WebEOC
 - February Mock Drill
 - March Emergency Roster and Contact Updates
 - April Hurricane Season Preparedness
 - May Family Emergency Preparedness



• **Creating the Multiyear Training Plan (MYTEP)** to provide projected schedule and list of specific training planned for the upcoming 3 years, to comprehensively and specifically include the subject, description, audience, delivery method, time frame, and frequency of the training.

Technology Enhancements

- Continuing to update Information Technology equipment to enhance cyber security compliance in the primary LEOC.
- Joining the Puerto Rico Emergency Management Bureau (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.
- Leveraging the Disaster Recovery (DR) structure in place for customer communication through LUMA's two website systems: Mi LUMA and LUMAPR. Since the implementation of LUMAPR as the backup for Mi LUMA during Hurricane Ernesto, the system has proven effective
 - Mi LUMA operates with a high-availability setup that includes two active containers providing full, immediate backup. If Mi LUMA becomes unavailable, LUMAPR takes over as the backup communication system.
 - LUMAPR is a web service hosted by a contractor in Texas, with cloud-based backup that is updated daily at midnight. Historical data is retained for 24 days. It has a development environment where updates and changes do not affect production. In the event of a failure, it can be restored within 5 to 15 minutes. There is an automatic restore process in place, and contractors can manually restore the system if the automated process fails.
- Implementing Crisis Track, a software platform that enables real-time, standardized damage assessment and reporting through mobile and web-based tools. Its use supports the development of consistent protocols by aligning field data collection with FEMA categories and public assistance requirements. Incorporated and customized templates for Substation, Transmission, Distribution, Telecommunications and Underground to adopt LUMA Damage Assessment needs.

Collaboration & Stakeholder Engagement

- Signing three (3) Memorandum of Understanding for the evacuation of employees and equipment from flood prone areas during and emergency in Ponce (Estadio Francisco "Paquito" Montaner), Arecibo (Universidad de Puerto Rico, Recinto Arecibo) and San Juan (Coliseo de Puerto Rico for the helicopters).
- Engaging with various stakeholders regarding our emergency preparedness and ERP, including holding multiple meetings with PREMB planners and ESF-12 representatives. Discussing the integration of emergency plans between PREPA, LUMA, and GeneraPR with the leadership of FEMA Region 2 and the interagency coordinators designated to the PREMB COE.
 - During the week of 12 to 16 May, the 78 mayors and/or their representatives attended one of six regional sessions focused on emergency preparedness and LUMA's ERP, specifically addressing exchange of information between LUMA and the respective municipalities throughout the five stages of LUMA emergency response. The use of



WebEOC was discussed as the primary means of reporting damages to the T&D system providing LUMA advanced information of damages.

- Upgrading HVAC systems and fire alarms in mission critical facilities and developing islandwide 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.
- **Establishing a partnership** with the Department of Economic Development and Commerce (DDEC), to leverage DDEC's Critical Infrastructure Database.
- Maintaining regular outreach to hospitals and critical facilities and contacting lifeline customers directly and proactively during emergencies, as stated in ERP base plan ERP Base plan section 10.2.2 and annex G 4.3.2. LUMA conducts quarterly outreach to critical facilities, such as hospitals, to develop relations and maintain updated data on auxiliary power (generators).
- Securing pre-positioned contracts to ensure appropriate resources are available if needed to enhance response efforts to Type 1, 2, and 3 Events as described in the ERP. Pre-positioned contracts provide additional personnel, equipment, and materials to do damage assessments, restore services by repairing or replacing T&D assets, fuel distribution, and vegetation management, among others. Contractors include On-Island and Off-Island vendors, as well as existing contractual resources.
- **Retaining mutual aid partners**, including the Edison Electric Institute (EEI) and through PREPA, the American Public Power Association (APPA), to secure additional resources beyond prepositioned contracts, if needed.

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. It includes 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 commitment to continuous improvement, the ERP undergoes an annual review and is revised as necessary. LUMA leaders, along with subject matter and technical experts responsible for elements within the ERP, assess its contents to ensure the plan remains current and effective. Recognized as a living document, the ERP is updated based on lessons learned from activations, After-Action Reports (AARs), Improvement Plans (IPs), training and exercise outcomes, feedback from government agencies, and alignment with best practices and industry standards.

In keeping with this approach, multiple updates have been made to the ERP since June 2024. These changes incorporate feedback from reviewers, as well as insights gained from training exercises and real-world emergency events during this period, resulting in a strengthened and more effective ERP. In



addition, with several minor textual and grammatical edits for clarity, the following key revisions have been implemented:

- Updated Appendix B Assignment of Responsibility to:
 - Removed the Community Relations Specialist role and realign responsibilities to the LNO role and the KA Lead
 - o Added the role of P&I Section Assistant
 - o Added the role of Key Accounts Lead to support the CX and KA Specialist
 - o Added the role of Assistant Safety Officer
 - o Added the role of WebEOC Administrator
 - o Added elements to the Command Section Assistant role description
 - o Edited the Safety Officer role to include telematics responsibilities
 - o Edited the Check-in role to include WebEOC responsibilities
 - o Modified ICS roles to include new responsibilities as per the activation protocol
- Updated the Crisis Management Committee (CMC) Structure under Appendix A (LUMA ICS Principles)
- Updated the Annex G communication flow chart to reflect changes in roles
- Added details on daily meetings with mayors during disasters (4.3.1, Key Accounts) in Annex G Communication Guidelines
- Edited 10.3.4 Communication with Municipal Officials to include daily communications with mayors during emergencies
- Updated Emergency Communication Protocols by adding information on LUMA's contingency plans in Annex G 5.2.4 Emergency Means of Communication
- Added new section 8.4 Safety, describing safety protocols, manuals, training, and telematics.
- Added placeholder for 8.4 WebEOC, describing the emergency management platform
- Updated 5.2 Risk Analysis of Community Lifelines to include LUMA's experience and Hurricane Fiona as an example
- Updated Annex F to include activation procedures via Genesys and WebEOC
- Updated 10.2.2 Critical Customers to include maintaining the list and addressing additional requests during pre-event outreach
- Added 7.3 Pre-positioned Contracts section, explaining the process in steady state and emergencies
- Modified 11 Administration and Finance, adding 11.1 Finance and renaming it to Finance and Procurement
- Updated 12.3 Training & 12.4 Exercises to reference the MYTEP
- Added references for Wildfires, SCADA, Partial/Full shutdown



Added section to describe call center procedures during 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.

LUMA's Outage Management System (OMS) was submitted to a stress test, a process developed by the vendor based on our requests and their recommendations. The vendor was given a list of feeder breakers, where they identified the transformers and customers associated to create the scripts for the test.

The main purpose of the test was to subject OMS to a significant number of calls and events using the MQConnector, which simulates calls coming in from LEX or IVR, and the SCADA simulator for feeder outages. The scripts developed by the vendor also measured the time the system took to process the number of calls and events that were injected into OMS. The messages were sent by groups of three hundred (300) with a pause of 10 seconds between them. The load consisted of 9,202 calls, 3,939 emergency events and 123 feeder outages. The time to process the customer calls was 31.96 minutes and the time to process emergency tickets was 25.81 minutes. The total time taken to process the load test with a pause duration between calls/events was about 37 minutes. During the test, the user experience, the CPU utilization (<60%), and the memory utilization (<70%), remained stable. Given the stability of the system during the stress test, results can be extrapolated to a longer period. For the test, the UAT system that was used contains the same number of BatchCall and MQ instances for sending and processing calls/events. The scripts can be easily adapted for future tests by modifying the numbers of calls and messages sent to OMS.

Currently there are 1,518,643 active clients. The event's simulation affecting 90% of customers in a 24hour period represents 1,366,779 clients. Load by script: 9,202 calls, 3,929 emergency tickets and 123 feeder outages representing 322,355 impacted customers. First load of outages sent by the script:



21.23% of clients affected. The vendor performed several successful trial runs of the test on consecutive days, and an additional successful run with similar stable results, representing more than a fifth of affected customers per load. Given the performance rate obtained at each run, the results were extrapolated to a 24-hour period.

No system degradation was exhibited. LUMA's OMS remained operable during the test. 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).

From June 2024 to March 31, 2025, LUMA's vegetation management activities have included responding to urgent outages, customer requests, and public safety requests. Moreover, LUMA has cleared a total of 1,241 miles as part of its daily vegetation management operations. Key third quarter (Q3) fiscal year 2025 (FY2025) activities included management of vegetation across 414 right-of-way miles, including trimming 176 miles of distribution and 238 miles of transmission lines, and completed maintenance trimming on nineteen circuits.

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 2025 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 from Q1 to Q3 FY2025 included:

- Completing the replacement and energization of three priority substation projects from Phase 1 of the System Priority Stabilization Plan in Santa Isabel transmission center (TC), Bayamon TC and Hato Rey TC,
- Replacing and energizing two 115 kV breakers, and one 230 kV breaker in Aguirre, and five 230 kV breakers in Costa Sur, as part of the priority substation projects included in the stabilization plan,
- Installing over 1,950 Distribution Automation devices,
- Replacing more than 10,800 broken and damaged utility poles,



- Activating over 34,783 rooftop solar panel systems representing over 251 MW of clean energy added to the grid, and
- Replacing or repairing over 21,000 streetlights.

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. Emergency Management is a key pillar of the more reliable, more resilient, customer-focused, and cleaner energy future we're working every day to build for all our 1.5 million customers across Puerto Rico.



Exhibit 2

T&D ERP forming part of LUMA's 2025 Emergency Response Preparedness Report

Base Plan

LUMA Energy

May 30, 2025





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 for Puerto Rico, and our ERP is a critical component of this commitment.

Juan Saca President & CEO LUMA Energy



Executive Summary

The LUMAAII-Hazards Emergency Response Plan 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 operates the sequence of energy restoration revolving around key infrastructure that supports the protection of life and property.

Emergency Response Plan Descriptions

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).





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.



Base Plan

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



Emergency Response Plan Base Plan

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.



Emergency Response Plan Base Plan

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List of Acronyms

Acronym	Definition
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
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
Г	Information Technology
JIC	Joint Information Center



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Acronym	Definition
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
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
от	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



Base Plan

1.0 Purpose

The purpose of 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 June 22, 2020 (T&D OMA). As part of its responsibilities for managing, operating, maintaining, repairing, restoring, and replacing the T&D System, LUMA's Scope of Services, as detailed in Annex I of the T&D OMA, includes several critical functions. These include emergency preparedness planning, response, and implementation of the ERP to ensure business continuity and electric service, as well as disaster recovery, emergency response and restoration, and all necessary functions related to emergency response, business continuity, reporting, and communication for the T&D System. LUMA's responsibilities include 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 Public Policy 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.



Base Plan

2.0 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 (including prepositioned contracts), mutual aid resources, or any other personnel working in 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 divided 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.

Base Plan

3.0 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.

4.0 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 3.28 million people called Puerto Rico home in 2024.

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 electrical services 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



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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 remains 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, night, weekend, or holiday, with little or no warning.
- LUMA is responsible for maintaining, disseminating, and implementing 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.



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- 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.

5.0 Mission

LUMA strives to meet customers' needs through risk assessments and continuous communication 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).



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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 Standard Operating Guide (SOG) titled LEOC Guidebook.

5.1 Community Lifeline

The use and analysis of Community Lifelines enhances 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. This was followed and tested by Hurricanes Florence and Dorian, Super Typhoon Yutu, the Alaska Earthquake, and during Shaken Fury full-scale exercise. FEMA prepared an AAR for each disaster to analyze their disaster management. The AARs recommended updating the NRF to prioritize the restoration of key lifelines and to incorporate an eighth category: water systems. Its purpose is to highlight the significance of cross-sector coordination prior to, during, and after a disaster.

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 reestablished, 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


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- Transportation
- Communications
- Water Systems
- Health and Medical
- Safety and Security
- Hazardous Materials



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.



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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 Receiving the Service					
(Sub)sector	Fuel	Electricity	Transportation	Water	Communication	
Generating the Service) ()		
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.



Base Plan

5.2 Risk Analysis of Community Lifeline

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 prioritizing 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 Department of Public Safety and the Emergency Management Bureau (PREMB), 2023, 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	High
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.



Base Plan

5.2.1 Energy

Energy Lifeline is crucial to sustaining essential services during emergencies. Storms like hurricanes frequently disrupt power generation, transmission, distribution infrastructure, and operations, leading to severe hardships and sometimes life-threatening conditions for affected communities. 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 wide mainland power outage. The generator servicing the island of Culebra, with 3 MW, was the only unit operating solely for 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.



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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.





Base Plan

Another important part of electric utility maintenance is vegetation management. LUMA's Vegetation Management Plan includes steps to improve and maintain 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 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 poses significant challenges, even under normal conditions. These are exacerbated during disasters due to potential port inoperability, debris-blocked roads, and fuel shortages. Following Hurricane Fiona, the fuel lifeline's resilience was once again tested as essential transportation routes were obstructed, limiting fuel distribution to generators and critical facilities. Fuel-dependent backup generators, while essential for temporary power restoration, are not designed for extended use and require regular maintenance every 500 hours, as well as frequent refueling (Santiago, 2022). Without consistent fuel access, many critical services risked failure, impacting essential functions across the island. Post-disaster, some gas stations experienced extensive lines, a scenario familiar from Hurricane Maria, where fuel availability issues stemmed largely from transport and distribution challenges rather than an actual fuel shortage (Delgado *et al.*, 2022). Communications systems breakdowns further exacerbated this issue, making coordination with fuel suppliers and drivers difficult and leading to long delays at fuel stations (FEMA, 2022).

The government of Puerto Rico recognized these challenges and tasked the Department of Public Safety to issue two administrative orders in June 2024. The orders created two focus groups, the Puerto Rico Energy Task Force and the Fuel Task Force.

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.



Base Plan

Food		Ну	dration	Sh	nelter	Ag	riculture
•	Commercial Food Distribution Commercial Food Supply Chain Food Distribution Programs (e.g., food banks)	•	Drinking Water utilities (intake, treatment, storage, and distribution	•	Housing (e.g., homes, shelters) Commercial Facilities (e.g., hotels)	•	Animals and Agriculture

Table 3: Components and Subcon	popents of the Food Water	Shelter Community Lifeline
Table 5. Components and Subcon	ipolicinto ol tile i oou, water,	

Food

Contemporary food supply chains are highly reliant on interconnected systems such as electricity, telecommunications, transportation, and fuel networks. Grocery stores, for example, depend on power systems for lighting, payment processing, climate control, and refrigeration. When the electrical grid is down, as seen in Hurricane Fiona's aftermath, grocery stores require generators and a consistent fuel supply to operate. This demand adds logistical challenges since fuel must be transported from ports, which may be difficult or impossible during severe weather events (FEMA, 2022). Puerto Rico imports approximately 85% of its food, which underscores the island's vulnerability to supply chain disruptions during emergencies (Villarini *et al.*, 2022). After Hurricane Maria, this dependence increased, with imports comprising 95% of food consumption, a situation that highlights the lack of local food production and storage capacity during disasters (Mares, 2022). Fiona's impact further exposed these vulnerabilities, as limited fuel and power outages led to widespread shortages and disruptions across Puerto Rico's food supply chain.

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 managing 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 Fiona, approximately 25,000 people sought shelter across the island, highlighting a continued dependence on emergency shelter support in the wake of major storms (FEMA, 2022). To operate effectively, shelters require reliable electricity to ensure access to pressurized, clean water for hygiene, climate control, and lighting. In addition to these essentials, power is often necessary for food storage and preparation to meet residents' basic needs over extended periods. Fiona's impact underscored vulnerabilities in Puerto Rico's shelter infrastructure, as ongoing power and water outages complicated efforts to provide secure and comfortable environments for displaced individuals (American Red Cross, 2023).



Emergency Response Plan Base Plan



Figure 8: Map of Shelters.

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.

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 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.

Highway / Roadway	Mass Transit	Railway	Aviation	Maritime
 Roads Bridges	BusRailFerry	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. The importance of this lifeline became especially evident during Hurricane Fiona in 2022, which caused severe disruptions across multiple transportation modes, much like the devastation caused by Hurricanes Maria and Irma. 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.



Base Plan

Hurricane Fiona, which made landfall in September 2022, led to widespread flooding and landslides, further damaging roads that were still in repair from previous storms. The roadways were heavily impacted, with major thoroughfares becoming inaccessible due to debris and inundation, complicating the delivery of emergency services and thus slowing down recovery efforts. The lack of operational roadways and the fuel supply crisis mirrored the challenges faced after Maria, where the movement of workers, equipment, and essential goods was delayed due to fuel shortages and logistical issues. This limited the restoration of Energy Lifeline, hindering overall recovery.

In terms of public transportation, Puerto Rico's only heavy-rail system, "Tren Urbano," also faced interruptions. Similar to the three-month suspension it experienced after Hurricane Maria, Fiona caused additional interruptions in transportation, making it difficult for residents to access services or reach safety. Airport operations, notably at the Luis Muñoz Marín International Airport, were once again disrupted by downed power grids and hazardous conditions, which hampered both civilian and military response efforts. As for maritime operations, the Port of San Juan —Puerto Rico's primary port for importing supplies— faced similar vulnerabilities during Hurricane Fiona. Though it remained operational after the storm, any significant damage to this lifeline would have crippled the island's ability to receive critical resources, as evidenced by the delays and bottlenecks in shipping observed after Maria (Otero, L., & Martínez, P. 2023).

The challenges posed to Puerto Rico's transportation lifeline by hurricanes highlight the island's need for more resilient infrastructure to manage future disasters efficiently.

5.2.4 Communications

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.

Inf	frastructure	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.

In disasters, communication systems can quickly become inoperable. When Energy Lifeline is disrupted, the infrastructure used daily for receiving and sending information can be rendered obsolete. During Hurricane Maria, many residents had limited communication access, with only two local AM radio stations providing updates (FEMA, 2022). Radio often remains the most dependable communication tool during crises when the electrical grid, internet, and cell service are down (American Red Cross, 2023).



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The American Red Cross (ARC) advises including a battery-powered radio in disaster kits, emphasizing its role as a reliable source of mass messaging during major disruptions. With backup power and a reinforced antenna, AM/FM radio can deliver continuous updates, helping alleviate public anxiety and providing vital information on emergency response efforts (ARC, 2023).

Effective public communication is essential to disaster preparedness, mitigation, response, and recovery. LUMA uses customer notification systems, media outlets, and other channels to keep residents and local governments informed about outages and estimated restoration times. Internal communications are equally crucial, as they enable the LEOC to coordinate among the contact center, state Emergency Operations Centers (EOCs), Regional Operation Command Centers (ROCCs), regulatory agencies, elected officials, and necessary resources.

The ability to call 911 during and after a disaster is essential. However, during Hurricane Maria, island-wide communication failures made it difficult to reach 911. With non-operational landlines and cell service, many callers couldn't connect to emergency dispatch, and responders struggled to reach those in need (Villarini *et al.*, 2022). Public Land Mobile Radio (LMR) systems, used by police, fire, ambulance, and other government organizations, are highlighted for maintaining essential emergency communication capabilities during such crises. For detailed information, please refer to the Communication Annex G.

5.2.5 Hazardous Materials

Oil/HAZMAT/Toxic Incidents from Facilities

nuclear)

The Hazardous Materials Lifeline is a paramount system that supports the sustainability of essential resources, including food retail, water treatment and distribution, housing, and agriculture. This lifeline has two primary elements: hazardous materials (HAZMAT) themselves and the facilities housing them. Each of these components contains sub-components, as shown in Table 6.

Tab	able 0. Components and Subcomponents of the nazardous materials Community Enemie.					
Facilities		HAZMAT, Pollutants, Contaminants				
•	Oil/HAZMAT Facilities (e.g., chemical,	•	Oil/HAZMAT/Toxic Incidents from Non-Fixed			

Table 6: Components and Subco	mponents of the Hazardous	Materials Community Life	eline
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In the wake of Hurricane Fiona, efforts focused on managing potential hazardous material threats, with
government and local agencies coordinating to prevent environmental damage. As part of recovery,
agencies assessed HAZMAT facilities and provided support for local hazardous waste collection. For
instance, the U.S. Environmental Protection Agency (EPA) conducted facility assessments and deployed
personnel to ensure the safe handling of potentially hazardous materials. This proactive response reflects
lessons learned from Hurricane Maria, when approximately 60 tons of solid and hazardous liquid waste
was collected and removed for safe disposal (EPA, 2023). The region's lack of nearby nuclear facilities
limits some risk factors; the only nuclear reactor in the Caribbean remains in Jamaica (Smith, 2022).

Facilities

Radiological or Nuclear Incidents



Base Plan

5.2.6 Health and Medical

The Health and Medical Community includes Emergency Medical Services (EMS) and acute care, which is critical for addressing the immediate lifesaving needs of survivors after a disaster. As medical care facilities are restored, this lifeline also includes longer-term services such as behavioral health and public health operations to support recovery. The five main components of this lifeline are essential for stabilizing public health in disaster scenarios, 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.

During disasters like hurricanes, the healthcare system faces severe strain due to increased demand, damage to infrastructure, and loss of essential services. For instance, in the aftermath of Hurricane Maria in 2017, most hospitals in Puerto Rico were left without electricity, and only a small number could function fully due to communication breakdowns and a lack of fuel for generators. FEMA's initial planning assumed that 56% of hospitals would be affected by the storm, but 92% were impacted, leading to a severe healthcare crisis (FEMA, 2024).

Similarly, Hurricane Fiona in 2022 significantly impacted Puerto Rico, exacerbating ongoing challenges in the health sector. Flooding, power outages, and disruptions in water and communication systems made it difficult for medical facilities to function, forcing emergency services to improvise in providing care to vulnerable populations. Many communities experienced delays in accessing medical care, and public health operations were hindered by infrastructure damage and resource shortages (FEMA 2022).

Stabilization of the Health and Medical Community Lifeline after a disaster depends heavily on the recovery of other critical infrastructure, such as electricity, water, and communications. Hospitals need these services to operate and manage waste, maintain medical supplies, and support patient care. Full stabilization occurs when all survivors, including pets and service animals, can access medical care, public health services, and stable medical supply chains. Addressing these challenges requires comprehensive planning and a resilient healthcare infrastructure to ensure that life-saving services can continue during and after disasters like Hurricane Fiona.



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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 a 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 impact on 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 is easier.

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, 2024). 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.



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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.

6.0 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 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.

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.



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The criteria may include weather forecasts, the 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 forecast 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.



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- 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 activating pre-positioned contracts and possibly mutual aid requests.
- 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 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 non-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).



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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 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 communication is 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.



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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 in 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 are 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 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 about severe weather threats such as a Category 1-5 hurricane. Still, events such as earthquakes may immediately activate at Level 1 based on the severity of the earthquake and the level of system impact.



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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		Р	Y	Y	Y
Use of the LEOC		Р	Р	Y	Y
Mobilization of resources		Р	Р	Y	Y
Notifications to stakeholders		Р	Y	Y	Y
Government of Puerto Rico and/or Federal Assistance Needed				Р	Y
V Vec / B Brobable					

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, 2023). 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.



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- 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 Emergency Support Function (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 requires 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 multiisland 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.



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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, 2022) 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 established relationships with partner agencies, such as Puerto Rico Aqueduct and Sewer Authority (PRASA) and the Puerto Rico Department of Health (PRDoH), to maintain visibility (via access to healthcare coalition representatives and eventually the EMResource platform from PRDoH, Memorandum of Understanding (MOU) of the particular needs of these facilities prior to forecasted events.

Additionally, on February 5, 2024, the Department of Development and Economic Trade (DDEC for its acronym in Spanish) 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



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- 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 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.



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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.

7.0 Organization and Assignment of Responsibilities

7.1 LUMA Emergency Roster

The LER has been designed for 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 in 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 responses or tactical operations.
- **Operational Level:** Develops LUMA's response to the emergency and oversees the implementation of the 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 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



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- 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 Pre-Positioned Contracts

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. Initial assistance from the mainland may be limited. Therefore, LUMA proactively plans and prepares by establishing pre-positioned contracts.

Pre-positioned contracts, also known as "advance contracts" or "standby contracts," play a pivotal role in enhancing LUMA's readiness and response capabilities during both steady-state operations and emergencies. These contracts, established before disaster events, enable LUMA to act swiftly and efficiently in the face of unexpected challenges, aligning FEMA's recommendations to protect life, public health, safety, and property. These contracts 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. By securing agreements with pre-determined costs for critical services and goods, LUMA reduces the uncertainty and delays often encountered during emergency procurement processes. The advanced nature of these contracts ensures compliance with Federal procurement regulations, such as 2 CFR 200, while positioning LUMA to maximize cost-effectiveness and expedite disaster response efforts.

Currently, LUMA addresses several operational priorities through pre-positioned contracts, which include services like Environmental, Debris, Waste, and Vegetation Management, Emergency Restoration Services, and Hazardous Spill Remediation. These contracts proved invaluable, enabling the LEOC to swiftly issue task orders and mobilize resources. This proactive approach aligns with LUMA's operational priorities by ensuring critical services are available when needed most, supporting timely restoration efforts, and bolstering Puerto Rico's overall resilience. The strategy also incorporates detailed planning, including the submission of Contract Request Forms (CRFs) and Independent Cost Estimates (ICEs), ensuring readiness and compliance before the hurricane season.

During a LEOC activation, requests for contract "notice to proceed" are coordinated through the Logistics Section Chief and the IC. The resources obtained are then allocated between LUMA's ROCCs 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.



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During the initial response stage, the Operations Section Chief reviews the system's status and, after conferring with the IC, coordinates with the Logistics Section Chief to reallocate resources as necessary. The reallocation of resources is based upon the assessments of damage, 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. These contracts serve as a cornerstone for operational readiness, supporting LUMA's mission to maintain continuity of service and minimize the impact of disasters. As these efforts evolve, LUMA continues to refine its prepositioned contract strategy, ensuring alignment with federal guidelines and improving overall emergency preparedness. This approach not only demonstrates LUMA's commitment to effective disaster management but also provides a robust framework for supporting Puerto Rico's recovery in the face of future emergencies.

7.4 Mutual Aid Assistance

Electric utilities affected by significant outages frequently call on other utilities, pursuant to mutual aid assistance agreements, for available assistance to help expedite restoration. Mutual aid from the mainland may be delayed when requested due to a major weather event that has strained transportation resources and/or facilities. The Logistics and Mutual Aid Support Staff (Support & Services) may be activated when the IC and General Staff deem it appropriate to be prepared to receive resources 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)



Base Plan

Figure 9: Flowchart Describing the Process for Mutual Aid Agreement Notification with APPA.



8.0 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 being 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



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Note: LUMA consistently emphasizes public and employee safety as a top priority during any response. During 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, prepositioned 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 is scalable and provides 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

8.3 Safety

LUMA prioritizes safety in all operations, recognizing it as a shared responsibility between employees and management. This commitment extends to regular activities and emergency events, fostering a culture of continuous improvement, compliance, and proactive risk management. The sense of urgency regarding restoration efforts, coupled with the sub-optimal conditions that can occur after a disaster, increases the risks already inherent to operations. Therefore, safety officers increase surveillance and risk assessments to eliminate or mitigate at appropriate levels.

8.3.1 Safety Policies

LUMA's safety policies are designed to meet regulatory requirements and instill the best practices across all operational levels. Safety manuals and guidelines followed during regular operations and in emergency events are contained in the Safety and Environment (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.



Base Plan

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.

8.3.2 Safety Training

LUMA provides comprehensive training programs to ensure employee preparedness and adherence to safety protocols:

- General Safety Orientation: Conducted upon hiring or assignment to a new role, covering the HSE Manual and emergency response protocols.
- Ongoing Training: Offered when new procedures, equipment, or hazards are introduced, and after incidents to reinforce safety measures.
- Specialized Training: Focused on high-risk activities like confined space entry, vehicle operations, and hazardous substance handling.

8.3.3 Incident Reporting and Accountability

LUMA adheres to strict reporting procedures for safety incidents, following the standards outlined in the HSE Manual and the Major Outage Event Metrics (Appendix A of Annex A). Incident data is used to identify risks, refine procedures, and enhance training programs. Incidents are reported in the Intelex application and shared on the WebEOC platform.

8.3.4 Telematics

Telematics technology plays a key role in LUMA's safety initiatives, particularly in vehicle operations. This system integrates IT and communications to collect, analyze, and act on real-time data from vehicles, enhancing both safety and operational efficiency.

- Real-Time Monitoring: Tracks vehicle location, engine diagnostics, and driver behavior. Dual-facing AI dashcams capture video data to monitor driving behavior. Employees must identify with themselves via facial recognition when entering telematics-equipped vehicles. Tampering with or disabling the system is prohibited.
- In-Cabin Alerts: Drivers receive real-time feedback for unsafe behaviors, such as speeding or hard braking.
- Incident Recording: Video recordings provide insights into accidents, helping to identify root causes and exonerate drivers when appropriate.
- Preventive Maintenance: Tracks odometer readings and engine fault codes to schedule timely maintenance.

Data collected through Telematics is used to improve driver safety through coaching and mentoring, support incident investigations and protect employees in non-fault cases, comply with safety regulations for employees working alone or in isolation, and recognize and reward safe driving behaviors. This program includes a Telematics Policy and a training course for all LUMA employees available through Workday.



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8.4 WebEOC

As of 2024, LUMA acquired WebEOC, a cloud-based platform designed to help agencies and organizations maintain a common operating picture during critical events while simultaneously delivering powerful data and process workflows that can be used to expedite or automate routine tasks.

LUMA has been able to tailor boards to the needs and type of operations conducted during response operations. These boards allow for situational awareness to be maintained across all sections of the LEOC and equally with the ROCCS and its subordinate subcomponents. Additionally, WebEOC is used by PREMB, PRDoH, and FEMA, which facilitates the exchange of information and reports as appropriate and agreed upon during declared emergencies.

9.0 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. Vital records with operational information and situational intelligence are 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.

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)



Base Plan

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

9.1 Reporting

Several reports and documents for both internal and external use are generated to facilitate and record the response to an emergency. The reports tie back to the process in the ERP. The WebEOC platform facilitates the assembly, distribution, and filing of reports and documents.

9.1.1 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.



Emergency Response Plan Base Plan

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 safety management platform (Intelex) and shared with the IC and other Command and General staff.

LEOC Reports

When the LER is activated, the CMC will 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 IC within 30 days of the demobilization of the LEOC. It may be requested, on certain occasions, to prepare and submit a Final Event Report for Type 3 events. The P&I Section Chief drafts and submits the Final Event Report to the IC with a copy to the EP Department to supplement the AAR. It is the IC's prerogative to share it with the CMC.

9.1.2 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 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 PREB and P3A and as a courtesy to PREMB, and partner agencies via the LEOC LNO. 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 a 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



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- 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 a minimum of 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 of 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
- Applicable ETR (see Tables 14 and 15 of Major Outage Restoration, Annex A).
- Communications with the public, municipal contacts, and elected officials (describing communication methods

Restoration Stage Reports

During the restoration stage, Emergency Event Reports shall be submitted at a minimum of four times daily, unless otherwise directed by the PREB and P3A. 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 14 and 15 of Major Outage Restoration, Annex A). ETRs are reported in one or more of the following ways:



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

10.0 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 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

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10.2.2 Critical Customers

Critical customers are defined as those who rely on electricity for their health or receive subsidies from a government-sponsored program. Customers who provide documentation certifying their eligibility for 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 into 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 presents 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.
- Life Preservation Equipment (LPE) Customers Subsidy beneficiaries: These are customers who rely on electronic equipment for 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



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LUMA maintains an updated list of Critical Customers, particularly LPE customers, through a rigorous process that includes annual recertification. The customers must submit documentation certifying their eligibility under current subsidy laws, such as a qualification form signed by a physician for LPE clients and certified by the Puerto Rico Department of Health. The accuracy of the address list is upheld by:

- Annual submission of updated certification and qualification forms by LPE customers.
- Programming the Customer Care & Billing (CC&B) system to reflect any changes in customer enrollment, subsidies, or status.
- Keeping records for elderly, PAN beneficiaries, and LPE customers based on government-issued documents, such as valid photo IDs and enrollment letters.
- Conducting outbound calls 48 hours before a forecasted emergency to ensure the customer's contact details and needs are correct.

These customers are of particular interest during an outage event. The indicator used in the System is "LRS tariff" or the applicable subsidy. This indicator is only added to customers who benefit from the Life Preservation Equipment Subsidy. Forty-eight 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 type of information provided and requested from the customers is detailed in the Standard Operating Guide (SOG) to contact LUMA's Critical Services Customers.

In terms of client protection, personalized calls are attempted at least three times to LPE customers. Voice messages are left if there's no answer, and additional needs raised by the customer are referred to the Customer Experience & Key Account Specialist. This ensures customers' immediate concerns are addressed and relayed to appropriate local agencies for additional assistance, thus safeguarding their well-being during outage events. The specialist, leveraging established relationships with municipalities, informs the local Municipal Office for the Management of Emergencies (OMME), or the appropriate agency of the situation, without disclosing Health Insurance Portability and Accountability Act (HIPAA) protected information. This ensures that public safety officials and human service agencies are notified and can take necessary actions to assist these clients. The process involves:

- Notifying OMME about the unresponsive LPE customers to ensure local emergency officials can prioritize welfare checks or assistance.
- Follow-up coordination between LUMA, municipalities, and OMME to address potential safety or health risks associated with power outages for LPE clients.

This communication mechanism ensures that even if LPE clients are unreachable, relevant public safety authorities are informed and can take action to protect these vulnerable customers. All of this is documented.

Customers are reminded that despite their designation as an LPE customer the design of T&D infrastructure will require the restoration of core transmission and critical facilities first and their restoration, while a priority, will occur along with the surrounding area, following system prioritization and safety guidelines.



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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.

At H-48 the decision is made to augment the Call Center using LUMA employees assigned to the Customer Experience department, who are already trained and with installed software to augment inbound and outbound calls. Additionally, LUMA is in the final stages of awarding a pre-positioned contract with a vendor that will enlarge the Call Center capability.

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, Genera PR, 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.


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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 emergencyrelated 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 who has established steadystate 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, Genera PR, 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, Genera PR, and PREPA facilitates operational alignment and coordination.

10.3.4 Communication with Municipal Officials

LUMA Regional Key Accounts (KA) Representatives interact with the municipality's officials daily. LUMA initiates tracking and preparedness activities for forecasted emergency events 136 hours prior to impact, following guidelines from Annex D, Appendix B. At the 48-hour mark, KA Representatives make initial calls to government officials, including municipal mayors or their designees, and partner agencies with critical facilities to share pertinent situational information. This information includes:

- Situational awareness for the affected municipality
- Emergency conditions and restoration updates
- Status of outages and restoration efforts, including assigned crews
- Priority down wire locations
- Impacted critical facilities

Communication with municipal officials continues daily through structured methods designed to ensure timely updates and efficient coordination. Scheduled conference calls, divided by region, take place at 11:00 a.m. each day. These calls align with the LUMA Emergency Operations Center (LEOC), ensuring that the information shared is both validated and current. Each call, led by the KA Representatives and the ROCC Incident Commander or delegated operational staff, is designed to last no longer than 30 minutes.



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Within this timeframe, each mayor is allocated a five-minute slot to report on emergency situations specific to their municipality.

In addition to these scheduled calls, KA Representatives maintain direct lines of communication with municipal officials and emergency managers through telephonic, electronic, or face-to-face interactions. These efforts are aimed at keeping local governments informed about the evolving situation and the status of restoration efforts.

The communication process is outlined in Annex G and supported by 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 IAP), 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.



Emergency Response Plan Base Plan

11.0 Finance and Procurement

11.1 Finance

The Finance Section handles emergency costs based on activation under disaster declaration or without it, using specific project codes for time and cost tracking.

At the Pre-event and Emergency stages the internal Project code 15N000XXX000 is used by the administrative personnel activated to capture their time to support the preparedness for the event. As the event progresses, the project code remains in use by employees for capturing time and material used. These costs are consolidated into this project, however, impacting the specific employees' home cost centers.

Once a disaster declaration is promulgated by the President of the United States, the project code for LEOC, ROCCs, and administrative assistants (whose work is mostly not eligible for capitalization) will be 15E9000000 project code.

Field personnel and ROCCs are assigned codes divided by region (San Juan, Bayamon, Caguas, Arecibo, Mayaguez and Ponce). Vendor CPA (Contract Payment Authorization) must be linked to the regional emergency response project where the service will be provided or applicable.

- Administrative Staff: Continue using the 15E90000000 Code (mostly not eligible for capitalization).
- Field Personnel and ROCCs: Assigned project codes specific to their region:
 - o San Juan 15E900000001
 - o Bayamón 15E90000002
 - o Caguas 15E90000003
 - o Arecibo 15E90000004
 - Mayagüez 15E90000005
 - Ponce 15E90000006
- Vendor Contracts: CPA (Contract Payment Authorization) must be linked to the regional emergency response project where services are provided.

During the Demobilization Stage, project code 15E900000000 remains in use:

- Regional emergency response projects should no longer receive labor charges.
- LEOC, ROCCs, and administrative assistants will continue using the Emergency Response-General Project Code until demobilization is complete or directed otherwise.

At the demobilization stage, regional emergency response projects should no longer receive labor charges. LEOC, ROCCs, and administrative assistants working in the emergency response continue the Response-General project code until directed otherwise when demobilization is completed.



11.2 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 that are easily understood and implemented in conjunction with LUMA's procurement policies and procedures.

However, in the case of public exigency or emergency, 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 demand or emergency circumstances and is subject to other requirements and conditions set forth in LUMA's Procurement Manual.

11.2.1 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 the 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 is responsible for the continuity of the emergency contract process until appropriately closed out.

Emergency Response Plan Base Plan

12.0 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 a safer and reasonably efficient restoration of service during an emergency event. The program is based on a continuous cycle of plan development and exercising plans and procedures to ensure they are effective, as shown in Figure 10. This continuous emergency preparedness cycle lends itself to continuous improvement.



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.



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12.3 Training

The emergency preparedness process depends on constant and effective methods to refresh and reinforce skills in preparation for restoration events. The Multi-Year Training and Exercise Plan (MYTEP) is a key component of this process, as it establishes a structured and progressive training program that aligns with LUMA's emergency preparedness objectives. LUMA provides ongoing training on best practices regarding the NRF, NIMS and 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 training. MYTEP ensures that training programs include critical topics such as ICS protocols, WebEOC operations, crisis communication, and emergency response procedures.

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.

Skills 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. MYTEP specifies a detailed training schedule for the next 36 months, incorporating annual ICS refresher courses, cybersecurity training, WebEOC exercises, and coordination drills to maintain operational readiness.

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 and exercises outlined in the MYTEP adhere to LUMA's policies on emergency training, as well as federal and state regulatory requirements, including FEMA's National Incident Management System (NIMS), the Homeland Security Exercise and Evaluation Program (HSEEP), the June 22, 2020, T&D OMA, and Puerto Rico Department of Public Safety (Act 20-2017, as amended).



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Training on the ERP is conducted throughout the year. Training and exercises are planned and distributed in the MYTEP, which is updated regularly to reflect changes in PREB resolutions and orders. 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

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.

MYTEP establishes a progressive exercise cycle, starting with discussion-based exercises (e.g., seminars and workshops) and advancing them to more complex operation-based exercises (e.g., drills, functional exercises, and full-scale 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; clarify roles and responsibilities, and identify resource gaps. Figure 11, on the following page, displays all these different exercises.

LUMA employs a variety of exercise types based on 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. All training and exercises planned under the MYTEP align with LUMA's emergency preparedness priorities and regulatory requirements. 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.



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MYTEP ensures that exercises are systematically scheduled and executed over a multi-year period, integrating findings from AARs and IPs to continuously refine LUMA's emergency preparedness strategy.

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. Tabletop exercises, functional drills, and full-scale exercises planned within the MYTEP validate LUMA's ability to respond to emergency events, ensuring personnel are prepared for real-world incidents.



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, providing an opportunity for everyone involved in 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 the necessary improvements to the ERP, procedures, facilities, and 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.



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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 their 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 are 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

Table 10: After Action Review (AAR) Procedure.



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Step #	Timing	Action	Responsible Party
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. The 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
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



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Step #	Timing	Action	Responsible Party
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

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 benefit 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 assist LUMA employees in developing 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.

13.0 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.



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Each functional area of the ERP is responsible for reviewing and updating its employee and stakeholder contacts. Elements of the review include:

- Community Lifeline organizations and critical facilities
- All utility personnel are 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 approval from 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.



Emergency Response Plan Base Plan

14.0 Authorities and References

14.1 Authorities

- Homeland Security Act of 2002
- The National Security Strategy
- National Response Framework, as amended
- National Disaster Recovery Framework, as amended
- The Single Audit Act of 1984
- Robert T. Stafford Disaster Relief and Emergency Assistance Act, Public Law 93-288, as amended.
- 42 U.S. Code § 5170. (2013, January 29). Procedure for Declaration
- Housing and Economic Recovery Act of 2008
- Emergency Management and Assistance, Code of Federal Regulations, (CFR) 44
- Price-Anderson Amendments Act of 1988, Public Law 100-408, as amended.
- 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
- Presidential Policy Directive (PPD) 21: Critical Infrastructure Security and Resilience, February 2013
- 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
- Americans with Disabilities Act (ADA) of 1990
- Developing and Maintaining Emergency Operations Plans: CPG 101: Version 2.0 November 2010
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14.3 Terms

- 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.
- Assumptions Operationally relevant parameters expected and used as a context, basis, or requirement for the development of response and recovery plans, processes, and procedures.
- 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 valuecreating 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.
- 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.



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- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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).



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- 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.
- 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. 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.
- 24. **Outage Management System** System used to identify customer outages, assign trouble crews, and record outage event statistics.
- 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.
- 26. **Risk Analysis** The first step and process of identifying and analyzing defining characteristics and potential issues that may negatively impact organizations.
- Risk Assessment The process of identifying the risk analysis and making judgements of potential events that may impact the organization.
- Supervisory Control and Data Acquisition Electronic monitoring equipment that reports the status of distribution equipment.
- Service Interruption The loss of service to one or more customers connected to the electric distribution system.
- 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

1.0 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 the 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. 		



Event Types	Characteristics	
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: Multiple workers require hospitalization. Regional & national media interest. Spill or release not contained, extends beyond lease. Public/employee health & safety or the 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 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 4-8 of Annex A.



2.0 Activation Levels

Event Level	Characteristics	
Level 5 Normal Operations	Normal day-to-day operations.Teams utilize ERP principles to respond to events.	
Level 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. 	
Level 3 Moderate Activation	 Command and General Staff are activated to support 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. 	
Level 2 Large Activation	 Command and General Staff, Branches, and Units are activated to coordinate response. The LEOC, ROCCs, and SERTs are open and in use. Multiple shifts are in place to maintain response efforts. Operational Period Briefings and Incident Action Plans are completed. 	
Level 1 Full Activation	 All roles on the LER are activated, including War Rooms and any additional roles 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 open 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.



3.0 Crisis Management Committee Structure





4.0 LEOC ICS Structure



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



5.0 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 Genera PR 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. 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, whic





Role	Role Section	Role Description
		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.
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. Establish contracts with supply and contract vendors as required. Finalize contracts and agreements and obtain signatures from appropriate approval authorities.



Role	Role Section	Role Description	
		 Maintain records of purchases and contracts. 	
LEOC Manager	Command	 The LEOC Manager is responsible for the management of the LEOC facility and ensures 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 for any support for EOC system(s) as needed by LEOC staff. Ensure that coordination among Sections is accomplished effectively. In charge of section personnel activation via WebEOC, when approved by IC, until section assistants are activated. 	
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 LUMA's 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. Stop and prevent unsafe acts immediately when reported, leveraging telematics alerts as a prompt to review and change behaviors during activities that could compromise safety. Communicate with employees and contractors regarding their responsibility to exercise 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, considering insights and trends from telematics data for inclusion in the IAP, via WebEOC. Assign Safety staff assistants qualified to evaluate special hazards. 	



Role	Role Section	Role Description
		 Ensure adherence to all applicable workplace safety rules and policies during restoration. Recommends measures for public safety, and the protection of LUMA employees (including LUMA contractors). Allocates local Safety and Health personnel to affected branches, prioritizing locations flagged by telematics' trends for heightened safety risks. Oversee and ensure an initial safety briefing is conducted with all arriving seconded, or contractor crews. 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, leveraging telematics. Notify the Incident Commander of any significant safety events or conditions related to worker health and safety. Additional responsibilities as assigned by the Incident Commander.
Assistant Safety Officer	Command	 The Assistant Safety Officer (ASO) supports the Safety Officer in ensuring the safety and health of all response personnel, including contractors, by assisting in implementing LUMA's safety procedures. The ASO will monitor safety incident reports, and address safety concerns in the field, supporting SO's responsibilities and contributing to a proactive safety culture. The primary responsibilities include, but are not limited to: Assists the SO in identifying and mitigating hazardous situations, using telematics data on trends to flag risks. Acts as a point of contact for assigned ROCC safety personnel, communicating safety messages and coordinating safety actions as needed. Supports the SO in monitoring compliance with workplace safety rules. Help prepare safety briefing materials to address specific field safety concerns for daily briefings with LUMA and contractor crews. Maintains situational awareness via reports and safety messages using WebEOC. Assists in investigations of safety near-misses or incidents. Reports significant safety events or telematics alerts to the SO for further review and action. Undertake other duties assigned by the SO, and IC to support the incident response's overall safety.



Role	Role Section	Role Description
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. 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 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. Liaison for information sharing between the PREMB LUMA Regional Interagency Coordinators (LRIACs) and the LEOC. This position works directly with PREMB LNACs to collect information on community and customer power outages. 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



Role	Role Section	Role Description
		 requested from PREB and P3A. They work closely with 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 contributing 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 communication 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



Role	Role Section	Role Description
		 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.
LUMA PREMB		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:
Interagency Coordinator	Command	 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, Genera PR, PRASA, DDEC, among
Public Information Officer	Command	others. 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



Role	Role Section	Role Description
		 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 Genera PR 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. 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.



Role	Role Section	Role Description
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 about 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 is communicated to our customers. Overseas 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



Role	Role Section	Role Description
		 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.
Key Accounts Team Lead	Command	 The Key Account Team Lead supports the Customer Experience & Key Accounts Specialist by ensuring smooth operations and effective communication within the Key Accounts division. The role primarily involves overseeing the Regional Key Accounts Representatives and monitoring their requests to ensure they align with organizational goals and customer satisfaction. The Key Account Team Lead also plays a critical role in monitoring daily meetings with mayors to address municipal concerns and ensure timely information sharing. The primary responsibilities include, but are not limited to: Providing Support to Customer Experience & Key Accounts Specialist: Assisting in gathering and reporting customer feedback and satisfaction levels, ensuring that any issues are promptly addressed. Monitoring Regional Key Accounts Representatives: Following up on the activities and requests of the Regional KA Representatives to ensure they are effectively managing customer relationships and resolving any issues that arise. Guiding Regional Engagement and Monitoring Daily Meetings with Mayors: Overseeing daily interactions with mayors to address concerns at the municipal level and ensure that customer service efforts are communicated effectively, ensuring that their needs and concerns are managed proactively. Ensuring Consistency in Communication: 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 complaints and support a positive customer experience. Develop collaborative workflow processes with Operations, Plans & Intelligence, and Customer Experience & Key Account Specialist.
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



Role	Role Section	Role Description
		 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 lot 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. Ensure each position within the Command Section maintains the ICS 214 capturing important information and activities. Maintain personnel accountability of the LEOC Command section activated and mobilized roster using the ICS 214's and Check-in/Check-out history in WebEOC. Schedule and coordinate the CMC meetings. Once the LEOC is activated, in coordination with the P&I section Chief, schedule the virtual update meetings with the National Weather Service. In charge of section personnel activation via WebEOC, when approved by the Incident Commander, also in charge of finance section activation.
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 are 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



Role	Role Section	Role Description
		 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 consider 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 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

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Role	Role Section	Role Description
		 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 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 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. Approve the release of resources from active operational assignments. Initiate or approve changes to the IAP regarding 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



Role	Role Section	Role Description
		 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.
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



Role	Role Section	Role Description
		 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 non-governmental) 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 lot 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. Ensure each position within the Operations Section



Role	Role Section	Role Description
		 maintains the ICS 214 capturing important information and activities. Maintain personnel accountability of the LEOC Operations Section activated and mobilized roster using the ICS 214's and Check-in/Check-out history in WebEOC. In charge of section personnel activation via WebEOC, when approved by section Chief.
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.



Role	Role Section	Role Description
		 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



Role	Role Section	Role Description
		 include, but are not limited to: Validating that sections are utilizing the appropriate contract types for the work. Monitoring contracts 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 contract 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 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.
Logistics and Mutual Aid Support Staff	Logistics	The Logistics and Mutual Aid Support Staff (Support & Services) are responsible for dealing with lodging food and onboarding, once a utility confirms they will be supporting LUMA Mutual aid



Role	Role Section	Role Description
(Support & Services)		 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, 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, 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.



Role	Role Section	Role Description
		 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



Role	Role Section	Role Description
		 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 deliveries 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 the layouts of incident facilities. Activate incident facilities. Provide base and camp managers. Provide facility maintenance services – sanitation, lighting, and cleanup.



Role	Role Section	Role Description
		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 are 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.
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.



Role	Role Section	Role Description
		 Working alongside the Planning and operations teams to help prioritize, repair, and deploy activities and services through the Network Operations Center (NOC).
WebEOC Administrator	Logistics	 The WebEOC Administrator is responsible for ensuring the continuous functionality, accessibility, and operational integrity of the WebEOC platform throughout an event. This role focuses on supporting situational awareness, facilitating communication, and meeting the documentation needs of LEOC personnel. The primary responsibilities of the WebEOC Administrator include, but are not limited to: Continuously assess the WebEOC platform for system performance and troubleshoot any issues. Promptly notify the Information Technology Unit Leader and IT OT & Communications Branch Director if critical issues or abnormal conditions arise. Responsible for escalating the request to Juvare (vendor) for WebEOC support or resources when issues exceed internal capabilities. Collaborates with the IAM Cybersecurity Unit Leader, who oversees and approves the Single Sign-On (SSO) process. Ensures user accounts are active, and permissions are assigned appropriately to LEOC staff, allowing seamless access to necessary boards and data. Maintains usage discipline within WebEOC by conducting regular reviews, identifying and notifying discrepancies as needed, and ensuring proper use of WebEOC boards. Provides just-in-time training for LEOC personnel unfamiliar with WebEOC functionality and offers ondemand technical support for troubleshooting during the event. Ensures WebEOC data is regularly backed up to prevent data loss.
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.



Role	Role Section	Role Description
		 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 needed for 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. Collaborates with the WebEOC administrator, responsible for ensuring the continuous functionality, accessibility, and operational integrity of the WebEOC platform throughout an event. 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 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, providing counseling services, and ensuring 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



Role	Role Section	Role Description
		 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 lot 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. Ensure each position within the Logistic Section maintains ICS 214, capturing important information and activities. Maintain personnel accountability of the LEOC Logistic Section activated and mobilized roster using the ICS 214's and Check-in/Check-out history in WebEOC. In charge of section personnel activation via WebEOC, when approved by the Section Chief.
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 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

Role	Role Section	Role Description
		 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. Lead the After-Action Review session in coordination with EP prior to LEOC demobilization. Document Findings and outcomes.
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 assessment. 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.



Role	Role Section	Role Description
		 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 a check-in function at incident locations. 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. 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 the estimated time 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.



Role	Role Section	Role Description
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 ETR Specialist.
GIS Unit Leader	Planning & Intelligence	The Geographic Information System Unit Leader coordinates the preparation of incident maps and displays by collecting and interpreting information. The primary responsibilities of this



Role	Role Section	Role Description
		 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 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 ETR data from the ETR Specialist 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. Obtain approval of internal reports 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.



Role	Role Section	Role Description
		 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. 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 Metrics Unit Leader ensures reporting requirements associated with MOE metrics are completed. The MOE Metrics Unit Leader ensures that, during an 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



Role	Role Section	Role Description
		 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 responses. 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. 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 environmental performance metrics during emergency situations. Lead a team of environmental specialists in executing environmentally responsible response activities that affect the environment. Conduct thorough reviews of work completed, referencing WOP (Parte Diarios) or other relevant documentation.



Role	Role Section	Role Description
		 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. Provide duplicates of forms and reports to authorized requesters. Prepare incident documentation for the Planning and Intelligence Section Chief when requested.
Check-In Staff	Planning & Intelligence	 The Check-In / Check-Out Staff supports personnel accountability and accurate documentation during an incident. Their responsibilities include, but are not limited to: Initiates and manages the check-in and check-out process for all personnel at the LEOC using WebEOC. Validates and tracks ICS Form 214 (Activity Log) for all checked-in personnel to ensure accurate recordkeeping of activities and resource assignments. Reviews proper documentation is uploaded and maintained in WebEOC. Monitors personnel status throughout the incident and provides updates as needed to the Demobilization Unit Leader. Ensures personnel complete the necessary demobilization documentation, including proper submission of ICS 221 and AAR board. Communicate any issues to the Documentation Unit Leader.
Demobilization Unit Leader	Planning & Intelligence	The Demobilization Unit Leader oversees unit staff who develop an incident demobilization plan that includes specific



Role	Role Section	Role Description
		 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. Oversee 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 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.
Planning and Intelligence Section Assistant	Planning & Intelligence	 The Planning and Intelligence Section Assistant (AST) documents LEOC activities and serves as a scribe to assigned Planning and Intelligence staff. The Section Assistant documents all activities and records information for the area assigned. Such records are written and may include graphical or map-based documentation. The Planning and Intelligence Section Assistant coordinates with other Section Assistants as necessary to ensure the effective use of WebEOC, SharePoint, or other information-sharing systems. The primary responsibilities of the Planning and Intelligence Section Assistant include, but are not limited to: Ensure accurate documentation of inputs for the IAP, such as objectives, strategies, and resource requirements. Assist in the preparation, review, and distribution of the IAP to all relevant sections and stakeholders. Coordinate with other sections to gather and verify data required for the IAP.



Role	Role Section	Role Description
		 Track and update the status of tasks and assignments outlined in the IAP. Maintain a complete and accurate record of all actions, updates, and key decisions made by the Planning and Intelligence Section during and after the incident. Take notes at Planning Section meetings and briefings, ensuring significant updates are captured for situational awareness. Compile and archive data, maps, and reports as required for future reference or analysis. Work closely with other Section Assistants to ensure seamless information flow and consistency across sections. Answer the P&I Section desk phone(s) if staff are busy and unable to answer. Assist with updates to incident maps, charts, or status boards as required. Ensure each position within the Planning and Intelligence Section maintains the ICS 214 capturing important information and activities. Maintain personnel accountability of the LEOC P&I activated and mobilized roster using the ICS 214's and Check-in/Check-out history in WebEOC. In charge of section personnel activation via WebEOC, when approved by the Section Chief
Finance Section Chief/Deputy F&A Section Chief	Finance	 The Finance 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.



Role	Role Section	Role Description
		 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	 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.
Cost Recovery Unit Leader	Finance	 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.



Role	Role Section	Role Description
Claims Unit Leader	Finance	 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 way, 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 people 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 **May 2025** 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.

Arecibo Region		
Municipalities	Arecibo, Hatillo, Camuy	
Critical Facilities Level 1		
Hospital	Pavía Hospital	
Water Infrastructure	E/B Cambalache @Hospital District	
Hospital	Doctor's Center Hospital	
Hospital	Victor Rojas Hospital Metropolitan	
Hospital	Dr. Susoni Hospital	
Water Infrastructure	P/F Super Acueducto Factor Barceloneta TC	
Water Infrastructure	E/B Super Acueducto -Factor Barceloneta TC	
Water Infrastructure	P/T -Cambalache Mirador Azul	
Water Infrastructure	E/B & Tanque Miraflores	
Water Infrastructure	E/B Super Acueducto Factor	
Dialysis Center	Fresenius Kidney Care Radio Vill Arecibo	
Government	Correctional Facilities Sabana Hoyos	
Water Infrastructure	E/B Pas Barceloneta	
Industrial (Medical)	Pharmaceutical Abbott	
Critical Facilities Level 2		
Medical Facility	CDT Policlínica Familiar Medical Facility Factor	
Medical Facility	(CDT) Villa Los Santos Centro de Diagnóstico, Tratamiento y Emergencias Médicas	
Medical Facility	CDT Marrero Arecibo	
Medical Facility	CDT Quebrada	
Medical Facility	CDT Arecibo Medical Center;	



Medical Facility	CDT Marcano Arecibo
Medical facility	Camuy Health Service
Medical facility	Quebradillas Medical Center
Medical Facility	Policlinica Familiar Shalom Quebradillas
Utuado District	
Municipalities	Utuado, Adjuntas, Jayuya
Critical Facilities Level 1	
Water Infrastructure	Treatment Water Plant Bo Rio Abajo Utuado
Medical Facility	Hatimedik (330)
Hospital	Metropolitan Hospital de la Montaña
Water Infrastructure	Represa & Planta Filtración
Government	Police Station
Hospital	Hospital Utuado
Medical Facility	Policlínica Castañer. – Adjuntas
Hospital	General Hospital Castañer Lares
Hospital	Adjuntas, Hospital
Government	Government Center Facility,
Water Facility	E/B Lago Garza Adjuntas
Water Infrastructure	P/F Yahuecas Adjuntas
Water Infrastructure	P/F Compacta Canalizo
Water Infrastructure	P/F Guilarte
Water Infrastructure	E/B & Represa Mameyes Limón
Water Infrastructure	E/B & Represa Jayuya
Water Infrastructure	E/B & Represa Delicias
Critical Facilities Level 2	
Medical Facility	Policlinica Castañer – Jayuya
Medical Facility	CDTCaparros Utuado
Medical Facility	CDT Jayuya Caparros
Critical Facilities Level 3	



Water Infrastructure	P/F, Tank & Reservoir Roncador Utuado
Vega Baja District	
Municipalities	Vega Baja, Vega Alta, Barceloneta, Manatí, Morovis, Florida, Ciales
Critical Facilities Level 1	
Medical Facility	Medical Center Wilma N. Vázquez Vega Baja
Medical Facility	Florida Medical Center
Medical Facility	Atlantic Medical Center Barcelonetra
Water Infrastructure	Super Acueducto Factor – Barceloneta
Government	Barceloneta City Hall
Government	OMME Florida
Government	Florida City Hall
Police	Police Station Florida
Police	Police Station Barceloneta
Water Infrastructure,	Río Abajo Vega Baja, P/F
Medical Facility	Fresenius Diálisis Center, CDT Vega Baja
Medical Facility	Prymed Medical Care Ciales
Government	Vega Baja City Hall
Medical Faciliti	CDT Vega Baja
Emergency Ops Center	OMME Vega Baja,
Water Infrastructure	Water Treatment Plant Sur, P/F Charco Azul
Fire	Fire Station Vega Baja
Water Infrastructure	E/B Súper Acueductos Sector Russe, E/B Súper Acueductos PR 155 Vega Baja
Water Infrastructure	P/T AAA PR 676 Bajuras, Vega Alta
Medical Facility	CDT Vega Alta
Medical Facility	Fresenius Kidney Care Vega Alta
Water Infrastructure	E/B, Sanitarias Velomas, Vega Alta Alta
Government Center Facility	Vega Alta Emergency Ops. Center, Police & Fire



Government	Vega Alta City Hall
Hospital	Dr. Center Manati
Hospital	Manati Medical Center
Critical Facilities Level 2	
Water Infrastructure	E/B Tratamiento Puerto Nuevo, Vega Baja
Critical Facilities Level 3	
Water Infrastructure	Road 628 Arrozal, Montaña Sabana Hoyos
Water Infrastructure	E/B Sector El Criollo Algarrobo, Vega Baja
Water Infrastructure	E/B PR 155 Las Granjas, Pozo Algarrobo PR 155 C/Manuel Vélez Itier Vega Baja
Water Infrastructure	E/B PR 678 Pámpanos E/B PR 694 Santa Ana Vega Alta
Water Infrastructure	E/B Bajuras Vega Alta
Water Infrastructure	E/B PR 647 Candelaria, E/B PR 677 Maricao Vega Alta
Water Infrastructure	E/B PR 679, Int. 820, Convento, E/B PR 659, Los Bloises Dorado
Water Infrastructure	E/B PR 694, Vega Alta
Water Infrastructure Cagas Region	E/B PR 694, Vega Alta
Water Infrastructure Cagas Region Municipalities	E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis
Water Infrastructure Cagas Region Municipalities Critical Facilities Level 1	E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis
Water Infrastructure Cagas Region Municipalities Critical Facilities Level 1 Water Infrastructure	E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospital	E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospitalWater Infrastructure	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospitalWater InfrastructureHospitalHospital	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra Hospital Menonita de Aibonito
Water Infrastructure Cagas Region Municipalities Critical Facilities Level 1 Water Infrastructure Hospital Water Infrastructure Hospital Medical Facilities,	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra Hospital Menonita de Aibonito Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios,
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospitalWater InfrastructureHospitalMedical Facilities,Emergency Management	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra Hospital Menonita de Aibonito Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Emergency Operations Center (Pedro Montañez Stadium),
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospitalWater InfrastructureHospitalMedical Facilities,Emergency ManagementPolice	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra Hospital Menonita de Aibonito Hospital Menonita de Aibonito Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Emergency Operations Center (Pedro Montañez Stadium), Police Department Cayey
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospitalWater InfrastructureHospitalMedical Facilities,Emergency ManagementPoliceWater Infrastructure	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra Hospital Menonita de Aibonito Hospital Menonita de Aibonito Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Emergency Operations Center (Pedro Montañez Stadium), Police Department Cayey Water Dam La Central, P/F Farallon-Carite
Water InfrastructureCagas RegionMunicipalitiesCritical Facilities Level 1Water InfrastructureHospitalWater InfrastructureHospitalMedical Facilities,Emergency ManagementPoliceWater InfrastructureFire	 E/B PR 694, Vega Alta Aguas Buenas, Aibonito, Barranquitas, Cayey, Cidra, Comerío, Orocovis P/F, Represa Menonita Hospital Cayey Treatment Water Plant Cayey-Cidra Hospital Menonita de Aibonito Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Emergency Operations Center (Pedro Montañez Stadium), Police Department Cayey Water Dam La Central, P/F Farallon-Carite Aibonito Fire Station



Water Infrastructure	Filtration Plant Urbana Pasto Viejo
Fire Station	Estación Bomberos Cayey
Water Infrastructure	Represa Puente de Hierro Arenas
Military	National Guard Armory
Water Infrastructure	P/F Cayey
Hospital	Hospital Menonita de Cayey
Water Infrastructure	Planta Tratamiento, Represa
Water Facility, Water Infrastructure,	P/T, Dam,
Police	Municipal Police Station
Emergency Management	OMME Cayey
Governmment	Cayey City Hall
Water Infrastructure	P/T, Dam Cayey
Water Infrastructure,	P/F Cidra
Police	Municipal Police Station
Government	Cidra City Hall
Hospital	First Hospital Panamericano
Hospital	Hospital (Menonita)
Water Facility	P/F Minillas Dam, Aguas Buenas
Government	Aguas Buenas City Hall
Water Infrastructure	Filtration Plant Jagueyes, Wastewater Treatment Plant Jagueyes
Fire Station	Aguas Buenas Fire Station
Water Infrastructure	E/B Rincon Candela
Hospital	Barranquitas Hospital (Menonita),
Water Facility, Water Infrastructure	P/T, Dam
Water Infrastructure	P/F, Dam
Water Infrastructure	Dam
Fire Station, Emergency Management	Estacion Bomberos, OMME



Water Infrastructure	Planta Tratamiento
Water Infrastructure	P/F, Represa
Water Infrastructure	P/T
Medical Facility	Centro de Salud Familiar Menonita de Comerio
Water Infrastructure	Water Treatment Plant Represa,
Government Facility Center	Barranquitas Municipal Police and Fire Station and
Emergency Management	OMME Barranquitas
Government	Barranquitas City Hall
Water Infrastructure	Planta Tratamiento, y Represa
Communication	Torres de TV y Radio.
Hospital, Water Facilities, Water re	Hospital CIMA Orocovis,
Government, Police & Emergency Service	Municipal Police Station Orocovis
Emergency Mnagement & Fire	OMME, Fire Station Orocovis
Water Infrastructure	P/T, Represa Las Marías Dam
Critical Facilities Level 2	
Critical Facilities Level 2 Key Products / Key Services	Baxter Health Care Pharmaceutical Aibonito
Critical Facilities Level 2 Key Products / Key Services Medical Facility	Baxter Health Care Pharmaceutical Aibonito CDT Comerio
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government	Baxter Health Care Pharmaceutical Aibonito CDT Comerio City Hall Cayey
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications	Baxter Health Care Pharmaceutical Aibonito CDT Comerio City Hall Cayey Comunicaciones: La Santa, Doppler Radar
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government	Baxter Health Care Pharmaceutical Aibonito CDT Comerio City Hall Cayey Comunicaciones: La Santa, Doppler Radar Cidra City Hall
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Government	Baxter Health Care Pharmaceutical Aibonito CDT ComerioCity Hall CayeyComunicaciones: La Santa, Doppler RadarCidra City HallAguas Buenas City Hall
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Government	Baxter Health Care Pharmaceutical Aibonito CDT ComerioCity Hall CayeyComunicaciones: La Santa, Doppler RadarCidra City HallAguas Buenas City HallComunicaciones: Marquesa, La Mesa
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Communications Communications	Baxter Health Care Pharmaceutical Aibonito CDT ComerioCDT ComerioCity Hall CayeyComunicaciones: La Santa, Doppler RadarCidra City HallAguas Buenas City HallComunicaciones: Marquesa, La MesaTorres Comunicaciones Radio y TV
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Communications Communications Communications	Baxter Health Care Pharmaceutical Aibonito CDT Comerio City Hall Cayey Comunicaciones: La Santa, Doppler Radar Cidra City Hall Aguas Buenas City Hall Comunicaciones: Marquesa, La Mesa Torres Comunicaciones Radio y TV
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Communications Communications Communications Water Plant	Baxter Health Care Pharmaceutical AibonitoCDT ComerioCity Hall CayeyComunicaciones: La Santa, Doppler RadarCidra City HallAguas Buenas City HallComunicaciones: Marquesa, La MesaTorres Comunicaciones Radio y TVCoca Cola Caribbean Refrescos -Nikini (bottled water) - Cayey
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Communications Communications Communications University	Baxter Health Care Pharmaceutical AibonitoCDT ComerioCity Hall CayeyComunicaciones: La Santa, Doppler RadarCidra City HallAguas Buenas City HallComunicaciones: Marquesa, La MesaTorres Comunicaciones Radio y TVCoca Cola Caribbean Refrescos -Nikini (bottled water) - CayeyUniversity of Puerto Rico Cayey
Critical Facilities Level 2 Key Products / Key Services Medical Facility Government Communications Government Communications Communications Communications University Key Products / Key Services	Baxter Health Care Pharmaceutical AibonitoCDT ComerioCity Hall CayeyComunicaciones: La Santa, Doppler RadarCidra City HallAguas Buenas City HallComunicaciones: Marquesa, La MesaTorres Comunicaciones Radio y TVCoca Cola Caribbean Refrescos -Nikini (bottled water) - CayeyUniversity of Puerto Rico CayeyTo- Ricos Corporation



Key Services	Comercial Center Plaza Cayey
Water Infrastructure	E/B Rabanal Cidra
Caguas District	
Municipalities	Caguas, Gurabo, Juncos, San Lorenzo
Critical Facilities Level 1	
Hospital	Hospital HIMA San Pablo Caguas
Hospital	Hospital Menonita de Caguas
Police	PR Police Academy
Water Infrastructure	P/T Rio Blanco
Hospital	HIMA Hospital San Pablo, Caguas
Medical Facility	NeoMed Center Inc Gurabo (FQHC, CDT)
Hospital	San Lorenzo Municipal Hospital
Emergency Management	Puerto Rico Emergency Management Center Quebrada Arena
Emergency Management	OMME Caguas
Water Infrastructure	Dam Borinquen AAA
Water Infrastructure	P/F Caguas Sur AAA
Water Infrastructure	Dam Cagüitas AAA
Water Infrastructure	P/F Gurabo AAA
Emergency Management	PREMB Regional EOC
Water Infrastructure	Dam Nueva Cerro Gordo
Water Infrastructure	P/F Cerro Gordo AAA
Water Infrastructure	Ddam Jagual AAA
Water Infrastructure	P/F Jagual AAA
Water Infrastructure	P/F Espino
Water Infrastructure	P/F Quebrada Arenas
Water Infrastructure	Dam Pueblito del Río
Water Infrastructure	P/F Ceiba Sur
Water Infrastructure	Dam Ceiba Sur



Water Infrastructure	PRASA Well 1, 5, 7 La Antigua Central Juncos
Critical Facilities Level 2	
City Courthouse	Caguas
Government	City Hall Caguas
Medical Facility	Fresenius Kidney Care Dialysis Center
Medical Facility	Atlantis Dialysis Center
Medical Facility	Corporación SANOS - Caguas Los Prados (FQHC)
Medical Facility	NeoMed Center, Inc Juncos (FQHC)
Critical Facilities Level 3	
Manufact. Plant	Medtronics
Manufact. Plant	Ethicon
Manufact. Plant	Janssen
Manufact. Plant	AMGEN
Residential	Caguas Tower High-Rise Residential Building
Water Infrastructure	E/B Beatriz I y II
Water Infrastructure	E/B Altos de la Fuente
Water Infrastructure	E/B Turabo Gardens
Water Infrastructure	E/B La Pista
Water Infrastructure	E/B La Princo
Water Infrastructure	E/B San Luis
Water Infrastructure	E/B Tomas de Casto I, Etapas 1
Water Infrastructure	E/B Tomas de Casto I, Etapas 2
Water Infrastructure	E/B Tomas de Casto I, Etapas 3
Water Infrastructure	E/B Tomas de Casto II, Etapas 1
Water Infrastructure	E/B Tomas de Casto II, Etapas 2
Water Infrastructure	E/B Cañaboncito Caguas, Etapa 1
Water Infrastructure	E/B Cañaboncito Caguas, Etapa 2
Water Infrastructure	E/B La Barra



Water Infrastructure	E/B La Mesa I
Water Infrastructure	E/B San Salvador
Water Infrastructure	E/B San Salvador Etapa I
Water Infrastructure	E/B San Salvador Etapa II
Water Infrastructure	E/B San Salvador Etapa III
Water Infrastructure	E/B San Antonio (Pedro Pollo)
Water Infrastructure	E/B Mirador de Bairoa
Water Infrastructure	E/B Jagüeyes Pajilla Etapa 1
Water Infrastructure	E/B Jagüeyes Pajilla Etapa 2
Water Infrastructure	E/B Jagüeyes Pajilla Etapa 3
Water Infrastructure	E/B Jagual 2da Etapa
Water Infrastructure	E/B Celada Etapa 2
Water Infrastructure	E/B Celada Etapa 3
Water Infrastructure	E/B Soterrada Rincón Etapa I
Water Infrastructure	E/B Soterrada Rincón Etapa II
Water Infrastructure	Well Mamey
Water Infrastructure	E/B Mamey
Water Infrastructure	E/B Reina de los Ángeles
Water Infrastructure	E/B San Pedro Estate
Water Infrastructure	Well #3 Estación Experimental
Water Infrastructure	E/B Tanques Urbanos
Water Infrastructure	E/B El Tamarindo (Quemados)
Water Infrastructure	E/B Quebrada Etapa I y II
Water Infrastructure	E/B Los Velázquez Etapa I, II y III
Water Infrastructure	E/B Los Carrasquillos I
Water Infrastructure	E/B Jagual 2da Etapa
Water Infrastructure	E/B Tino Borges
Water Infrastructure	E/B Jacobo Pérez Etapa I



Water Infrastructure	E/B Jacobo Pérez Etapa II
Water Infrastructure	E/B Soterrada Bo. Hato
Water Infrastructure	E/B Florida (Masso)
Water Infrastructure	E/B Florida Etapa II, P/F Juncos
Water Infrastructure	E/B Soterrada Canta Gallo (convertidor)
Water Infrastructure	E/B Piñas Etapa I
Water Infrastructure	E/B Piñas Etapa II, E/B Campo Traviesa, E/B El Ensanche
Water Infrastructure	E/B Lirios Cementerio
Water Infrastructure	E/B Lirios Jocelyn
Water Infrastructure	E/B Valenciano I
Water Infrastructure	E/B Pello Pomales
Humacao District	
Municipalities	Yabucoa, Humacao, Naguabo, Las Piedras
Critical Facilities Level 1	
Water Facility	AAA Water Treatment Plant
Government	Yabucoa Government Center
Hospital	Hospital Ryder Memorial
Water Facility	Waste Water Treatment plant
(Medical) Key Products / Services	PRAXAIR
Fuel	Shell Fuel Tank Farm Distribution Center Refinery
Government	City Hall Humacao
Police	Municipal Police Station
Hospital	HIMA Hospital, Humacao
Medical Facility	CDT Humacao
Fire	Estación Bomberos
Government	Piedras City Hall
Hospital	Hospital Menonita de Humacao
Police	Las Piedras Municipal Police



Airport, Government	Humacao Airport, Court House	
Police	Municipal Police Station, Humacao	
Medical Facility	CDT Naguabo	
Government	Naguabo city Hall	
Hospital	Hospital HIMA de Humacao,	
Government	Naguabo City Hall	
Police, Fire Station	Police Office & Fire station	
Communications	El Yunque Communications Towers	
Communications	Navy Communications Services	
Government Facility Center	Police & Fire Station	
Water Infrastructure	P/T Quebrada Grande, Las Piedras	
Police	Municipal Police Station	
Government	Humacao City Hall	
Water Infrastructure	P/T La Pica Yabucoa	
Fire	Yabucoa Fire Station	
Police	FURA Yabucoa	
Government	Yabucoa City Hall	
Critical Facilities Level 2		
Medical facility	Dialysis center Fresenius – Los Prados	
Medical Facility	CDT Las Piedras	
Medical Facility	CDT Yabucoa	
Critical Facilities Level 3		
Lage Employers / Key Products	Merck	
Large Employer / Key Products, College	General Electric	
Large Employer / Key Products, College	MC Neil	
Large Employer / Key Products, College	Lutron	
Large Employer / Key Products, College	Cristalia	
Large Employer / Key Products, College	Eaton	
Large Employer / Key Products, College	Carmela	
Large Employer / Key Products, College	Aspen	



Large Employer / Key Products, College	PRICH
Large Employer / Key Products, College	Johnson @ Johnson Humacao
Large Employer / Key Products, College	Medtronic
College	University Of PR
Large Employer / Key Products	To-Rico
Large Employers, Key Products / Key Services	Bristol-Meyers, Microsoft, Marshalls, Walmart, Home Depot, BARD, Nelly Pack
Water Infrastructure	E/B Caserío Roig
Water Infrastructure	E/B Las Piedras
Water Infrastructure	E/B Anton Ruiz Humacao, E/B Higuerilo
Mayagüez Region	
Municipalities	Añasco, Mayagüez, Hormigueros, San Germán, Sabana Grande, Lajas, Cabo Rojo
Critical Facilities Level 1	
Hospital	Hospital La Concepción
Water Facility	PRASA Substation Lajas Nuevas
Medical Facility	Clínica de Veteranos
Water Facilities	Represa Rio Añasco, E/B
Military Facility	PRNG
Industrial	Industrial Zone, Añasco
Military	National Guard Armory, Mayagüez
Hospital	Perea Hospital, Mayagüez
Medical Facility	Yagüez Medical Clinic
Police, Government	Police Station, Government Center
Medical Facility	Mayagüez Medical Center/ Advanced Cardiology Center
Airport	Airport Mayagüez
Water Facility	P/T
Water Infrastructure	P/F
Medical Facility	Mayagüez Medical Center
Government	Emergency Management Regional Office Mayagüez


Hospital	Bella Vista Hospital
Police	Police Station
Hospital	San Antonio Hospital
Emergency Management	Emergency Management Center Mayaguez
Government	Mayaguez City Hall
Water Facility	PRASA Well
Military	National Guard Armory
Medical Facility	CDT Añasco,
Police	Police Station
Water Infrastructure	P/T Water Treatment Plant AAA
Police	Police Station
Water Infrastructure	E/B Guamá
Hospital	Metropolitan Hospital, San Germán
Government	San German City Hall
Emergency Management	OMME San German
Government Center Facility	Police and Fire Station San German
Water Infrastructure	P/F, E/B
Emergency Management	OMME, Añasco
Government	Añasco City Hall
Fire	Fire Station
Government	City Hall Sabana Grande
Police	Police Station
Water Infrastructure	E/B AAA
Hospital	Concepción Hospital
Water Infrastructure	E/B Rayo Guaras y Papayo
Government	Lajas City Hall
Water Infrastructure	P/F, E/B Monte Grande



Hospital	Sabana Grande Hospital
Emergency Management	OMME, Municipal Police Station, Sabana Grande
Water Infrastructure	Well E/B
Police	State Police Station
Water Infrastructure, Military	E/B Puerto Real, National Guard Armory
Hospital	Psychiatric Metrolitan Hospital, Cabo Rojo
Police	State Police Station Cabo Rojo
Government	OMME Cabo Rojo
Government	Cabo Rojo City Hall
Water Infrastructure	Well - Bo. Lavadero Cabo Rojo
Water Infrastructure	Cinco Pozos -Bo. Bajura
Police	Police (FURA) Cabo Rojo
Water Infrastructure	E/B Salamanca
Water Infrastructure	E/B La Tea
Water Infrastructure	Water Treatment Plant
Critical Facilities Level 2	
Government	Mayagüez Court House
Correctional Facility	El Limón Correctional Center
Communications	New Life (Nueva Vida) Radio Broadcasting, American Towers Wireless, PREPA Communications, Cown Castle Wireless communications. (Monte de la Unión) Antena Telecomunicaciones Emisora Radial Noti-Uno en Añasco.
Medical Facility	Atlantis Dialysis Center Mayaguez
Medical Facility	Migrant Health Center Mayaguez
Medical Facility	Harmony Health Center Mayaguez
Medical Facility	CDT Hormigueros
Communications	Red Celular-Monte del Estado en Maricao, Canal 6 WIPRP, Tele 5 WORA TV y CCATT Wireless Communications
Communications	Telecommunications Center LUMA Maricao
Communications	Telecommunications Radio, Televisión Maricao



Communications	Telecommunications Towers Maricao
Water Infrastructure	Canales de Riego LUMA- Lajas
Communications	Telecommunication Towers -La 22 Cabo Rojo
Communications	Telecommunication Towers Cabo Rojo
Aguadilla District	
Municipalities	Aguadilla, Aguada, Isabela, Lares, Las Marías, Maricao, Moca, Quebradillas, Rincón, San Sebastián
Critical Facilities Level 1	
Hospital	Hospital San Carlos Borromeo Moca,
Hospital	Hospital Buen Samaritano de Aguadilla
Hospital	Municipal Hospital de Las Marías
Water Infrastructure	P/F Culebrinas- Aguada
Water Infrastructure	P/T AAA- Aguada
Water Infrastructure	AAA Water Plant
Police	Estación Policía Municipal
Government	Las Marias City Hall
Military	Coast Guard - Base Ramey
Water Infrastructure	Planta Tratamiento AAA
Water Infrastructure	P/F Rio Prieto
Emergency Operations Center	OMME Aguadilla
Airport	Airport & Federal Buildings Ramey Base
Fire	Fire Station
Water Infrastructure	P/F -La Montaña, Aguadilla
Water Infrastructure	E/B Lago Calero
Government	Moca City Hall
Government	Aguada City Hall
Government, Police & Fire Station	Municipal Police & Fire Station Aguada
Police	State Police Station
Water Facility	E/B Aguas Usadas. Treatment Water Plant Quebradillas



Medical Facility	Quebradillas Medical Center. Bo Cocos
Water Infrastructure	AAA (PF- Charcas) Quebradillas, Bo Charcas
Police	State Police Quebradillas, Bo. Pueblo
Police	Municipal Police
Emergency Management	OMME Quebradillas
Fire	Fire Station Quebradillas
Medical Facility	Health Integrated Service Center Lares
Government	Quebradillas City Hall
Government	Isabela City Hall
Government	Fire Station Isabela, Bo Mora
Water Infrastructure	E/B Mora Isabel
Police	State Police Station Isabela
Police Emergency Management	Municipal Police Station Isabela
Emergency Management	OMME Isabela
Government	San Sebastián City Hall
Water Infrastructure	P/T Isabela
Emergency Management	OMME San Sebastián
Fire	Fire Station San Sebastian
Water Infrastructure	PT San Sebastian
Hospital	Hospital General de Castañer
Police	State Police Station
Fire	Fire Station Lares
Hospital	Hospital General de Lares
Government	City Hall Lares
Water Infrastructure	P/F Lares Espino
Critical Facilities Level 2	
Military	Antena Navy-Aguada
Correction Facility	Carcel Guerrero-Aguadilla



Communications	Centro Telecomunicaciones LUMA	
Communications	Centro Telecomunicaciones Claro	
Communications	Centro Comunicaciones LUMA, Centros Telecomunicaciones de Radio, Televisión y Red Celular, Puerto Rico Port Authority Tower Monte Pico Atalaya	
Medical Facility	Medical Clinic (CDT) Centro Isabelino	
Medical Facility	Medical Clinic (CDT) Policlínica Shalom	
Medical Facility	Medical Clinic (CDT) San Sebastián C	
Medical Facility	Medical Clinic (CDT) Isabela	
Medical Facility	Medical Clinic (CDT) Maricao	
Government	Municipal Courthouse	
Medical Facility	Centro Renal y Dialysis	
Medical Facility	Atlantis Renal Center	
Critical Facilities Level 3		
Government (COOP)	Coliseo Raymond Dalmau, Hatillo TC @ Quebradillas Sect	
Industrial Zone	Zona Industrial Moca	
Key Services (Food)	Suiza Dairy- Aguadilla	
University	UPR de Aguadilla	
Elderly Home	Hogar de Envejecientes de Las Marías	
Government	Depto. Obras Públicas	
Medical Facility	Aguadilla Medical Plaza y Hotel Las Cascadas	
Elderly Home	Centro Envejecientes Rincon	
Key Service	USPS	
Water Infrastructure	E/B PR-115	
Medical Facility	Rincón Health Center.	
Water Infrastructure	E/B Quebradillas, Las Margaritas Bo Guajataca	
Water Infrastructure	E/B Camuy, Bo Puertos	
Water Infrastructure	P/F Guajataca, Quebradillas, Bo Guajataca	
Water Infrastructure	P/T Quebradillas, Las Cuevitas	



Water Infrastructure	E/B Quebradillas, Pozo del Rey
Water Infrastructure	E/B Isabela, Bo Llanadas
Water Infrastructure	E/B Isabela, Capiro, Bo Galateo Alto
Water Infrastructure	E/B (sanitaria) Isabela, La Corchado
Water Infrastructure	E/B (sanitaria) Isabela, Carr 112 Bo Pueblo
Water Infrastructure	E/B (PAS) Isabela, Villa Pesquera, Bo Guayabo
Water Infrastructure	E/B Isabela, Sector Los Pinos, Bo Arenales Bajos
Water Infrastructure	E/B Isabela, Sector Rocha, Bo Arenales Bajos
Elderly Home	Elderly Home El jibarito
Ponce Region	
Municipalities	Ponce, Villalba, Juana Diaz
Critical Facilities Level 1	
Medical Facility	CDT Villalba - Med Centro Clínica Satélite Villalba Carr 149
Hospital	Hospital Damas
Hospital	Centro Médico Episcopal
Hospital	Hospital Metropolitano Dr. Pila Ponce
Hospital	San Lucas; Hospital Menonita Ponce
Hospital	Hospital Psiquiátrico Forense de Ponce
Flood Control	Flood Control Pump Juana Diaz
Flood Control	Dam Cerrillos Ponce (DRN)
Water Infrastructure	Dam Portugues Ponce
Water Infrastructure	P/F Hogares Seguros
Water Infrastructure	Lago Cerillo Dam
Water Infrastructure	P/F - Real Anón
Water Infrastructure	E/B & P/F - Guaraguao
Water Infrastructure	E/B & Water Tank - Guaraguao/Lomas
Water Infrastructure	E/B & Water Tank - Iglesia Santas Pascuas
Water Infrastructure	E/B Potala Serrano
Water Infrastructure	Well Paseo Sol Y Mar
Water Infrastructure	E/B Potala Pastillo



Water Infrastructure	E/B Leonardo Santiago
Water Infrastructure	E/B & Tanque Lomas
Water Infrastructure	E/B & Tanque El Quemao
Water Infrastructure	E/B & Tanque Guayabal II
Water Infrastructure	E/B & Tanque Guayabal III El Cerro
Water Infrastructure	E/B Estancias Del Sur
Water Infrastructure	E/B Valle Hucares
Water Infrastructure	E/B Guayabal I Bo
Water Infrastructure	E/B Sanitarias Guayabal
Water Infrastructure	E/B Villas De Rio Cañas
Water Infrastructure	E/B Sanitarias Colinas Verde Azul
Water Infrastructure	E/B Sanitarias Monte Sol
Water Infrastructure	E/B Sanitarias Paseos De Los Reyes
Water Infrastructure	E/B Sanitarias Santa Marta
Water Infrastructure	Well Amelia I
Water Infrastructure	Well Amelia II
Water Infrastructure	Well Dayan
Water Infrastructure	Well Estancias Del Sur
Water Infrastructure	Well Los Reyes
Water Infrastructure	E/B & Tanque Provincia
Water Infrastructure	E/B & Tanque Ubueyes - Rio Canas
Water Infrastructure	E/B & Tanque Cuevas
Water Infrastructure	E/B & Tanque Magas
Water Infrastructure	E/B & Tanque Corral Falso
Water Infrastructure	Well Agustinillo
Water Infrastructure	Well Aruz Nuevo (Parque)
Water Infrastructure	Well Aruz Viejo (Puente)



Medical Facility	San Cristóbal Medical Clinic Villalba
Police	Villalba Municipal Police Station
Medical Facility	CDT Specialty Family Health Center Las Alondras, Villalba
Police	Police Academy
Police	Police Station - Villalba
Water Infrastructure	E/B Romero
Water Infrastructure	E/B Jagueyes
Water Infrastructure	E/B Jagueyes
Water Infrastructure	P/F Jagueyes (Villalba)
Water Infrastructure	P/F Villalba
Water Infrastructure	E/B Cruda P/FLago Toa Vaca
Water Infrastructure	E/B Sistema Aireación Represa Toa Vaca
Water Infrastructure	E/B Higuero
Water Infrastructure	E/B & Water Tank Palma Sola
Water Infrastructure	Toa Vaca Dam (Distribution Pump)
Water Infrastructure	Water Tank Cerro Gordo
Water Infrastructure	E/B & Tank Camarones
Water Infrastructure	E/B & Dam Toa Vaca
Water Infrastructure	E/B & Tanque Toro Negro
Critical Facilities Level 2	
Correctional Facility	Centro Corrección Las Cucharas
Government	Centro Judicial Substation Ave Santiago de los Caballeros
Correctional Facility	Cárcel de Menores Substation Ponce
Medical Facility	Fresenius Dialysis Center Ponce Oeste
Medical Facility	Fresenius Dialysis Center Ponce Pueblo
Medical Facility	Medical Clinic (CDT) Villalba
Medical Facility	Medical Center Clinic Satélite Villalba



Medical Facility	Family Health Center Ponce
Medical Facility	Health Center San Cristóbal
Critical Facilities Level 3	
Water Infrastructure	E/B El Lago
Water Infrastructure	Well Experimental
Water Infrastructure	Well, La Fe
Water Infrastructure	E/B Pozo Nicole, Costa Caribe
Water Infrastructure	E/B - La Guancha
Water Infrastructure	P/F Magueyes- Ponce Nueva
Water Infrastructure	E/B Montemar
Water Infrastructure	Water Tank Sector Calich
Water Infrastructure	Water Tank - Brisas del Caribe
Water Infrastructure	E/B - Lagrimas-2
Government	City Hall - Juana Diaz
Government	City Hall - Villalba
Government	Government Center - Villalba
Communications	Communication Towers- Cerro Punta
Water Infrastructure	E/B - Tierra Santa
Water Infrastructure	E/B & Tanque – Baramaya
Water Infrastructures	E/B - Valle Alto
Water Infrastructure	E/B - La Vaquería
Water Infrastructure	P/ F - Tibes
Water Infrastructure	P/F - Ponce Vieja
Water Infrastructure	Represa - Tibes
Water Infrastructure	Tanque - La Ferry
Water Infrastructure	Tanque - Planta Vieja
Water Infrastructure	Represa Tibes



Water Infrastructure	E/B- El Paraiso
Water Infrastructure	E/B AAA - La Yuca
Water Infrastructure	E/B (T-2) detrás Camino del Sur
Water Infrastructure	E/B #1 - # 8, 10 - Santa Cruz
Water Infrastructure	E/B – Caracoles
Water Infrastructure	Water Tank - Rio Chiquito
Yauco District	
Municipalities	Guánica, Yauco, Guayanilla
Critical Facilities Level 1	
Water Infrastructure	Water Treatment Plant Loma Bonita
Government	City Hall Yauco
Emergency Management	OMME Yauco
Police	Municipal Police Station Yauco
Fire	Fire Station Yauco
Water Infrastructure	E/B Jácanas
Water Infrastructure	E/B Susúa Baja
Hospital	Hospital Pavía Yauco PR-128 KM 1.0
Water Infrastructure	E/B
Government	City Hall Peñuelas
Medical Facility	Peñuelas Med Centro
Medical Facility	CDT – Community Health Center
Government	City Hall Guanica
Police	Municipal Police
Police	State Police Station Guainca
Emergency Management	OMME Guanica
Critical Facilities Level 2	
Medical Facility	Medical Clinic (CDT) Guanica
Medical Facility	Migrant Health Center Guanica



Medical Facility	Medical Clinic (CDT) Guayanilla
Guayama District	
Municipalities	Santa Isabel, Coamo, Salinas, Guayama, Arroyo, Patillas, Maunabo
Critical Facilities Level 1	
Energy	Substation
Energy	AES Ilumina
Energy	Salinas Sect. Jobos TC Salinas Sect.
Industrial	DOW Agroscience; Salinas
Industrial	Pioneer
Water Infrastructure	E/B
Military	Camp. Santiago, Salinas
Energy	Substation Estacion Salinas
Water Infrastructure	P/T; Jobos TC 3
Energy	AES Water System
Hospital	Hospital Menonita Guayama
Industrial (Medical)	Stryker
Energy	Substation
Energy	Maunabo TC
Energy	Substation
Industrial	EATON
Industrial (Medical)	Glaxo Smirt-Klain – GSK;
Industrial (Medical)	Baxter;
Industrial	ALPLA Caribe
Correctional Facility	Correctional Center Guayama
Energy	Substation Jobos TC
Energy	Jobos TC – Maunabo TC; Maunabo TC
Energy	Cayey TC
Energy	Aguirre – Jobos TC – Substation Guayama District



Energy	Substation Santa Isabel District; Aguirre Santa Isabel TC
Energy	Pattern Wind Generation
Energy	Pattern Ponce TC
Medical Facility	Metro Pavia Clinic Guayama
Police	State Police Department
Medical Facility	Hospital Menonita de Guayama
Fire	Fire Station Guayama
Government	Courthouse
Emergency Management	State Regional Emergency Management and OMME Guayama
Government Facility	Guayama City Hall
Water Infrastructure	E/B & Treatment Water Plant
Medical Facility	Family Health Center Dr. Julio Palmeri Ferri, Inc;
Police	State Police Station Arroyo
Fire Station	Fire Station Arroyo
Hospital	Hospital Laffayette (Menonita)
Flood Control	Flood Control Pump Las Ochenta, Salinas
Water Infrastructure	Bomba de AAA y Represa Patillas
Water Infrastructure	Bomba y Planta AAA, Represa Patillas
Police	State Police Station Patillas
Emergency Management	OMME Patillas
Water Infrastructure	E/B AAA
Flood Control	Bomba Del Parque (DRN) BO. Playa; Salinas
Flood Control	Bomba El Guapo (DRN) Sector Playa; Salinas
Flood Control	Bomba Pichingo (DRN) Sector Playa; Salinas
Water Infrastructure	E/B AAA
Water Infrastructure	E/B Treatment Plant AAA
Medical Facility	Maunabo Family Health Center



Police	Police Station
Emergency Management	OMME EOC Salinas
Fire	Fire Station Salinas
Water Treatment Plant	E/B
Government Center Police & Fire	Police & Fire Station
Medical Facility	Santa Isabel Medical Center (Centro de Salud Familiar)
Water Infrastructure	Well Paso Seco 1
Medical Facility, Government	Medical Facility, COE Municipal
Medical Facility	Medical Clinic (CDT) Salinas
Government	City Hall Patillas
Government, Facility	OMME Santa Isabel
Police	Police Station
Medical	Menonita Center of Diagnostic and Treatment Coamo
Fire	Fire Station Coamo
Critical Facilities Level 2	
Medical Facility	Atlantis Dialysis Center
Police	Police Antenna
Medical Facilities	CDT Centro Salud Familiar de Patillas
Communications	Antenna WIBS 1540 AM Radio
Dialysis Center	Centro Diálisis Fresenius, a
Communications	WIBS 1540 - AM Radio - WAPA Radio - WXRF 1590 AM
Dialysis Center	Centro de Diálisis, Centro de Envejecientes Santa Ana
Communications	X-61- WEXS 610 AM Radio Patillas
Elderly Home	Égida de la Policia
Communications	WHOY 1210 AM Radio Salinas
Industrial	Hamilton Sundstrand
College	Univ. Interamerica de PR;
Medical facility	CDT Centro De Salud Familiar De Maunabo,
Government	City Hall Salinas
Government	City Hall Coamo
Water Infrastructure	E/B Central Aguirre



Medical Facility	Medical Clinic San Cristóbal - Santa Isabel
Medical Facility	CDT Salinas, Center for Diagnostic Treatment Menonita
Medical Facility	Medical Clinic (CDT) Guayama
Medical facility	Medical Clinic (CDT) Menonita - Coamo
San Juan Region	
Municipalities	San Juan, Trujillo Alto
Critical Facilities Level 1	
Hospitals, Medical Facilities	Ciencias Médicas Río Piedras, Centro Médico, Hospital de Veteranos, Hospital Siquiátrico, Hospital Universitario Pediátrico, Hospital Universitario Adultos, Centro Cardiovascular, Hospital Universitario, Hospital Siquiatría Forense, Ciencias Forense
Fire	Fire Station
Military	US Coast Guard
Federal Government	US Customs
Government	Fortaleza
Government	Maritim Ports of San Juan
Airport	Isla Grande Airport
Flood Control	Flood Control pumps Ave. Fernández Juncos
Flood Control	Bombas Recursos Naturales
Wastewater Treatment Facility	P/F Las Margaritas
Hospital	Hospital Pavía Santurce
Government	City Hall San Juan
Hospital	Hospital Pavía Hato Rey
Medical Facility	CDT Dr. José S. Belaval (Barrio Obrero) Health Center
Hospital	San Juan Health Center
Government	Governmental Center Minillas
Hospital	Hospital Pavía
Hospital	Presbyterian Hospital
Hospital	San Jorge Children & Women's Hospital
Police	Police Station
Government	State Justice Department
Medical Facility	Dispensary Hoare
Airport	Isla Grande Airport
Water Infrastructure	Dam Carraízo (resguardo)
Hospital	Hospital San Juan Capestrano



Medical Facility	Medical Clinic (CDT) Trujillo Alto
Dialysis Center	Atlantis Renal Center
Water Infrastructure	P/F Calle Neblin
Hospital	HIMA San Lucas de Cupey (Antes, Hospital San Gerardo)
Water Infrastructure	P/F University Gardens
Medical Facility	CDT Parcelas Falú
Flood Control	Bombas Recursos Naturales Laguna San José
Hospital	Hospital San Gerardo
Medical Facility	Las Américas Clinic
Medical Facility	Kidney Transplant Unit
Police	Municipal Police Station Ave. Eleanor Roosevelt
Police	Puerto Rico Police Headquarters
Government	United States General Postal Service (USPS) Office
Water Infrastructure	P/F Nemesio Canales
Water Infrastructure	E/B, Égida
Elderly Home	La Merced
Hospital	Medical Tower Auxilio Mutuo
Medical Facilities	Dialysis Center
Medical Facilities	Cancer Treatment Center
Medical Facilities	Kidney Transplant Unit
Hospitals	Hospital Pavía & Hospital Auxilio Mutuo
Water Infrastructure	E/B c/ Domenech
Communications	Chanel 6 WIPR
Emergency Call Center	911 Eleanor Roosevelt Hato Rey 115
Medical Facility	CDT Dr. Enrique Koppisch (San José) Health Center
Water Infrastructure	E/B Avenida Kennedy
Hospital	Hospital Metropolitano
Emergency Call Center	911 Central Office Calle Felipe de Plana Guaynabo
Hospital	Hospital del Niño
Communications	Estación de Televisión WAPA TV
Medical Facility	Medical Science Clinic
Water Infrastructure	P/F AAA Los Filtros
Water Infrastructure	Dam Carraízo
Water Infrastructure	P/F Sergio Cuevas



Water Infrastructure	Flood Control Pump Station (Ave. De Diego Esquina Estrella
Water Infrastructure	Flood Control Pump Parada 18
Critical Facilities Level 2	
Communications	Telecommunications Regulatory Board
Communications	Telecommunications Building Llorens Torres
Medical Facilities	Encompass Health Rehabilitation Hospital Of San Juan
Communications	Radio Statiobn Noti Uno
Communications	Housing Boriquen Towers, Building -News Paper El Vocero
Medical Facility	San Juan, Municipal Hospital
Hospital	Hospital Metropolitano
Government	Municipal Government Tower Center Chardón Avenue
Hospital	Medical Center Complex
Medical Facility	Las Américas Clinic
Critical Facilities Level 3	
Government	City Hall Trujillo Alto,
Police	Police Station Policía
Key Services	Municipal Animal Shelter
Key Services Carolina District	Municipal Animal Shelter
Key Services Carolina District Municipalities	Municipal Animal Shelter Carolina
Key Services Carolina District Municipalities Critical Facilities Level 1	Municipal Animal Shelter Carolina
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital	Municipal Animal Shelter Carolina Hospital Federico Trilla/ UPR Carolina
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital Hospital	Municipal Animal Shelter Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital Hospital Airport	Municipal Animal Shelter Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital Hospital Airport Water Infrastructure	Municipal Animal Shelter Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport P/T Carolina
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital Hospital Airport Water Infrastructure Police	Municipal Animal Shelter Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport P/T Carolina State Police Station, Ave. Iturregui
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital Hospital Airport Water Infrastructure Police Government / Communication	Municipal Animal Shelter Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport P/T Carolina State Police Station, Ave. Iturregui FAA Communication Towers, Carolina
Key Services Carolina District Municipalities Critical Facilities Level 1 Hospital Hospital Airport Water Infrastructure Police Government / Communication Water Infrastructure	Municipal Animal Shelter Carolina Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport P/T Carolina State Police Station, Ave. Iturregui FAA Communication Towers, Carolina E/B Carr. 860 K1 H1 Bo Martin González
Key ServicesCarolina DistrictMunicipalitiesCritical Facilities Level 1HospitalHospitalAirportWater InfrastructurePoliceGovernment / CommunicationWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater Infrastructure	Municipal Animal Shelter Carolina Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport P/T Carolina State Police Station, Ave. Iturregui FAA Communication Towers, Carolina E/B Carr. 860 K1 H1 Bo Martin González E/B Carr. 3 R860 K3 H2 Bo Martin González
Key ServicesCarolina DistrictMunicipalitiesCritical Facilities Level 1HospitalHospitalAirportWater InfrastructurePoliceGovernment / CommunicationWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater InfrastructureWater Infrastructure	Municipal Animal ShelterCarolinaCarolinaHospital Federico Trilla/ UPR CarolinaDoctor's Hospital San Fernando de la CarolinaLuis Muñoz Marín International AirportP/T CarolinaState Police Station, Ave. IturreguiFAA Communication Towers, CarolinaE/B Carr. 860 K1 H1 Bo Martin GonzálezE/B Carr. 3 R860 K3 H2 Bo Martin GonzálezE/B Carr. 859 K3 H6 BO Trujillo alto
Key ServicesCarolina DistrictMunicipalitiesCritical Facilities Level 1HospitalHospitalAirportWater InfrastructurePoliceGovernment / CommunicationWater InfrastructureWater Infrastructure	Municipal Animal Shelter Carolina Carolina Hospital Federico Trilla/ UPR Carolina Doctor's Hospital San Fernando de la Carolina Luis Muñoz Marín International Airport Luis Muñoz Marín International Airport P/T Carolina F/T Carolina State Police Station, Ave. Iturregui FAA Communication Towers, Carolina E/B Carr. 860 K1 H1 Bo Martin González E/B Carr. 3 R860 K3 H2 Bo Martin González E/B Carr. 859 K3 H6 BO Trujillo alto E/B Carr. Municipal Sector El Trompito Est. Bombas 7



Water Infrastructure	E/B Carr. 853 KM 3.5
Water Infrastructure	E/B Carr. 3 R853 K0 H2 Bo. Barrazas
Water Infrastructure	E/B Almendro final Bo. Buenaventura
Water Infrastructure	E/B Calle Agustín Cabrera Final Norte pueblo
Water Infrastructure	E/B Carr. 853 K 8 H 1 Bo. Barrazas
Government	Carolina Municipal Communication Center
Water Infrastructure	E/B INT 852 (al lado puente pequeño)
Water Infrastructure	E/B Carr. 181 K15 H9
Water Infrastructure	E/B Carr. 3 R853 K11 H7 Bo Barrazas
Water Infrastructure	E/B Carr. 3 R857 K9 H5 Bo Carruzo
Water Infrastructure	E/B Carr. 3 R857 K9 H5 Bo Filipinas
Water Infrastructure	E/B Carr. 3 R857 K9 H5 Bo Carruzos
Water Infrastructure	E/B Carr. 185 K12 H4 Bo. Cedros
Water Infrastructure	E/B Carr. 856 A 857 Bo Barrazas
Police	Policía – Carolina Norte Calle Andorra Urb. Vistamar
Water Infrastructure	E/B Carr. 190 k0 H6 calle Evita Eq. Patty Urb. La Cerámica
Water Infrastructure	E/B Carr. 860 KM 1.5 Residencial Los Mirtos
Water Infrastructure Fire	E/B Carr. 860 KM 1.5 Residencial Los Mirtos Fire Station, Ave. Roberto Clemente, Villa Carolina
Water Infrastructure Fire Water Infrastructure	E/B Carr. 860 KM 1.5 Residencial Los Mirtos Fire Station, Ave. Roberto Clemente, Villa Carolina E/B Ave. Roberto Clemente, Villa Carolina
Water Infrastructure Fire Water Infrastructure Communication	E/B Carr. 860 KM 1.5 Residencial Los Mirtos Fire Station, Ave. Roberto Clemente, Villa Carolina E/B Ave. Roberto Clemente, Villa Carolina Municipio Carolina Communication Towers
Water Infrastructure Fire Water Infrastructure Communication Emergency Management	E/B Carr. 860 KM 1.5 Residencial Los Mirtos Fire Station, Ave. Roberto Clemente, Villa Carolina E/B Ave. Roberto Clemente, Villa Carolina Municipio Carolina Communication Towers Operation Center OMME Municipal Carr. 877
Water Infrastructure Fire Water Infrastructure Communication Emergency Management Water Infrastructure	 E/B Carr. 860 KM 1.5 Residencial Los Mirtos Fire Station, Ave. Roberto Clemente, Villa Carolina E/B Ave. Roberto Clemente, Villa Carolina Municipio Carolina Communication Towers Operation Center OMME Municipal Carr. 877 E/B Calle C Esq. Calle D Urb. Jardines de Carolina
Water Infrastructure Fire Water Infrastructure Communication Emergency Management Water Infrastructure Water Infrastructure	E/B Carr. 860 KM 1.5 Residencial Los MirtosFire Station, Ave. Roberto Clemente, Villa CarolinaE/B Ave. Roberto Clemente, Villa CarolinaMunicipio Carolina Communication TowersOperation Center OMME Municipal Carr. 877E/B Calle C Esq. Calle D Urb. Jardines de CarolinaE/B Carr. 3 R887 Victoria Ind. Park Bo. Martín González
Water Infrastructure Fire Water Infrastructure Communication Emergency Management Water Infrastructure Water Infrastructure Water Infrastructure	E/B Carr. 860 KM 1.5 Residencial Los MirtosFire Station, Ave. Roberto Clemente, Villa CarolinaE/B Ave. Roberto Clemente, Villa CarolinaMunicipio Carolina Communication TowersOperation Center OMME Municipal Carr. 877E/B Calle C Esq. Calle D Urb. Jardines de CarolinaE/B Carr. 3 R887 Victoria Ind. Park Bo. Martín GonzálezE/B Carr. 3 R887 K0 H9 Bo Martin González
Water Infrastructure Fire Water Infrastructure Communication Emergency Management Water Infrastructure Water Infrastructure Water Infrastructure Water Infrastructure	E/B Carr. 860 KM 1.5 Residencial Los MirtosFire Station, Ave. Roberto Clemente, Villa CarolinaE/B Ave. Roberto Clemente, Villa CarolinaMunicipio Carolina Communication TowersOperation Center OMME Municipal Carr. 877E/B Calle C Esq. Calle D Urb. Jardines de CarolinaE/B Carr. 3 R887 Victoria Ind. Park Bo. Martín GonzálezE/B Carr. 3 R887 K0 H9 Bo Martin GonzálezE/B Carr. 3 R887 K0 H6 Carolina
Water Infrastructure Fire Water Infrastructure Communication Emergency Management Water Infrastructure Water Infrastructure Water Infrastructure Police	E/B Carr. 860 KM 1.5 Residencial Los MirtosFire Station, Ave. Roberto Clemente, Villa CarolinaE/B Ave. Roberto Clemente, Villa CarolinaMunicipio Carolina Communication TowersOperation Center OMME Municipal Carr. 877E/B Calle C Esq. Calle D Urb. Jardines de CarolinaE/B Carr. 3 R887 Victoria Ind. Park Bo. Martín GonzálezE/B Carr. 3 R887 K0 H9 Bo Martin GonzálezE/B Carr. 3 R887 K0 H6 CarolinaPolicía – Comandancia Carolina pueblo



Government	Carolina Municipal Comand Center Isla Verde, Palmar Norte
Water Infrastructure	E/B detrás Cond. Verde C/violeta Biascochea.
Medical Facility	CDT Metro-Pavia Clinic Carolina
Water Infrastructure	E/B 65 Infantería K11 H1
Water Infrastructure	E/B Camino Cambute R857 K0 H9
Water Infrastructure	Flood Control Pump Baldorioty de Castro (Ave. Baldorioty)
Critical Facilities Level 2	
Government	Carolina City Hall
Critical Facilities Level 3	
Large Employer / Key Products / Key Services	Lilly Del Caribe Pharmaceuticals
Canovanas District	
Municipalities	Canóvanas, Loiza, Rio Grande
Critical Facilities Level 1	
Water Infrastructure	P/F Carr. # 3, Barrio San Isidro, Canóvanas
Water Infrastructure	Planta de Distribución (El Yunque) Carr. # 3 25.2, Ramal 955, KM 0.1 Río Grande
Water Infrastructure	P/T Carr. # 874 final, Barrio Torrecilla Alta, Canóvanas
Police	State Police Station
Water Infrastructure	E/B & Planta Tratamiento Bo. Guzmán Arriba
Emergency Ops. Center,	OMME Canovanas
Fire Station	Estación Bomberos Urb. PH Hernández
Government	Public Works
Water Infrastructure	E/B Sanitario & Planta de Tratamiento Rio Grande, E/B Sanitario Bo. Hong Kong
Medical Facility	CDT- Rio Grande
Water Infrastructure	E/B Río Mar Rio Grande
Water Infrastructure	E/B Las 3T, Etapa 1
Water Infrastructure	E/B Sanitario Los Árboles



Water Infrastructure	E/B Sanitario Río Grande Estates
Water Infrastructure	E/B Las 3T Etapa 2
Water Infrastructure	E/B Las 3T, Etapa 4
Water Infrastructure	E/B Las 3T, Etapa 3
Water Infrastructure	E/B Sanitario Coco Beach
Water Infrastructure	E/B Sanitario Río Grande Estates
Government	Public Works – Carr 185 km 1.5
Water Infrastructure	E/B (Neumática Martín Rodriguez I & II
Water Infrastructure	Tanque Carruzo I & II
Water Infrastructure	La Condesa Cubuy, Peniel)
Medical Facility	CDT Dr Carlos Mellado De Canóvanas
Government	Canóvanas City Hall
Government	OMME Loiza
Government	Municipal Police Station
Water Infrastructure	E/B Loíza Valley
Medical Facility	Concilio de Salud Integral de Loíza
Fire	Fire Station
Water Infrastructure	E/B Sanitarias
Water Infrastructure	E/B Sanitarias
Water Infrastructure	E/B Vistas del Océano
Water Infrastructure	E/B Quintas de San Isidro, E/B Tierra Alta
Water Infrastructure	E/B La Central II, E/B Torrecillas, E/B Brisas de Loíza
Water Infrastructure	E/B Campo Rico, E/B El Comandante, E/B Alturas de Campo Rico E/B Quintas de Canóvanas
Government Facility	OMME Rio Grande
Communications	Torres de Comunicación Carr. 191 km 13 El Yunque Rio Grande
Government	FAA Communication Tower El Yunque & Pico El Este
Critical Facilities Level 2	



Correctional Facility	El Zarzal
Critical Facilities Level 3	
Industry	IPR Pharmaceutical
Government	Rio Grande City Hall
Government	Loiza City Hall
Fajardo District	
Municipalities	Luquillo, Fajardo, Ceiba, Vieques, Culebra
Critical Facilities Level 1	
Hospital	Caribbean Medical Center Fajardo
Water Infrastructure	P/T Fajardo
Water Infrastructure	Embalse Sector Las Carolinas, C/3, Int.
Water Infrastructure	E/B Potable C/ 987 Int. Ave. Osvaldo Molina, E/B Potable C/987, Km 5, Bo. Las Croabas
Water Infrastructure	E/B Calle Unión, al lado Santa Isidra I
Water Infrastructure	E/B & Tanque Barriada Roosevelt
Water Infrastructure	Water Tank Bo. Peñón
Water Infrastructure	E/B Bo. Paraíso
Water Infrastructure	E/B Carr. 976 Sector Goya
Water Infrastructure	E/B, lado Substation
Water Infrastructure	E/B sanitario Urb. Baralt, E/B Carr. 940
Water Infrastructure	E/B Sector Los 48
Water Infrastructure	E/B & E/B Sanitario Sector Cuesta del Tigre,
Water Infrastructure	E/B Potable Ave. Conquistador, Esq. Ave. Hipólito Robles
Police	Police Station Garrido Morales, Esq. Calle Victoria, Fajardo
Water Infrastructure	E/B, al lado de CVS, E/B Sanitario Bo. Jerusalén
Hospital	Caribbean Medical Center
Water Infrastructure	E/B Carr. 194
Government	OMME Ceiba
Water Infrastructure	E/B Desvío Felisa Rincón



Water Infrastructure	E/B Bo. Río Abajo
Water Infrastructure	E/B Urb. Járdines Avila
Water Infrastructure	EB Potable Bo. Demajagu
Water Infrastructure	P/T Ave. Lauro Piñero
Water Infrastructure	E/B & Tanque Bo. Rincón
Water Infrastructure	E/B Bo. Chupacallos
Water Infrastructure	E/B Potable, Centro Industrial
Water Infrastructure	E/B Buena Vista Carrió
Water Infrastructure	E/B Sector Los Machos
Water Infrastructure	E/B Urb. Sta María,
Water Infrastructure	E/B Quebrada Seca
Water Infrastructure	E/B Bo. Sabana, E/B Sector Sto Domingo
Water Infrastructure	E/B Sector Las Viudas
Government	Municipal Police Station Luquillo
Water Infrastructure	E/B Sanitario Carr. 940
Water Infrastructure	E/B Bo. Mameyes
Water Infrastructure	E/B Urb. River Edge
Water Infrastructure	E/B Urb. Paisales del Río
Water Infrastructure	E/B Bo. Mosquito, E/B Bo. Martineau Vieques
Water Infrastructure	E/B Bo La Mina, E/B Bo. Florida
Water Infrastructure	E/B Parque Industrial
Water Infrastructure	E/B Bo. Pilón
Water Infrastructure	E/B Bo. Martineau
Medical Facility	Vieques Medical Treatment Center
Government	OMME Vieques
Water Infrastructure	E/B Bo. Monte Carmelo, E/B Sanitario Bo. Esperanza
Water Infrastructure	E/B Sanitario Calle Rieckehoff
Water Infrastructure	E/B Bo. Villa Borinquen



Government	Municipal Police Station Vieques
Transportation	Sea Port, Culebra
Water Infrastructure	P/F Sector La Perla,
Medical Facility	Medical Clinic (CDT) Culebra
Government	OMME Culebra
Police	Police Station Culebra
Water Infrastructure	E/B Sanitario & Desalinizadora Bda Clark y Sector San Isidro Culebra
Water Infrastructure	E/B Sanitario
Critical Facilities Level 2	
Communications	Comunicación WMDD AM, Las Croabas, Fajardo
Government	Government Center- Calle Garrido Morales, esq. Calle Victoria Fajardo
Elderly Home	Elderly Center Carr Escuela Superior Fajardo
Elderly Home	Elderly Municipal Center Ceiba - Al lado complejo deportivo y Centro de Usos Múltiples
Elderly Home	Elderly Center Calle Severiano Fuentes Ceiba
Elderly Home	Elderly Center Urb. Celina, Ceiba
Government	Elderly Center de Ceiba Carr 3, Km. 58
Police	Police Station, Industrial Center Aguas Claras Carr. 3 km 58.5 Ceiba
Government	Governmental Center Calle 14 de Julio, Luquillo
Communications	Communication Towers - Radio Sol, Carr. 992 Km. 1 Sector Torrens, Bo. Mata de Plátano, Luquillo
Elderly Home	Elderly Center, Carr. 991, Bo. Sabana, Luquillo
Elderly Home	Elderly Center, Calle Garrido Morales, Luquillo
Communications	Communications – W.I.V.V. Bo. Esperanza, Vieques
Communications	Radio Línder, Villa Muñeco, Culebra; Antenas Redes de Celulares; a – Calle Escudero #83, Culebra
Communications	Antena Telefónica, Calle William Font
Industrial	Culebra; Industrial Center



Medical Facility	R.D. Medical – Bo. Fulladoza, Culebra
Critical Facilities Level 3	
Government	City Hall Vieques
Government	City Hall Culebras
Government	City Hall Ceiba
Bayamon Region	
Municipalities	Guaynabo
Critical Facilities Level 1	
Water Infrastructure	E/B Piedras Blancas
Emergency Call Center	911 Building
Government	Guaynabo Government Center
Medical Facility	Guaynabo Medical Clinic (CDT)
Military	Fort Buchannan
Fuel	Standard Oil (Total)
Water Facility	Bombas AAA Puerto Nuevo
Flood Control	Bomba Sabana (Drn) Bo. Sabana; Guaynabo
Flood Control	Bomba San Fernando (Drn) Ave. Ponce De Leon, Guaynabo
Hospital	Doctor's Center Hospital
Medical Facility	Médical Center SC
Hospital	Metropolitan Hospital
Medical Facility	Médical Center SC
Medical Facility	Medical Center SC
Emergency Ops. Center	Emergency Management, and Sport Complex (Shelter)
Hospital	Professional Hospital
Communications	Televisión and Radio station Univisión P. R.
Water Infrastructure	Water Plant AAA Los Filtros
Emergency Ops. Center, Communications	FEMA, Federal Agencies office and Telecommunication Facilities



Water Infrastructure	E/B Jaguas Lomas Etapa I
Water Infrastructure	E/B Jaguas Lomas Etapa II
Critical Facilities Level 2	
Correctional Facility	Federal Correctional Facility
Communications	Newspaper Facility 1988 El Nuevo Día
Transportation	Navieras de PR (Tote)
Transportation	Sealand Maritime Port
Transportation	International Shipping Port
Transportation	Crowley Maritime Port
Dialysis Center	Atlantis Dialysis Center
Critical Facilities Level 3	
Key Products / Key Services	International Trade Center (Centro Internacional Mercadeo)
Key Services	Industrial Zone
Bayamón District	
Bayamón District Municipalities	Bayamón
Bayamón District Municipalities Critical Facilities Level 1	Bayamón
Bayamón District Municipalities Critical Facilities Level 1 Energy	Bayamón Substation
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernment	Bayamón Substation City Hall Naranjito
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospital	Bayamón Substation City Hall Naranjito Auxilio Mutuo San Pablo Hospital Bayamón
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergy	Bayamón Substation City Hall Naranjito Auxilio Mutuo San Pablo Hospital Bayamón Substation
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergyWater Infrastructure	Bayamón Substation City Hall Naranjito Auxilio Mutuo San Pablo Hospital Bayamón Substation Súper Acueducto
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergyWater InfrastructureEnergy	Bayamón Substation City Hall Naranjito Auxilio Mutuo San Pablo Hospital Bayamón Substation Substation Substation Substation Substation
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergyWater InfrastructureEnergyWater InfrastructureWater Infrastructure	BayamónSubstationCity Hall NaranjitoAuxilio Mutuo San Pablo Hospital BayamónSubstationSubstationSúper AcueductoSubstationDam La Plata
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergyWater InfrastructureEnergyWater InfrastructureEnergyBayamón DistrictEnergyBayamón DistrictBayamón DistrictBay	BayamónSubstationCity Hall NaranjitoAuxilio Mutuo San Pablo Hospital BayamónSubstationSubstationSubstationDam La PlataSubstation
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergyWater InfrastructureEnergyWater InfrastructureEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergy	BayamónSubstationCity Hall NaranjitoAuxilio Mutuo San Pablo Hospital BayamónSubstationSubstationSubstationDam La PlataSubstationSubstationSubstation
Bayamón DistrictMunicipalitiesCritical Facilities Level 1Critical Facilities Level 1EnergyGovernmentHospitalEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater Infrastructure	BayamónSubstationCity Hall NaranjitoAuxilio Mutuo San Pablo Hospital BayamónSubstationSubstationSubstationDam La PlataSubstationSubstationP/F La Plata
Bayamón DistrictMunicipalitiesCritical Facilities Level 1EnergyGovernmentHospitalEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyWater InfrastructureEnergyEnergyEnergyEnergyEnergyEnergyEnergyEnergy	BayamónSubstationCity Hall NaranjitoAuxilio Mutuo San Pablo Hospital BayamónSubstationSubstationSubstationDam La PlataSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationSubstationP/F La PlataSubstation



Energy	Substation
Medical Facility	Medical Clinic Pájaros (CDT)
Water Infrastructure	E/B Quintas del Río, & Las Veredas
Emergency Ops Center	COE Bayamón
Water Infrastructure	E/B Monte Claro, Comercial Bayamón, Carr. 863
Medical Facilities	Arnau Regional Regional Bayamón
Hospital	HIMA San Pablo Bayamón
Water Infrastructure	E/B Plaza del Parque
Hospital	Puerto Rico Women's and Children's Hospital
Medical Facility	Medical Clinic Mojica (CDT Privado)
Water Infrastructure	E/B Rio Plantation
Water Infrastructure	E/B Barrio Nuevo
Critical Facilities Level 2	
Medical facility	Atlantis Dialysis Center
Government	Governmental Center
Critical Facilities Level 3	
Medical Facility (Research)	Centro de Primates UPR
University	Universidad Central
University	Universidad Central Bayamón
Medical Facility (Research)	Centro de Primates UPR
Water Infrastructure	Acuífero Municipio Bayamón
Communications	HUBB T-Mobile
Communications	Liberty
College	Universidad Interamericana Recinto Bayamón
Toa Alta / Toa Baja District	
Municipalities	Dorado, Toa Baja (Palo Seco), Cataño, Toa Alta, Naranjito, Corozal
Critical Facilities Level 1	
Fuel	PUMA Fuel Line Pump Cataño PDS - BTC



Water Facilities	E/B; La Malaria; Bay View Sect- Amelia
Health Facility	Centro Médico Correccional (CMC)
Correctional Facility	Correctional Health Services (CHSC)
Industrial	LINDE GAS
Water Facilities	P/T; PE Planta Cataño PDS
Water Facilities	Super Acueducto
Water Infrastructure	E/B Hato Tejas
Energy	TC Dorado
Energy	TC Hato Tejas
Water Infrastructure	Dam Barrio Nuevo
Medical Facility,	Medical Clinic CDT Toa Baja
Water Infrastructure	E/B Las Gaviotas; E/B Pabellones
Government	Municipal Police Station Dorado
Water Infrastructure	E/B Bucarabones
Water Infrastructure	E/B Sanitario Madeleine
Water Infrastructure	E/B Monte Casino
Correctional, Police	Penitentiary (3), Police Station
Medical Facility	Doctors' Center Hospital Orlando Health
Water Infrastructure	E/B & E/B Sanitario
Medical Facility	Medical Clinic Cataño (CDT)
Water Infrastructure	E/B Puente Wilson
Water Infrastructure	E/B Camino del Mar; E/B Tercera Levitown
Water Infrastructure	E/B Levitown
Flood Control	Flood Control Pump Juana Matos Cataño (DRN)
Flood Control	Flood Control Pump La Malaria Cataño (DRN)
Flood Control	Flood Control Pump Bay View Cataño (DRN)
Water Infrastructure	E/B Beach East, Dorado
Water Infrastructure	E/B Pozo PR 690 Sabana Hoyos Vega Alta



Water Infrastructure	E/B Pueblo Dorado; E/B AAA San Antonio,
Water Infrastructure	E/B Mameyal, CDT Dorado
Water Infrastructure	E/B Dorado del Mar
Water Infrastructure	E/B Costa de Oro, Dorado
Police	Dorado Municipal Police Station
Water Infrastructure	E/B Sector Arenas
Water Infrastructure	E/B Monte Elena, Dorado
Water Infrastructure	E/B & E/B Sanitario Toa Baja
Water Infrastructure	E/B Campanillas
Water Infrastructure	E/B PR 694, Dorado
Water Infrastructure	E/B Los Paseos, Dorado
Military	National Guard Armory, Tortuguero Vega Baja
Emergency Ops. Center	OMME Dorado
Water Infrastructure	E/B Las Colinas
Water Infrastructure	E/B Las Fuentes
Water Infrastructure	E/B Super Acueducto Maguayo
Water Infrastructure	E/B Sabanera, Dorado
Water Infrastructure	E/B Ave. Toa Alta Heights
Water Infrastructure	Dam La Plata
Critical Facilities Level 2	
Correctional Facility, Water Facility	Cárcel Correcional Bayamón PE Planta – Cataño PDS
Correctional Facilities	CSC Management de PR (Centro Detención Juvenil), Cárcel de Mujeres Cataño PDS - BTC
Medical Facility	Quest Diagnostics
Medical Facility	CDT Toa Baja
Elderly Home	Égida Golden Age Tower
Elderly Home	Egida Mundo Feliz
Critical Facilities Level 3	



Government	Recursos Naturales Bay View Sect-Amelia
Communications	Switch Claro
Key Products / Key Services	Almacenes V. Suarez PE Planta – Cataño
Key Products / Key Services	B. Fernández y Hnos, José Santiago Dist., Puerto Rico Supply
Large Employer	Panamerican Grain Company, Pepsi, Sprint, Holsum
Government	Government Center
Key Products / Key Services	Almacen Baxter
Industrial	Industrial Luchetti
Industrial	Industrial Palmas
Government	City Hall Cataño
Communication	Radar Punta Salinas
Industrial	Royal Industrial Park; Central Industrial Park
Key Products / Key Services	Food Center Atunez

Legend:

DNR- Departamento Recursos Naturales	P/F Planta de Filtración
E/B Estación de Bombas AAA o Privad	P/T Planta de Tratamiento
CDT Centro Diagnóstico y Tratamiento	DRN Departamento de Recursos Naturales

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 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 *	8.3 Safety
Health and Safety Training Plan	8.3 Safety
SOG LEOC Guidebook	6.2 Plan Activation (BP)
Telematics Policy	8.3.4 Telematics (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)
LUMA's Multi Year Training and Exercise Plan (MYTEP)	12.3 Training (BP)
2024-2027 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)
Operations Continuity Plan TOC's and DOC's	Annex A
Wildfires Event Protocol	Annex B
Electric System Preparedness Protocol for Tropical Cyclone Events	Annex D, Appendix B

*Includes 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.



Appendix F – LEOC Report Templates

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.

Emergency Event Stage Sample Report Template

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.

For known possible Emergency Events, a Pre-Event Stage Report is submitted daily or more frequently if deemed necessary or the event type changes. The information available and the cadence of the reporting will vary depending on the event stage. Finally, once the event has ended, LUMA will notify the PREB. For additional details, please refer to Tables 14 and 15 of Annex A.

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

	LUMA Emergency Event Stage Sample Report
1	Date and Time of Report
2	Event Date
3	Event Time
4	Event Name
5	Event Summary
6	Weather Forecast & Monitoring
7	Deputy Incident Commander
8	Operational Period (OP)
9	LUMA Event Classification
10	LEOC Activation
11	Customer Outage %
12	Total Customers without
13	Service
14	Total Customers with Service
15	Estimated Time of Restoration
16	Status of Crews
17	Safety
18	Expected Event Classification Type and Changes to Event Classification Type (and all facts considered in determination)
19	Likelihood of LEOC Activation and Activation Level (date/time LEOC opens)



Emergency Response Plan

Base Plan Appendices

20	System Operations (Generation Updates)
21	LUMA Resource Readiness (actions taken and type/quantities)
22	Forecasted Number and Type of Total Resources Required (number of crews and full-time equivalents)
23	Number of External Resources Secured (by type and including the number of crews and full-time equivalents)
24	Incident Objectives for the Operational Period
25	Initial Response Stage Status
26	Global and Regional ETRs (If available)
27	Restoration Stage Status
28	Customer Outages
29	Total Customers with Service
16	Total Customers without Service
30	Status of Life Preserving Equipment Dependent (Customers) and Critical Customers
31	Problems Anticipated / Encountered for Event
32	Any Other Pertinent Information:
33	Signature and Date & Time
34	Event Duration (in hours)
35	Total Customers Served
36	% of Customers Affected
37	Highest Peak # of Customers Affected

Estimated Time of Restoration (ETR) Sample Report

LUMA will provide daily updates on the estimated time of restoration (ETRs) once the restoration stage has commenced. For additional details, please refer to Tables 14 and 15 of Annex A.

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

Regional Estimated Time of Restoration					
Region	Total Customers in Region	Total Customers Restored	% Of Customers Restored	ETR*	
Arecibo					
Bayamón					
Caguas					
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				
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		
Моса		
Quebradillas		
Rincon		
Sabana Grande		
San Germán		
San Sebastián		
Ponce		
Arroyo		
Coamo		
Guánica		
Guayama		
Guayanilla		
Juana Díaz		



Maunabo		
Patillas		
Penuelas		
Ponce		
Salinas		
Santa Isabel		
Villaba		
Yauco		
San Juan		
Canóvanas		
Carolina		



Emergency Response Plan

Annex A – Major Outage Restoration

LUMA Energy

May 30, 2025


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Annex A – Major Outage Restoration

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List of Acronyms

Acronym	Definition
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
ICC	Incident Command Center
ICS	Incident Command System
п	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



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



1.0 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 LUMA Emergency Operations Center (LEOC) personnel 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 across the company.

2.0 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 Type is defined as a Type 3, 2, or 1 event. Non-Emergency Events are defined as Type 5 and 4 events. All five of these types are described in the Event Classification and 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.

3.0 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 High-energy consumption areas. Critical system substation rebuilding is another area of focus.



Annex A – Major Outage Restoration

LUMA is committed to applying to Non-Federal Capital (NFC) 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 arresters.
- 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, Tropical Storm Ernesto, 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.
- Pre-positioned contracts, Memorandums of Understanding, and Mutual Aid Agreements 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, during, and after the event to assist in establishing a common operating picture and efficient response.



4.0 Concept of Operations

In the event of a major outage, LUMA responds and quickly assesses the impact 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 IC 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 14, Table 15, 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 is 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 the 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.



Annex A – Major Outage Restoration

- 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 services have 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.



Figure 1: 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 are 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



Annex A – Major Outage Restoration

Mobilization timelines 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/publicsafety 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.

Demobilization Stage

The time after restoration has been completed. This period continues until all services across the impacted areas have been restored.



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 4: 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.



Annex A – Major Outage Restoration

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 Pre-positioned 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



Annex A – Major Outage Restoration

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

4.2.5 Mutual Aid Support

Mutual 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. The mutual assistance program is a voluntary partnership of electric companies across the United States which. It would allow LUMA to increase the size of its workforce by "borrowing" restoration workers (employees or contractors) from other companies from unaffected areas. As an operating utility in Puerto Rico, LUMA leverages through the Puerto Rico Electric Power Authority (PREPA) access to the American Public Power Association (APPA) mutual aid agreement. LUMA signed an agreement in 2021 with Edison Electric Institute (EEI). This is all secondary to the pre-positioned contracts, as mentioned above.

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.

Table 2: Reasonable Time for Preliminary DA.

Preliminary Damage Assessment Reasonable Time		
Event Type	Estimated Duration of Service Restoration	Estimated Time to Produce Preliminary DA
Type 3 – High Alert Conditions	1 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



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 damage on overhead primary, secondary, transmission, and substation assets. Assessment personnel are 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 customers affected. LUMA focuses restoration efforts to restore service to critical facilities, such as hospitals, water distribution services, telecommunications, 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 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.



Annex A – Major Outage Restoration

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.
 - o Determines the need for the bulk electrical system.
 - o DA and repair of transmission lines and key substations.
 - Request personnel to support the restoration of the 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). The 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, practical, permanent repairs are made to avoid hazardous conditions and eliminate duplication of effort.

4.2.12 Supervisory Control and Data Acquisition (SCADA)

SCADA is a concept used to create software for computers that allows remote control and supervision of industrial processes. It provides real-time feedback with field devices (sensors and actuators) and controls the process automatically. It provides all the information that is generated in the production process (supervision, quality control, production control, data storage, etc.) and allows its management and intervention.



Annex A – Major Outage Restoration

Its definition is that of a group of computer applications installed on a computer called Master or MTU (Master Terminal Unit), intended for the automatic control of a remote productive activity that is interconnected with other instruments called field such as automata. Programmable (PLC) and Remote Terminal Units (RTU).

The Transmission & Distribution Operational Centers are the most important areas within LUMA. From there, the entire energy dispatch of Puerto Rico is controlled. These centers operate with SCADA control, which facilitates the operation of the Electrical System, since there is vision and control of the substations, lines and feeders. With this system it is possible to know which element of the system is out of service. In addition, generation control can be maintained, for an effective energy dispatch.

The SCADA control system is the system that allows both transmission (TOC) and distribution (DOC) operators to operate the lines, substations and feeders. The TOC operates the 230, 115 & 38 kVA lines and substations. In addition, it controls the generation to maintain a balanced system and at a frequency of 60 Hz. Regarding the DOC, it operates the lines & substations of 13.2, 8.32, 7.16 (Arecibo Region) & 4.16 kVA. The SCADA system allows engineers on duty and operators to see the system in real time, which makes it easier for them to isolate any fault that occurs in order to protect and/or stabilize the electrical system. The system has its main functionality in the TOC of Monacillos, in which 100% of the RTUs (383) are operated, with a backup (Back-Up) in the TOC of Ponce which is limited since it can only operate a little more than 2 /3 parts of the RTUs (298). This is because many of them are not Dual Port. Loss of SCADA protocol is addressed in the Operations Continuity Plan TOC's and DOC's.

4.2.13 Outage Management System (OMS)

LUMA uses the OMS extensively to manage customer outages. Customer outages are created inside 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 Geographic Information System (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 to respond outages in a prioritized and orchestrated manner.





Annex A – Major Outage Restoration

There are no changes in how OMS operates during steady states 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, 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 the mainland USA.
- There are no customer meter interfaces (smart devices, Automatic Meter Reading (AMR), or 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 Way To software.



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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.

Way To 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 implemented daily include, but are not limited to, disconnected breakers, wrong voltages, de-energized circuits, tiebreaker disconnects, and wrong device states.

Description	Pre-Commencement	LUMA (Current 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-Circuitis (Way to 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. Strom Funtion)
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 Short Message Service (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.

LUMA has improved the OMS environments, from production only to, most recently, production (primary and secondary), development, and User Acceptance Testing (UAT) environments. LUMA has done stress testing based on recommendations from the contractor supporting OMS. The System was subjected to a stress test, a process developed by the vendor based on LUMA's requests and their recommendations. The vendor was given a list of feeder breakers, where they identified the transformers and customers associated to create the scripts for the test.



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The main purpose of the test was to expose OMS to a significant number of calls and events using the MQConnector, which simulates calls coming in from LEX or IVR, and the SCADA simulator for feeder outages, thus replicating events from SCADA/EMS. The scripts developed by the vendor also measured the time the system took to process the number of calls and events injected into OMS with optimal performance results. During the test, the user experience, the CPU performance, and the memory of the servers, including the database, remained stable. The scripts can be easily adapted for future tests by modifying the number of calls and messages sent to OMS.

No system degradation was exhibited. LUMA's OMS remained operable during the test.

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 Incident Commander (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 do 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.

Table 4: Type 1 - Catastrophic Event Characteristics.

Туре	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. 	

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 Table 5: Type 2 - Emergency Conditions Event Characteristics.

Туре	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.	
	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: High Alert Event Characteristics.

Туре	Anticipated LUMA Operating Conditions		
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.	
Type	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: Non-Emergency Restoration Event Characteristics.

Туре	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 the 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. 	



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Table 8: Normal Operations characteristics.

Туре	Anticipate	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 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.



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- "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 provide 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



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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 9 and 10). Non-outage emergency jobs during restoration activations include downed wires, burning/sparking wires, pole damage, and miscellaneous emergency calls.

Table 9: Priority Levels of Downed Wires.

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, Emergency Operations Center (EOC) personnel, and emergency managers.



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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 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).

Table 10: Severity of Downed Wires.

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 de-energized 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 an 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 a 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.



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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 11 aligns the event classification type to the expected duration of the response.

Table 11. Reasonable Time for Response to Downed Wires.					
Downed Wire Reasonable Time					
Event Type	Duration of Service Restoration	Reasonable Response Time			
Type 3 – High Alert	1 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 11: 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 will make 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 12.

Table 12: Priority of Road Closures.

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.



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 13).

Table 13: Critical Facilities by Level.

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 extern 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 	



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.
- 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 disaster strikes.

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



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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.



5.0 **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 resources, material, and equipment requirements based on weather or other known hazard conditions.



Figure 4: Conceptual Process of Determining ETRs.

W Unintended Beneficiaries - is an incidental beneficiary of the restoration.



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 14 and 15.

Events with duration of service restoration expected to last up to 96 hours.

Table 14: Service Restoration Activities.

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

• Notify regulatory authorities of 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.



Annex A – Major Outage Restoration

- 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.

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 government 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 of 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 events with duration of service restoration expected to last up to 96 hours:



Annex A – Major Outage Restoration

- 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.

Events with duration of service restoration expected to last more than 96 hours.

Table 15: Service Restoration Activities.

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.

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 which 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.



Annex A – Major Outage Restoration

- 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 releases 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.


Annex A – Major Outage Restoration

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 events with duration of service restoration expected to last more than 96 hours:

- 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.

6.0 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 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 LUMA Emergency Roster (LER).



Annex A – Major Outage Restoration

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.

7.0 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 the 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)



Annex A – Major Outage Restoration

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 spokesperson serves as the official representative of the company during media briefings and press conferences, ensuring that all external communications are aligned with the LUMA's messaging strategy. This role includes delivering key updates, addressing media inquiries, and reinforcing the company's preparedness and response efforts. The spokesperson is prepped up by the PIO team with the latest situational updates, key messages, anticipated questions, and approved talking points before any public statements or media engagements.



Annex A – Major Outage Restoration

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. The spokesperson works closely with the PIO team to ensure that all public statements and responses reflect accurate and up-to-date information.

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 re-energization (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 through coordinated messaging between the PIO team and the spokesperson.
- Demonstrate preparedness through proactive and diligent communication led by the spokesperson during media engagements.

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. It 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

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 & Key Account Specialist, through the Key Account Team Lead 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 guidelines outlined 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.



8.0 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 is 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.

9.0 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness 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 exercise types based on 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.



10.0 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.

11.0 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.
- Critical Facilities Identified as Level 1, 2, or 3 facilities thet 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.
- 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 based 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

Table 16: Summary of Major Outage Performance 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	Completion of each step counts 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.	
the government of Puerto Rico, has declared a state of emergency or when	1.2 Press releases issued/text messages/emails sent.	Base Plan: Section 10.1, Annex A: Section 7		
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 company''s service territory.	1.3 Municipal conference calls held.	Base Plan: Section 10.3 Annex A: Section 7	Interagency/municipal conference calls wereheld. 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	Base Plan: Section 12.3	Evidence of ongoing training, including	



Description	Metrics	Location	Comments
	specified in the Emergency Response Plan.		courses, drills, and exercises.
	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
	Reasonable Time Duration of Response Service 3 to 5 days 5 to 10 days	Restoration Time 18 hours 36 hours	zone EOC.



Description	Metrics	Location	Comments
	> 10 days	60 hours	
3. Damage Assessme	nt		
	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 assessment)
	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			



guidelines.

Description	Metrics	Location	Comments
Description	Metrics50% of the forecast crewing [from mutual assistance] committed to the utility.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 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 will be deployed.Within 48 hours of the damage prediction, 80% of the indicated internal crews	Location Annex A: Section 4	Comments
	and qualified contract crews will be mobilized on the island.		
5. Estimated Time of I	Restoration (ETR) for 90% of S	ervice Outages	
Estimated Time of Restoration for 90% of service outages	Publication of regional ETRs in accordance with guidelines.	Annex A: Section 5	
LUMA on the web, IVR, to Customer	Publication of municipal ETRs in accordance with	Annex A: Section 5	



Service

Description	Metrics	Location	Comments
Representatives (CSRs), etc.)	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 are to be made available on IVR and to CSRs by a municipality or region.	Annex A: Section 5	
	All ETRs are to be updated every 24 hours.	Annex A: Section 5	
6. ETR Accuracy for 9	0% 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 Coord	ination		
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 the municipality-	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



Description	Metrics	Location	Comments
8. EOC Coordination I	specific information and requests. LUMA's Regional Interagency Coordinator will attend all scheduled SITREP meetings at activated PREMB EOCs.	tion	track, the zone PREMB or Municipal EOCs must be activated so that all requests flow through the respective EOCs.
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			



Description	Metrics	Location	Comments
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			
Crew requests are 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



Description	Metrics	Location	Comments
Customer calls are answered by properly staffed call centers (the use of IVR and other technology is an acceptable solution).		Base Plan: Section 10.2 Annex A: Section 7	
13. Web Availability			
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 Administ	trator (P3A) Reporting		
Provide storm event information to PREB and Administrator in accordance with LUMA's Electric Outage Management	Information is to be updated every 24 hours.	Base Plan: Section 10.3 Annex A: Section 7	



Description	Metrics	Location	Comments
System (OMS) guideline requirements to be established in the ERP for LUMA.			
15. Customer Commun	15. Customer Communications		
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	



Annex B – Fire Response

LUMA Energy

May 30, 2025



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List of Acronyms

Acronym	Definition
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
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



1.0 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.

2.0 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.

3.0 Situation 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 depends 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 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 responses 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 supporting 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.

4.0 Concept of Operations

If an emergency event results in or may result in damage 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 in 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 non-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 Wildfires Event Protocol, under System Operations, provides guidance to assist in maintaining the stability of the electrical system when affected by wildfire events. Additionally, the protocol includes preventive measures to manage the electric infrastructure and its easement in areas with potential danger of wildfires. 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 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.

5.0 Estimated Time of Restoration

Damages that cause transmission or distribution interruption due to fire, and fire-related hazards(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.

6.0 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.

7.0 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.

8.0 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 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.



9.0 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

10.0 Training and Exercises

Successful response to emergency events requires a Company-wide commitment to preparedness 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 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.



11.0 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.

12.0 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.
- 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.
- Emergency Operations Center The physical locations at which coordination of information and resources to support incident management activities occurs.
- 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.
- 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 FEMA.
- 10) **Joint Information Center (JIC)** A central point of contact for new media and interest parties to coordinate incident information activities.
- 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.

Annex C – Earthquake Response

LUMA Energy

May 30, 2025



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Emergency Response Plan Annex C – Earthquake Response List of Acronyms

Acronym	Definition
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
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



Emergency Response Plan Annex C – Earthquake Response

1.0 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.

2.0 Scope

Annex C applies to emergency events caused by earthquakes and earthquake-related hazards that result in, or could result in, a major 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.

3.0 Situation 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, December 2019 – March 2025.



Emergency Response Plan Annex C – Earthquake Response

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).

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 (DAs) 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.


Annex C – Earthquake Response

- Potential weather conditions may affect the response and restoration actions.
- Assessment, prioritizing, and scheduling of repairs are conducted throughout the response and restoration process.

4.0 Concept of Operations

In the event of a major outage due to an earthquake or earthquake-related hazards that result in damage 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 non-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).



Annex C – Earthquake Response

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 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 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.



Annex C – Earthquake Response

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.

5.0 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.



Emergency Response Plan Annex C – Earthquake Response

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.

6.0 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.

7.0 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.

8.0 Communications

LUMA provides timely, accurate, and consistent communications following an earthquake. Emergency communications may include alerts and warnings from verified emergency notifications. Communications



Annex C – Earthquake Response

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 flexible enough to allow for internal or external expansion, depending on the Event Type. Refer to Appendix A of the ERP – Base Plan.

9.0 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

10.0 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.



Emergency Response Plan Annex C – Earthquake Response

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 exercise types based on 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.

11.0 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.

12.0 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.
- 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.
- 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.





Annex C – Earthquake Response

- 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.
- 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.



Emergency Response Plan Annex C – Earthquake Response

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.





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.



Emergency Response Plan Annex C – Earthquake Response

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.





Annex D – Severe Weather Response

LUMA Energy

May 30, 2025



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List of Acronyms

Acronym	Definition
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
ROCC	Regional Operations Command Center
SCADA	Supervisory Control and Data Acquisition
SERT	System Emergency Restoration Team
T&D	Transmission and Distribution



1.0 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.

2.0 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 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.

3.0 Situation 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.





Annex D – Severe Weather Response

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 varies, 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.



4.0 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 impact 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 non-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 non-notice event.



Annex D – Severe Weather Response

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.



Annex D – Severe Weather Response

- 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 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 services 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.



Annex D – Severe Weather Response

Please refer to Section 4 of Annex A regarding how activities are assigned, evaluations documented, repairs made, and service restored.

5.0 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.

6.0 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.

7.0 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.

8.0 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

9.0 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 losses, reduce operating costs, and ensure 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. 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)



10.0 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 exercise types based on 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.

12.0 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.
- 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.



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- 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.
- 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.
- 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.
- 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 nonfrontal 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.
- Tropical Storm Watch Tropical storm conditions pose a threat to a specified area generally within thirty-six hours.
- 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.





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.

Table 1: Saffir-Simpson	Scale	Description.
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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.



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Category	Winds (mph)	Damage
3 (major)	111-129	Devastating damage: Water and electricity may become scarce for several days or weeks after the storm passes.
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.

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



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(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.

	Annual Precipitation at Luis Muñoz Marín International Airport (2014-2024)												
Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual
2014	2.54	3.50	0.51	3.15	8.89	0.77	3.57	9.79	6.28	3.11	11.47	5.49	59.07
2015	4.96	3.27	1.50	1.38	2.28	2.11	1.61	5.93	4.30	1.77	8.72	3.47	41.30
2016	1.60	3.88	2.22	10.02	7.16	2.74	5.10	5.14	4.91	6.39	17.65	4.30	71.11
2017	1.89	1.70	6.04	6.25	4.53	3.93	6.66	7.68	15.79	6.61	10.16	3.33	74.57
2018	5.18	5.18	2.74	2.85	5.00	3.12	4.37	6.29	3.05	5.67	5.68	2.25	51.38
2019	2.10	2.17	1.03	3.05	1.97	3.01	6.72	4.38	9.54	2.81	4.36	5.78	46.92
2020	9.08	8.23	4.95	4.27	1.69	3.90	10.42	3.49	5.02	6.50	7.61	4.68	69.84
2021	2.12	3.07	2.07	2.18	4.11	10.49	5.32	2.73	4.48	5.96	2.79	5.67	50.99
2022	2.73	11.69	3.44	2.92	1.09	1.64	8.13	9.73	13.54	6.61	6.43	3.72	71.67
2023	5.63	2.58	2.25	5.49	4.00	2.30	4.01	4.37	3.05	9.73	5.06	7.72	56.19
2024	3 57	5 79	2.89	914	11.54	3 47	4 77	916	3.45	9 1 9	12.18	6.59	81 74

Figure 4: Annual Yearly Precipitation in Puerto Rico (2010-2024).

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 table below is to be used as a guide only and can be adapted based on the projected impacts of the storm.

Table 2 - H-136 timeline checklist.

Section	Group/Unit	Task
Pre-storm	– 136 hours	
EP	EP	Coordinate weather updates with the National Weather Service (NWS) forecast office in San Juan regarding potential tropical weather threats.
EP	EP	Update CMC members after receipt of weather advisories, as required.
EP	EP	Request IT to verify equipment readiness within the LEOC; including radios, telephones, and laptops.
EP	EP	Validate On-call personnel availability.
EP	EP	Create the event in WebEOC production and include the folders for incident documentation.
Pre-Storm	- 120 Hours - 5 Days	5
Continue	actions from the pre	vious operational period as needed.
EP	EP	Coordinate weather updates with the Puerto Rico National Weather Service (NWS) regarding potential tropical weather threats.
EP	EP	Update CMC members after receiving a confirmed weather threat. Using Genesys, send notifications using text and email for a scheduled TEAMS session.
СМС	Chair	Host a CMC meeting to evaluate potential emergency events & appoint an Incident Commander (IC).
CMD	IC	IC notifies EP what position within the Command & General Staff will be activated.



Section	Group/Unit	Task
EP	EP	Command Staff and Section Chiefs are activated via Genesys.
CMD		LEOC Activation.
CMD	LNO	Notify partner and regulatory agencies of LEOC activation.
PLAN	PSA	Coordinate conference calls with local NWS Offices for weather updates.
PLAN	PSC	Generate preliminary Damage Prediction.
CMD	IC	Determine initial objectives, which should include life, safety, property protection, environment and stabilization.
CMD	IC	Determine staffing needs based on the preliminary damage predictions. Notify additional selected personnel via WebEOC, sending a text and email with acknowledgment of receipt.
CMD	CMD	IC & staff define Incident Type + Activation Level.
OPS	OSC	Based on preliminary damage predictions evaluate the need to proceed with prepositioned contracts.
LOGS	Contract Adm	Make calls to prepositioned contracts points of contact to alert them of a possible notice to proceed.
CMD	PIO	Disseminate pre-incident preparedness messaging via LUMA social media platforms.
Pre-Storm	- 96 Hours - 4 Days	
Continue	actions from the pre	vious operational period as needed.
LOGS	LSC	Confirm material stock levels against the preliminary damage prediction.
OPS	ROCC	Validate ROCC personnel availability.



Section	Group/Unit	Task
LOGS	LSC	Conduct analysis of internal resources to identify status and availability based on preliminary damage prediction.
LOGS	FACL	Activate LUMA-signed MOUs to relocate ROCCs susceptible to floods.
OPS	OSC	Prepare staffing plans, schedules, and briefing for ROCCs as dictated for the preliminary damage predictions, event type and activation level.
Pre-Storm	- 72 Hours - 3 Days	
Continue	actions from the pre	vious operational period as needed.
PLAN	PSA	Coordinate and participate in weather updates with NWS.
PLAN	PSC	Refine preliminary damage prediction.
LOG	LSC	Validate material stock levels against the refined preliminary damage prediction and Event Type.
OPS	OSC	Develop staffing roster for continued operations periods and disseminate to staff.
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 Level.
CMD	PIO	Verify the personal preparations plan has been engaged and ensure all personnel have been provided with release time to complete.
CMD	PIO	Develop external communication for customers.
OPS	OSC	Ensure the accuracy of the LEOC Staffing Rosters for the next operational periods.



Annex D – Severe Weather Response

Section	Group/Unit	Task
OPS	T&D System Operations Branch Director	Review the status of Generation operations with providers.
OPS	T&D System Operations Branch Director	Evaluate the T&D System and OMS operational status.
Pre-Storm	- 48 Hours - 2 Days	
Continue	actions from the pre	vious operational period as needed.
СМС	IC	Coordinate with the LEOC Command to re-access Activation Level and Event Type.
PLAN	PSC	Establish a battle rhythm and provide it to LEOC Command Staff. Post in LEOC throughout WebEOC.
СМС	LNO	Brief ESF-12 partners on the LEOC Activation Status.
CMD	CX & KA Specialist	Performs the outbound telephone calls to LPE Customers.
CMD	CX & KA Specialist	Ensure KA representatives conduct daily updates with 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.
LOGS	LSC	Address possible shelter (housing/lodging) operations and logistical needs.
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.
Pro-Storm	- 24 Hours - 1 Day	



Section	Group/Unit	Task
Continue	actions from the prev	vious operational period as needed.
CMD	PIO	Continue to focus on internal and external information campaigns, specifically on reinforcements of protective actions.
CMD	IC	Finalize planning pre-event protective action requirements.
OPS	OSC	Evaluate the T&D System Status, the OMS and report findings and provide information to Plans for the Pre-Event Stage Reports.
CMD	CX & KA specialist	Follows up on LPE customers' requests by leveraging their established relationships with Municipal Officials and local Municipal Offices for Emergency Management (OMME).
OPS	OSC	Coordinate suspension of daily operations for the next operating period, including landfall.
LOGS	COML	Verify communication equipment Alternate and Contingency functions post-event to field operations.
Landfall -	+0 to +48 Hours	
Continue	actions from the prev	vious operational period as needed.
OPS		Assess SCADA status following the Operations Continuity Plan TOC's and DOC's.
CMD	PIO	 Within the first 6 hours of the start of the Initial Response stage For type 3 Events: Provide available information to the public via customer representatives, IVR systems, and websites. For Type 1 or 2 Events: Provide a public statement indicating the likelihood of extended outages and make this information available via customer representatives, IVR systems, and websites.
CMD	PREB / P3A LNO	Within the first 6 hours of the start of the Initial Response stage For type 3 Events: Notify regulatory authorities of 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



Section	Group/Unit	Task
		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.
		For Type 1 or 2 Events: 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.
CMD	LNO	Forward PREB/P3A Reports with ESF 12 partners.
CMD	IC	Coordinate all approved data and information with Unified Command, if established.
PLAN	PSC	Deploy DA Teams, as needed.
OPS	PRG	Compare DAs and OMS reports; review with LOGS and CMD for response planning and reporting requirements.
OPS	FOBD	Compile response data regarding staffing status, communications availability, and safety concerns during operational briefings.
CMD	SOFR	Re-iterate through safety messages that measures are being followed; resource management updates are to be provided to CMD.
PLAN	DAGBD	Collect, analyze, and distribute DA reports in conjunction with LOGS and PLAN.
FIN	T&C Unit Leader	Ensure reporting and tracking of all damage-related costs are being conducted.
FIN	Cost Recovery Unit Leader	Ensure cost tracking procedures are being adhered to.
CMD	IC	Activation Level is re-assessed.
CMD	PIO	Within the first 12 hours of the start of the Initial Response stage



Section	Group/Unit	Task
		For type 3 Events: Prepare a statement for the press that includes known ETRs for the next upcoming news cycle and communicate with relevant municipal and government officials.
		For Type 1 or 2 Events: Prepare a press release for issuance in time for the next upcoming news cycle and communicate with relevant government agencies.
CMD	PREB / P3A LNO	Within the first 12 hours of the start of the Initial Response stage
		For type 3 Events: Provide regulatory authorities with an approximate global ETR and any available regional ETRs, where known.
LOGS	LSC	Coordinates with Finance and Purchasing regarding contracts.
CMD	PIO	Within the first 18 hours of the start of the Initial Response stage For type 3 Events: Provide approximate ETRs for each region, where known and affected, and make them available to the public via customer representatives, IVR systems, and websites.
CMD	CX & KA	Continue conference calls with municipal officials.
CMD	PREB / P3A LNO	Within the first 24 hours of the start of the Initial Response stage For Type 1 or 2 Events: Notify regulatory authorities which areas sustained the most damage to the electric system.
CMD	PIO	Within the first 24 hours of the start of the Initial Response stage,For type 3 Events: Consider issuing a press release for the upcoming news cycle based on conditions.For Type 1 or 2 Events: Issue a press release(s) for upcoming news cycles with the information on what areas sustained the most damage to the electric system.
CMD	PREB / P3A LNO	Within the first 36 hours of the start of the Initial Response stage For Type 1 or 2 Events: For storms with an expected initial response stage of five days or less, provide regulatory authorities with an approximate global ETR.



Section	Group/Unit	Task
CMD	PIO	Within the first 36 hours of the start of the Initial Response stage, For Type 1 or 2 Events: Make ETR information available to the public via customer representatives, IVR systems, and websites.
CMD	PREB / P3A LNO	Within the first 48 hours of the start of the Initial Response stage For Type 1 or 2 Events: For storms with an expected initial response stage of five days or less, provide regulatory authorities with an approximate global ETR.
CMD	PIO	Within the first 48 hours of the start of the Initial Response stage, For Type 1 or 2 Events: Make ETR information available to the public via customer representatives, IVR systems, and websites.
LOGS	LSC	Establish contact with the Regional Logistics groups to ensure processes and protocols of restoration operations are identified and updated accordingly.
LOGS	LSC	Identify possible Federal support requirements
CMD	IC	Update operations and discuss transitioning into a Restoration Stage based on operations, DAs, and ETRs.
CMD	PIO	 Within the first 6 hours of the start of the Restoration stage For type 3 Events: Provide available information to the public via customer representatives, IVR systems, and websites. For Type 1 or 2 Events: Provide a public statement indicating the likelihood of extended outages and make this information available via customer representatives, IVR systems, and websites.
CMD	PREB / P3A LNO	Within the first 6 hours of the start of the Restoration stage, notify regulatory authorities of the start of the restoration stage.
CMD	PIO	Within the first 12 hours of the start of the Restoration stage



Section	Group/Unit	Task
		For Type 1 or 2 Events: Prepare a press release for issuance in time for the next upcoming news cycle and communicate with relevant government agencies.
CMD	CX & KA	Within the first 12 hours of the start of the Restoration stage For Type 1 or 2 Events: Continue post-storm municipal conference call(s) unless an alternative municipal contact method is more appropriate. Communicate information such as system damage, outages, restoration status, etc., with affected municipal and elected officials as appropriate.
CMD	PIO	 Within the first 24 hours of the start of the Restoration stage For type 3 Events: Make ETR information available to the public via customer representatives, IVR systems, and websites For Type 1 or 2 Events: Continue issuing a press release(s) for upcoming news cycles with approximate regional and/or municipality ETRs. Update customer representatives, and IVR systems.
CMD	PREB / P3A LNO	Within the first 24 hours of the start of the Restoration stage and beyond, for Type 2 & 1 events, provide regulatory agencies and the public with approximate regional and/or municipality ETRs. Update customer representatives, and IVR systems.



Annex E – Cybersecurity and Terrorism

LUMA Energy

May 30, 2025



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List of Acronyms

Acronym	Definition
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
PSC	Planning & Intelligence Section Chief
SCADA	Supervisory Control and Data Acquisition
T&D	Transmission & Distribution



Emergency Response Plan Annex E – Cybersecurity and Terrorism

1.0 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.

2.0 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.

3.0 Situation 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 targets for threat actors with the motivation to engage in cybersecurity or terrorist attacks. It is important to understand potential motivation factors



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(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 Emergency Response Plan (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).



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• Cybersecurity and terrorism incidents or events will require federal notification and assistance.

Table 1: Potential Motivators ranked by complexity of attack, potential operational impact, and probability of occurrence from a utility perspective.

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

4.0 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. It 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.



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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 depends 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.



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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 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

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



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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.

5.0 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.

6.0 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.



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7.0 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.

8.0 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 flexible enough to allow for internal or external expansion, depending on the Activation Level and Event Type.

9.0 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

Annex E – Cybersecurity and Terrorism

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 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

10.0 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 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.

11.0 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.

Annex E – Cybersecurity and Terrorism

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

12.0 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.
- Cybersecurity The practice of protecting critical systems, networks, programs, and sensitive information from digital attacks.
- 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.
- Impede To delay or hinder something or a process.
- Incident Action Plan

 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.
- Incident Commander The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.
- 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.
- 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.



Annex F – Activation Guide

LUMA Energy

May 30, 2025



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List of Acronyms

Acronym	Definition
СМС	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



1.0 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 in the direction or under the authority of LUMA. It describes general procedures for the activation of the LUMA Emergency Operations Center (LEOC) at the request of the Incident Commander. 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.

2.0 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 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.

3.0 Situation 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.
- LEOC has the capability to communicate with municipalities, the 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 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.

4.0 Concept of Operations

Day-to-day outages do not require 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

The LEOC, with its emergency roster, 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 LEOC is aligned with NIMS and utilizes an 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 for the LEOC. 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 LEOC 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, the CMC convenes to assess potential events and appoint an Incident Commander (IC). The IC is responsible for activating the Command Staff and analyzing the severity, complexity, and size of the incident.

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 preposition 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, determination of an Event Classification Type is needed first, followed by the establishment of the LEOC Activation Level.

4.3 **LEOC** Activation

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. The process for the LEOC activation begins, for notice incidents, as soon as the Emergency Preparedness Department starts tracking a possible threat.

4.3.1 Weather Updates

The Emergency Preparedness Department will commence sending weather updates 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.

Figure 1: Weather Conditions Notification Email Example.

Weather Conditions and Observations as of 5:00 pm 20 OCT 2023 for Hurr Tammy	
@Lumapr.com>	
Fri 10/20/2023 5:14 PM To Mi Cc	
Good afternoon,	
Hurricane Tammy is moving toward the west-northwest near 7 mph, and this general motion is expected to continue through tonight. A turn toward the northwest is anticipated by this evening, followed by a north-northwest and northward turn Saturday night through Sunday night.	Current condition and forecas
Gradual strengthening is forecast during the next days and is expected to be a hurricane while it moves near or over portions of the Leeward Islands.	
Tropical-storm-force winds extends outward up to 140 miles from center.	
Tammy is expected to produce total storm rainfall 1 to 2 inches with maximum amounts of 4 inches. There are No watches or warnings for Puerto Rico including Vieques and Culebra.	Potential effects in PR
In accordance with our ERP Annex D, Severe Weather, we remain at Emergency Action Level 5 - Normal Operations. We will be providing daily updates, and immediately if the models change indicating additional potential impacts to Puerto Rico.	Response level status as per LUMA ERP



4.3.2 Crisis Management Committee

The emergency response process begins with an evaluation of system conditions that trigger the recommendation to convene the CMC and determine if LEOC should be activated. 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 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.
- 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.

If it is not possible to effectively manage an event through normal operating procedures, the LUMA CEO, who chairs the CMC, orders the activation of the LEOC and appoints the IC.



Figure 2: Process for the Activation Flowchart.

4.3.3 Incident Commander, Command Staff, and Section Chiefs

Due to the size and nature of the activation process, it is intended to be a cascading activation to maximize response efficiency and consistency. Once named, according to the nature of the incident and expertise, the IC determines the need for Command Staff and General Staff to support the needs of the response effort. For this process the IC will identify to the EP department the names and positions to be activated and mobilized using the Genesys System (following Genesys System SOG).

Activation via Genesys System:

When the IC requests the activation of Command Staff and Section Chiefs, the Genesys System will issue alerts to designated personnel via text messages and emails with activation instructions. The Contact Center has pre-determined notification scripts that will be filled as it pertains to the event. There are templates in place for each notification scenario with the intent that when the Emergency Preparedness Department calls, they can request the specific one by name: "Activate Genesys notification BREAKER."

- Notification BREAKER: "Crisis Management Committee member, a CMC meeting has been scheduled by the CEO. Please check your calendar for the Teams invite."
- Notification TRANSFORMER: "LEOC Incident Commander has activated the LEOC for tomorrow. Please report to the LEOC at 0700 hours, prepared for a 12-hour shift."
- Notification HARDHAT: "LEOC Incident Commander has activated the LEOC today. Please report to the LEOC at 0700 hours, prepared for a 12-hour shift."
- Notification ISOLATOR: "This is an exercise of the LEOC notification process. Please respond to acknowledge receipt."

Initial Mobilization and Incident Evaluation:

Upon receiving activation orders, the Command Staff and Section Chiefs report to the LEOC (or designated alternate LEOC, if necessary), at the directed time.

Command Staff Responsibilities Upon Arrival:

- Incident Commander (IC): Provides an initial briefing based on the situation as known.
- Safety Officer: Assesses potential hazards and advises on risk mitigation.
- Public Information Officer (PIO): Prepares for media coordination and internal communications.
- Liaison Officer (LNO): Establishes contact with interagency partners and external stakeholders.
- LEOC Manager: Establish operational control. Sends augmented staff activation notifications via WebEOC until section assistants are activated.

Section Chiefs Responsibilities Upon Arrival:

- Operations Section Chief: Reviews the operational situation and begins resource deployment planning.
- Planning & Intelligence Section Chief: Initiates incident documentation, creates situational awareness briefings and establishes a battle rhythm.



- Logistics Section Chief: Evaluates resource requirements to include communications, fuel, prepositioned contracts and facilities.
- Finance Section Chief: Reviews financial implications, ensures cost tracking, and assigns project numbers.

Evaluating the Incident and Determining Activation Type and Level:

After the initial briefing, the Command and General Staff conduct a structured evaluation of the incident, designating the activation Level and event Type, as per sections 6.3 and 6.4 of the Base Plan.

Event type and level are assigned, which allows the Command and general staff to request augmentation of their section staff. 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 3) outlines these processes.

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.



Figure 3: Process for the Activation Flowchart.

4.3.4 LUMA Emergency Roster (LER) Activation

Once the Incident Commander authorizes the activation of a role, the Section Chief is responsible for notifying the LEOC Manager. This notification must specify the role being activated, the individual assigned to the role (according to the roster for the current period or name request by the IC), and the expected time of activation. The Section Chief must provide this information promptly to ensure a rapid response. The LER is published on LUMA's intranet page allowing employees to implement their family action plan before reporting to the LEOC if recalled.

Upon receiving the activation order, the LEOC Manager will initiate the WebEOC notification process. This involves sending both an email and a text message to the individual assigned to the activated role. However, the LEOC Manager will only send this initial notification until the Section Assistant has been activated. Once the Section Assistant is in place, each Section Assistant, with the exception of Finance Section (which will be in charge of the command section assistant) will assume responsibility for further notifications within their section, ensuring a streamlined activation process.

The initial notification from the LEOC Manager must include details such as the role being activated, reporting requirements (including time and location, whether virtual or in-person), and a contact point for confirmation. The activated individual must acknowledge receipt of the notification and confirm their availability within one hour.

To ensure proper documentation, the LEOC Manager must copy (CC) the Documentation Unit Leader on all activation notifications. This ensures that an official record of the activation process, including responses and any escalations, is maintained in WebEOC for future reference.

If the individual does not acknowledge the activation within thirty minutes, the LEOC Manager will issue a follow-up notification via WebEOC, email, and text. If no response is received after one hour, the Section Chief will be informed to determine contingency actions. These actions may include reassigning the role, contacting an alternate individual, or escalating the issue to the Incident Commander if necessary.

The Documentation Unit Leader is responsible for logging all activation notifications, responses, and any escalation measures in WebEOC. This ensures that all activation records are available for audit, reporting, and continuous improvement purposes.

Activation via WebEOC System:

Step 1: HOC Alert

• Open the LUMA WebEOC portal using your credentials and navigate to the HOC Alert Board or the designated alert notification module



Figure 4: WebEOC HOC Alert

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4) D		
	Quick Actions.	
	Check In/Check Out > C UKG >	
39	RESH ID Anaronis, Int WellOF - Privaty Publy - Server Common	

Step 2: Initiate a New HOC Alert

- Click on "Create New Alert" and fill out the required fields:
 - Alert Title: LEOC Activation
 - Details: "LEOC Incident Commander has activated the LEOC for (Date). Please report to the LEOC at (XX:XX) hours, prepared for a 12-hour shift

Figure 5: Initiate a New HOC Alert

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	ANTE SHORT MESSAGE			
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	LEOC incident Commander is activating the LEOC tomorrow, please report at 070	I hours to the LEOC ready for a 12-hour shift.		
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	+ ADD RESPONSE			

Step 3: Select Recipients

Choose the appropriate distribution list according to the roster



Figure 6: Select Recipients

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Select Recipients		
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	Sections in Clinicapian (<u>Justice Com</u>	
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- Mox				REVIEW AND SEND
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CMD - Deputy IC				
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CMO-GeneraLNO				
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CMD - Intersugency Coordinator - San Juan Zona ())				
CMD - Interagency Coordinator - Vega Baja Zona (II)				
CMD - Internal Communications Specialist				
CMD - Kay Accounts Team Land				
CMD - Legal Officer				
				Rowsperpage: 20 + 1-20 of 129 C 3

Step 4: Configure Alert Delivery Methods

- Ensure that both SMS and email checkboxes are selected
- WebEOC will auto-format SMS messages, so keep the first 160 characters concise for text recipients



Figure 7: Configure Alert Delivery Methods

Create Notification			SAVE - CANCE
Define Delivery Options	Enter Message		Select Recipien
Define Delivery Options			
Civery Method	Text	Voice O Tribex	
🔂 Delivery Order	Blast	O Escalation	
BACK TO TEMPLATES			NE

Step 5: Send and Confirm

- Click "Send" to distribute the notification
- Verify the alert's status in WebEOC to ensure it was logged and sent, and check recipient acknowledgment if WebEOC provides a delivery status update

Step 6: Recipient Acknowledgment

- Recipients must acknowledge receipt using only ONE method (either email or text message). The system will not allow a second method to acknowledge.
- WebEOC will register the first acknowledgment, and any duplicate or subsequent responses will
 generate an automatic response message stating that it was already submitted, and that a second
 acknowledgement is not allowed.

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Figure 8: Send and Confirm



Step 7: Monitor and Update if Necessary

• If the situation evolves, issue an updated HOC alert with new information.

5.0 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 that 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 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 (EOC) 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.



Annex G – Communication Guidelines

LUMA Energy

May 30, 2025



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List of Acronyms

Acronym	Definition	
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	
п	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	
PREMB	Puerto Rico Energy Management Bureau	
PREPA	Puerto Rico Electric Power Authority	
ROCC	Regional Operations Command Center	
T&D	Transmission and Distribution	



Emergency Response Plan Annex G – Communication Guidelines

1.0 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.

2.0 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.

3.0 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 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.



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- 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 Genera PR 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.

4.0 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



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in the base plan does 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 preposition 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, 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 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.



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LUMA assesses the impact 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.



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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.





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. Additionally, Key Account Representatives collaborate with Emergency Preparedness Department Staff, the Puerto Rico Emergency Management Bureau (PREMB), and government agency personnel annually to update critical facility lists, ensuring all changes are documented and socializing the ERP updates that correspond 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 (KA) Representatives begin contact with municipal mayors, their designees, and partner agencies responsible for critical facilities at the 48-hour mark. During this initial outreach, LUMA Regional Key.


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Accounts KA Representatives provide situational updates, including details about emergency conditions, outages, restoration progress, the status of assigned crews, priority down wire locations, and the impact on critical facilities. During an incident communication lines remain open 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).

Communication with municipal officials continues daily through structured methods designed to ensure timely updates and efficient coordination. Scheduled conference calls, divided by region, take place at 11:00

a.m. each day. These calls align with the LUMA Emergency Operations Center (LEOC) battle rhythm, ensuring that the information shared is both validated and current. Each call, led by the KA Representatives and the ROCC Incident Commander or delegated operational staff, is designed to last no longer than 30 minutes. Within this timeframe, each mayor is allocated a five-minute slot to report on emergency situations specific to their municipality.

Once the meetings are over the KA representatives prepare a report highlighting the additional support requested. This is sent to and managed by the Customer Experience & Key Accounts Specialist at the LEOC.

4.3.2 Contact Center

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.



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Prior to the occurrence of an emergency event, at least – 48 hours, as per the timeline in Annex D, Severe Weather Response, 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. The steps for calls to LPE clients prior to a forecasted event are as follows:

- 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 raises 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 Municipal Office for Emergency Management (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 (IC), 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, and 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 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).

5.0 Communication Plan

The need to communicate is immediately when an emergency occurs. Many different audiences must be reached with information specific to their interests and needs.

This plan is essential for keeping everyone informed and coordinated during an event, which can help to minimize anxiety and confusion. By having a plan in place, LUMA employees and responders can act quickly and efficiently, knowing exactly what steps to take and where to go. It also promotes communication



and coordination, allowing everyone to conduct synergetic tasks, and instilling a sense of control within the situation.

Activating the emergency communications plan can have several triggers. Not all of them are obvious, such as a natural disaster, but there may be a need to activate the plan for less obvious incidents, such as a cyber-attack or interruption of the command-and-control systems. For this reason, it is imperative that the communication systems are functional for these unforeseen events. However, for planned events, the alternative communication systems undergo tests prior to the event to ensure their operation.

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 ROCCs, 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.



Table 1: PACE Description.

PACE Communication Plan				
Primary	Landlines	Cellphones	LAN	WIFI
Alternative	Cellphones	Hot Spots (Wifi)	First Net	-
Contingency	Satellite Systems	-	-	-
Emergency	HF Radios	Runners	-	-

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. 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 cell phones 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 where 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.



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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 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.



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• 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 EOC's 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.

ICS 205A form will be used to capture contact methods with numbers other than traditional ones (e.g., satellite phones). The Communications List (ICS 205A) records methods of contact for incident personnel. While the Incident Radio Communications Plan (ICS 205) is used to provide information on all radio frequencies down to the Division/Group level, ICS 205A indicates all methods of contact for personnel assigned to the incident (radio frequencies, phone numbers, pager numbers, etc.), and functions as an incident directory. The ICS 205A can be filled out during check-in and is maintained and distributed by Communications Unit personnel. This form should be updated each operational period. It A is distributed within the ICS organization by the Communications Unit and posted as necessary. All completed original forms must be given to the Documentation Unit. If this form contains sensitive information such as cell phone numbers, it should be clearly marked in the header that it contains sensitive information and is not for public release.

6.0 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 that 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.
- 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.



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- 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.
- Emergency Operations Center The physical locations at which coordination of information and resources to support incident management activities occurs.
- Emergency Response Plan A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.
- 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.

LUHA

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:

Figure 4: 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.



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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 who 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 zone 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.



Figure 5: Communication with Municipal Officials



Annex H – Preparedness Training

LUMA Energy

May 30, 2025



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List of Acronyms

Acronym	Definition
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



1.0 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.

2.0 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.

3.0 Situation 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 ERP.
- LUMA operates in compliance with relevant regulations and standards governing emergency preparedness and response in the utility sector.



Annex H – Preparedness Training

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.

4.0 Concept of Operations

Day-to-day outages do not require 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 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.



Annex H – Preparedness Training

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.

5.0 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.

6.0 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.



Annex H – Preparedness Training

- 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 throughout the Workday.
- Assign, when necessary, emergency preparedness and response training throughout 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 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 training, 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.

7.0 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



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.

8.0 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.

9.0 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.

10.0 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.

11.0 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).



Figure 1: Types of Training.



12.0 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.



13.0 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 After Action Report 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 After Action Report 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.

14.0 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:
 - o 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
 - o Promotes agility in responding to emerging skill requirements
- Evaluation and Feedback:
 - o 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.

15.0 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.



16.0 Terms

- 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).



LUMA

Appendix A: Individual Training Evaluation

TRAINING EVALUATION FORM – ICS 300

- 1. The training met my expectations
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 2. I will be able to apply the knowledge learned
 - Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 3. The content was organized and easy to follow
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 4. The materials distributed were useful
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 5. The trainer was knowledgeable
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree



- o Strongly disagree
- 6. The trainer met the training objectives
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 7. Class participation and interaction were encouraged
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 8. Adequate time was provided for questions and discussion
 - o Strongly Agree
 - o Agree
 - o Neutral
 - o Disagree
 - o Strongly disagree
- 9. How would you rate the training overall?
 - o Excellent
 - o Good
 - o Average
 - o Poor
 - o Very poor
- 10. What aspects of the training could be improved?

