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

IN RE: PUERTO RICO ELECTRIC POWER AUTHORITY'S EMERGENCY RESPONSE PLAN	**CASE NO.:** NEPR-MI-2019-0006 SUBJECT: Submission in Compliance with Order and Request for Confidential Treatment.

MOTION IN COMPLIANCE WITH ORDER AND REQUEST FOR CONFIDENTIAL TREATMENT

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COME NOW LUMA Energy, LLC ("ManagementCo")[1], and **LUMA Energy ServCo, LLC** ("ServCo")[2], (jointly referred to as "LUMA"), and, through the undersigned legal counsel, respectfully submit the following:

1. On August 30, 2021, LUMA filed a *Request to Seal Appendix B to Annex A to LUMA's Emergency Response Plan* ("August 30th Confidentiality Request"). In said August 30th Confidentiality Request, LUMA petitioned that the Puerto Rico Energy Bureau ("Energy Bureau") grant confidential treatment to Appendix B to Annex A of LUMA's ERP on Major Outage Restoration ("Appendix B to the Major Outage Restoration Annex"), which was originally filed for the public record.
2. On August 31, 2021, the Energy Bureau issued a Resolution and Order that granted LUMA's August 30th Confidentiality Request ("August 31st Resolution and Order"). The Energy Bureau directed that on or before September 1, 2021 at noon, LUMA shall file public redacted versions

[1] Register No. 439372.
[2] Register No. 439373.

of: (1) the ERP Submission of May 28, 2021 ("May 28th ERP Submission:); and (2) Annexes A, B and C to LUMA's ERP, that were filed on June 3, 2021. *See* August 31st Resolution and Order at page 3. Finally, the Energy Bureau directed that LUMA should file a confidential version of LUMA's ERP and Annexes A, B and C to LUMA's ERP. *Id.* at pages 3-4.

3. In compliance with the August 31st Resolution and Order, LUMA hereby submits a public redacted version of LUMA's ERP and of Annexes A, B and C to LUMA's ERP that were filed on May 28, 2021. *See* Exhibit 1. Annex B has been redacted to protect the information that constitutes CEII, as directed by the Energy Bureau in the August 31st Resolution and Order. Also, the names included at page 5 of each of the Annexes A, B and C to LUMA's ERP, have been redacted, as authorized by the Energy Bureau in its Resolution and Order of July 23, 2021. In connection with the May 28th ERP Submission, LUMA requests that the Energy Bureau protect the signatures and names of the LUMA officers that are identified at pages 5, 9 and 10 of LUMA's ERP as filed on May 28, 2021 and that have been redacted. The referenced signatures and names should be kept confidential in accordance with Section 6.15 of Act 57-2014 (providing, that: "[i]f any person who is required to submit information to the Energy Commission believes that the information to be submitted has any confidentiality privilege, such person may request the Commission to treat such information as such . . . ", 22 LPRA §1054(n)), and pursuant to the Energy Bureau's Policy on Confidential Information. *See* CEPR-MI-2016-0009, Section A, as amended by the Resolution of September 16, 2016, CEPR-MI-2016-0009. It is respectfully submitted that protecting the signatures and names of the LUMA officers in a context that reveals details of their employment and duties, is in the public interest and aligned with Puerto Rico's legal framework on privacy which protect from disclosure the personal identifying information included in personnel files, *see e.g.*, Const.

ELA, Art. II, Sections 8 and 10 which protect the right to control personal information and distinctive traits which applies *ex proprio vigore*. *see also e.g. Vigoreaux v. Quiznos*, 173 DPR 254, 262 (2008); *Bonilla Medina*, 140 DPR at 310-11, *Torres Albertorio*, 115 DPR at 133-34. *See also* Act 122-2019, Article 4 (vi) (which provides, as exceptions to the rule on public disclosure, information whose disclosure could invade the privacy of third parties or affect their fundamental rights; Article 3(c) Act 122-2019 (stating that personnel files and similar information does not constitute public information subject to disclosure). On July 23, 2021, the Energy Bureau granted a similar request in connection with the June 3rd filing of Annexes A through C to LUMA's ERP. It is respectfully submitted that redaction of the names and signatures at page 5, 9 and 10 of LUMA's ERP filed on May 28, 2021, does not affect the public's ability to review the ERP nor interferes with processes before this Energy Bureau in connection with the ERP.

4. Secondly, as Exhibit 2, LUMA submits a public redacted version of Annexes A, B and C to LUMA's ERP that were filed on June 3, 2021. *See* Exhibit 2. Annex B to LUMA's ERP has been redacted to protect the information that constitutes CEII, as directed by the Energy Bureau in the August 31st Resolution and Order. Also, the names included at page 5 of each of the Annexes A, B and C to LUMA's ERP, have been redacted, as authorized by the Energy Bureau in its Resolution and Order of July 23, 2021.
5. In compliance with the August 31st Resolution and Order, LUMA is also submitting a confidential unredacted version of LUMA's ERP and of Annexes A, B and C to LUMA's ERP.
6. Finally, LUMA requests that the Energy Bureau seal and remove from the public docket, the versions of LUMA's ERP and of Annexes A, B and C to LUMA's ERP, that were filed on May 28, 2021 and June 3, 2021, respectively.

WHEREFORE, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned; **accept** the public redacted versions of LUMA's ERP and of Annex A (Major Outage Restoration), Annex B (Fire Response) and Annex C (Earthquake Response) to LUMA's ERP, that was filed on May 28, 2021 and is included as Exhibit 1 to this Motion; **accept** the public redacted version of Annex A (Major Outage Restoration), Annex B (Fire Response) and Annex C (Earthquake Response) to LUMA's ERP filed on June 3, 2021 and that is submitted as Exhibit 2 to this Motion; and **seal** the unredacted public versions of LUMA's ERP and of Annexes A, B and C to LUMA's ERP that were filed on May 28, 2021 and June 3, 2021, respectively.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 1st day of September 2021.

I hereby certify that I filed this Motion using the electronic filing system of this Energy Bureau and that I will send an electronic copy of this **motion to the attorneys for PREPA**, Joannely Marrero-Cruz, jmarrero@diazvaz.law; and Katiuska Bolaños-Lugo, kbolanos@diazvaz.law.

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Exhibit 1
Redacted-Public Version of LUMA's ERP filed on May 28, 2021.

Emergency Response Plan

(0430)

LUMA Energy

May 2021

Revision 0

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Handling Instructions

This document is **FOR OFFICIAL USE ONLY** (FOUO). It is considered to be sensitive and privileged information. Unauthorized distribution, publication or other use of this document and/or of its content is prohibited.

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Comments and requests for additional information should be directed to:

Crisis Management Office
LUMA Energy

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Letter of Promulgation

As the President and CEO of LUMA Energy, I hereby authorize the LUMA Energy all hazards Emergency Response Plan (ERP), dated May 1, 2021. This Plan provides for LUMA's response, immediate recovery, and restoration operations to emergency events efficiently and effectively to protect lives, public health, safety, and property; to restore essential services; and to enable and assist with economic recovery. Threats to our continuity of service to our customers are constantly evolving. LUMA Energy stands prepared to respond to and recover from any threat or hazard.

The purpose of this all hazards Emergency Response Plan is to outline and assign responsibilities for command, control and coordination of efforts across the organization in response to these risks. This Plan is designed to be a guide for the activation of the emergency response organization and aligns with local, Puerto Rico, and federal emergency plans. This Plan also describes how LUMA implements the federally adopted Community Lifelines Construct relative to energy restoration and guides how LUMA applies these concepts to its emergency operations.

We understand that timely and accurate information for our customers and other stakeholders is just as important as a safe and prompt restoration of service. This Plan, to include its Annexes and Appendices, outlines extensive measures and processes for information sharing with our stakeholders. We are prepared to work with Federal, Puerto Rico, municipal government entities, non-government organizations, and the private sector to affect a swift, transparent, and coordinated response to emergency situations.

Since the hazards and their impacts facing Puerto Rico are constantly evolving, I charge the organization with adapting this Plan over time in response to these emerging threats and to plan, prepare, train, exercise, and continually improve our response capabilities for the benefit of our customers and stakeholders. This Promulgation is effective upon its signing and shall remain in full effect until amended or rescinded.

[redacted]

Wayne Stensby
President/CEO
LUMA Energy

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Executive Summary

The 2021 LUMA Energy all hazards Emergency Response Plan ("ERP" or the "Plan") reflects organizational doctrine and policy, supersedes all previous deliberate plans, and integrates with all LUMA organizational units. This ERP addresses electric utility emergency response to any disaster and addresses customer outages due to natural causes (e.g., thunderstorms, hurricanes, tornadoes, storm surge, earthquakes, tsunamis, etc.), human causes (e.g., major equipment failure, civil unrest, terrorism, wildfire, etc.), and technological causes (e.g., nuclear radiation, dam failures, transportation accidents, etc.), resulting in significant customer interruptions. The ERP is predicated on knowing and understanding the magnitude of the event. Through the Major Outage Restoration Annex included in this plan, it also operationalizes the sequence of energy restoration revolving around key infrastructure that supports the protection of life and property.

Emergency Response Plan Description

This Plan 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 exercising 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 communities are impacted by disasters. In addition, the Plan 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. Checklists and other plan execution tools facilitate the use of these documents. Annex A, LUMA's Major Outage Restoration Annex, will detail how the organization will respond during an emergency, the system of prioritization, and the power restoration strategy, among others. Through exercise and training, LUMA staff will apply the concept of operations to achieve the incident objectives and successful outcomes of the response.

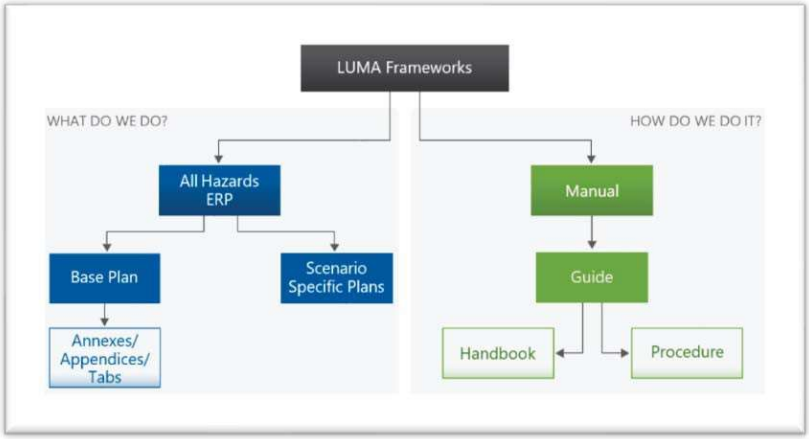

Figure 1: LUMA Frameworks

Senior Leader's Intent

LUMA's all hazards ERP will establish a simple but detailed structure for the management of and response to emergency events that affect Puerto Rico's Transmission and Distribution (T&D) electric grid. It will provide the structure and mechanism for the coordination of power restoration throughout Puerto Rico.

This Plan 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. This assists planners in examining a threat and develop integrated, coordinated, and

synchronized plans; pursuing the assigned functional responsibilities to ensure effective and efficient incident management. This also includes the representation of personnel within the interagency coordination structure.

Vision for Emergency Response

LUMA will develop and maintain a comprehensive set of emergency response plans to prepare for, respond to, and recover from any emergency, and inform customers, stakeholders, and the public regarding all types of business interruption incidents that might occur.

Corporate Preparedness Strategy

LUMA's Crisis Management Strategy reinforces our commitment to our customers and the communities we serve. LUMA strives to utilize effective emergency management principles and protocols that enhance our ability to provide safe and reliable energy services. LUMA will deliver 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, and
- Continuously improving.

A Living Document

This ERP will be reviewed at least annually and revised every five (5) years. All LUMA leaders and subject matter/technical experts with responsibilities in this ERP are required to review its contents and update the information to keep the Plan relevant. The ERP is a living document and LUMA will make revisions deemed necessary as a result of lessons learned during ERP activation based upon the After-Action Report (AAR) and Improvement Plan (IP), training and exercises, government agencies requests, along with best practices and industry standards.

Approval and Implementation

LUMA Energy Emergency Response Plan

Base Plan

[redacted] 5/23/2021
Date

[redacted] May 22, 2021
Date

[redacted] May 21, 2021
Date

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Record of Changes

Change No.	Date	Description	Changed By

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Record of Distribution

Date	Agency/Organization Name	Delivery Acceptance (Name and Signature)	Delivered By

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I. Purpose

The purpose of the LUMA Energy all hazards Emergency Response Plan ("ERP" or the "Plan") is to outline operational concepts and organizational arrangements. This Plan is applicable to all LUMA personnel that are assigned functional responsibilities. One of the features of the ERP is scalability. Many emergencies begin as a municipal level emergency and can quickly escalate to a system level emergency. By ensuring the key elements of an Incident Command System (ICS) are implemented at each level within the organization, LUMA can accommodate municipal, regional, and system level emergencies. These key elements are easily replicated using common roles and responsibilities.

The ERP outlines LUMA's ("Company" or "LUMA Energy") philosophy and procedures for managing major disasters, emergencies, and other incidents that may disrupt electric service to our customers. It further establishes the structure, processes, and protocols for LUMA's emergency response and identifies unit and individual roles directly responsible for those response and critical support services. In addition, the Plan provides a management structure for coordinating and deploying the essential resources necessary for LUMA's response. Performance metrics are addressed in this Plan and Annex **A.** Major Outage Event ("MOE") Performance Metrics may apply during incidents that meet the criteria for an MOE.

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

The legal requirements of the ERP arise under Section 6 (m) of Act 83 of May 2, 1941 ("Act 83"), as amended by Act 17-2019, which includes submission to the Governor, the Energy Bureau, and both Houses of the Legislative Assembly, of an annual report on emergency preparedness. In addition, implementation of the ERP furthers Puerto Rico energy public policy objectives stated in the Puerto Rico Energy Transformation and RELIEF Act, Act 57-2014 and in Act 17-2019, including taking actions to further the reliability, resilience, and safety of the electric power service in Puerto Rico.

II. Scope

This all hazards ERP applies to emergency events caused by any hazard or threat that results in, or could result in, a major potential impact to the integrity of Puerto Rico's Transmission and Distribution (T&D) system and/or a disruption of electrical service to LUMA customers. Additionally, the ERP applies to LUMA personnel and to any staff of LUMA Energy, affiliate company employees, contractors and mutual aid resources, or any other personnel working at the direction or under the authority of LUMA Energy.

For the purpose of the ERP, an emergency event is defined as a Level 3, 2, or 1 event, as described in the Event Classification and Emergency Operations Center (EOC) Activation Table found in Appendix B. Non-emergency events, or Level 5 and 4 events, are not necessarily governed by this ERP, but will be defined by the ERP.

LUMA's Emergency Operational Boundaries are split geographically into the West Division and East Division. There are three Regions within each Division and twenty System Emergency Response Team (SERT) Boundaries which are made up of 78 municipalities. These are LUMA's Emergency Operational Boundaries (see Figure 2).

A. Implementation

This Plan utilizes the National Incident Management System (NIMS) as the guide for the comprehensive approach to incident management that 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 will allow 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 that of the ICS for the purpose of providing a consistent all hazards incident management methodology that allows for integration into a nationally standardized response and recovery structure.

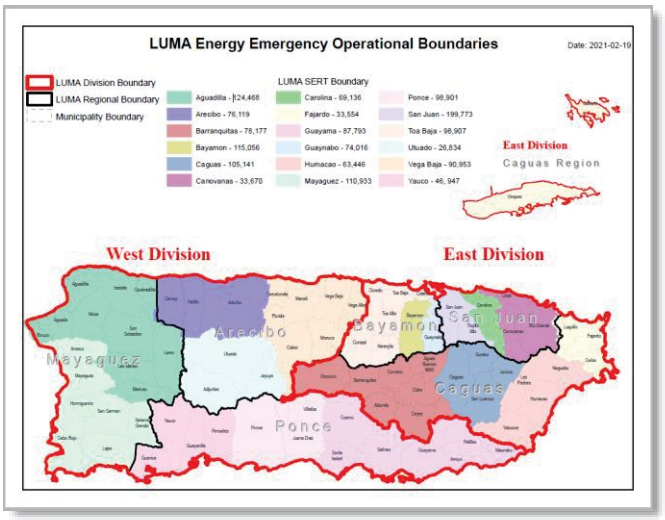


Figure 2: LUMA Emergency Operational Boundaries

III. Situation and Assumptions

A. 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, and is home to the capital, San Juan. The island is about 9,086 km^2 (3,508 mi^2), of which 60% is mountainous terrain. Still, 3.3 million people are able to call this island home.

A variety of events can adversely impact the integrity of Puerto Rico's energy grid. With the increased frequency of hurricanes in the Atlantic Ocean, the chance of a hurricane disrupting the island's electricity service has also increased. Although hurricanes and their accompanying storm surges pose the greatest threat to life and property, tropical depressions and tropical storms can also be devastating. Storm surge and flooding can account for many casualties and personal property damage. Non-weather events, such as earthquakes and 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 T&D System for these hazards.

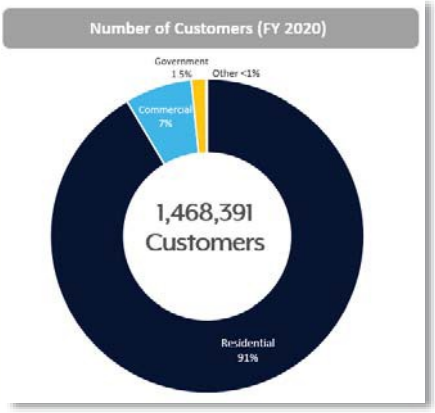


Figure 3: LUMA Customers

LUMA Energy provides electric services to approximately 1,470,000 customers in 78 municipalities in Puerto Rico (see Figure 3). Since electricity plays a crucial role in our daily lives, quick restoration of electric service is a customer expectation and a LUMA goal, along with the power restoration prioritization of critical infrastructure for the health and safety of Puerto Rico. The response to system disruption is grounded in evaluating the extent of the event, as well as resource availability, to support the response and restoration process as well as:

- 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 / Drills
- Effective Communication

The Plan has been designed to provide a systematic organized approach to facilitate a safe and efficient response to an incident of any magnitude caused by any hazard. The Plan is constructed to provide a trained, operationally ready workforce and an effective process that can be employed as required to deal with the unique aspects of each major event.

The effectiveness of this Plan is based on LUMA's commitment to prepare and implement procedures outlined within this Plan. The development of an After-Action Report (AAR) will further enable ongoing improvement in LUMA's response and restoration processes.

Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of the Plan. 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.

B. Assumptions and Considerations

- Puerto Rico is vulnerable to hazards that could, individually or in combination, negatively impact the electric power T&D infrastructure LUMA operates.
- LUMA customers include government, business, and individual clients throughout the island.
- An emergency event or major outage may occur at any time of the day or night, weekend, or holiday, with little or no warning.
- LUMA has the duty, responsibility, and designated function to maintain, disseminate, and implement the ERP.
- Response to all emergency events should be guided by the principles of the National Response Framework (NRF), NIMS and the ICS.

- The impact of emergency events on the energy infrastructure LUMA operates will vary in scope and severity.
- Because of geography, resources may be limited to what is in Puerto Rico at the time of the emergency event, and 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 and are also limited in the 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 on the island and the mainland.
- The ERP will be tested through drills and practical exercises to evaluate the effectiveness and the need for changes or revisions. LUMA will exercise the ERP on an annual basis.
- In the event of an emergency or disaster situation, LUMA response personnel and their families may be impacted, affecting the accessibility of needed human resources.
- LUMA's response may be complicated by COVID-19 outbreaks, travel restrictions, testing and entry requirements, and response organization fatigue after 18+ months of operations.
- Negative impacts of a major event include, but are not limited to, displaced populations, disruptions in daily life 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 upon outage projections) or after an emergency event (based upon outage and restoration estimates).
- ERP Event Classification Types 1, 2, and sometimes 3, require full activation of ICS. During an ERP activation of a Type 1, 2 or 3 Event, all functions should be coordinated through the LUMA Emergency Operations Center (LEOC).
- The LUMA facility in Santurce, located at 1250 Avenida de la Constitución, San Juan, serves as the primary LEOC.

IV. Mission

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

A. Community Lifelines

The utilization and analysis of Community Lifelines enhances LUMA's ability to positively impact the communities of Puerto Rico during normal operations and during an emergency. Community Lifelines not only enable the continuous operation of critical government and business functions, but 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 and were tested and validated in the aftermath of five disasters in 2018 and 2019 starting with Hurricane Michael. FEMA conducted an After-Action Report (AAR) of each disaster to analyze their management of the disaster. The AAR recommended updating the NRF to prioritize the restoration of these seven key lifelines and to emphasize the importance of cross-sectional coordination both ahead of, during, and after a disaster (Kunkel, 2020).

Stabilizing community lifelines is a priority. In some cases, the disruption to lifeline services is brief, but it is not uncommon to prioritize the restoration of crucial lifelines in phases. Contingency response solutions (e.g., power generators, emergency communications) are frequently utilized to reach stabilization only but they allow time to accomplish the long-term recovery goal of restoration. Until the community's lifeline services have been re-established, contingency response solutions should remain in place.

The National Preparedness Goal established 32 core capabilities in emergency management to address the greatest risks. Figure 4, on the following page, details each lifeline and the core capabilities that are addressed by each of them.

This Plan will focus on the following five community lifelines, as all critical infrastructure sectors rely on the functions provided by the following lifelines (NIPP, 2013):

- Energy (Power & Fuel)
- Food, Water, Shelter
- Transportation
- Communications
- Health and Medical

LIFELINES*	CORE CAPABILITIES**	DESCRIPTION
Safety and Security	• On-scene Security, Protection, and Law Enforcement • Fire Management and Suppression • Mass Search and Rescue Operations • Public Health • Healthcare • Emergency Medical Services • Fatality Management Services • Environmental Response/ Health and Safety • Infrastructure Systems	*Law enforcement and government services, as well as the associated assets that maintain communal security, provide search and rescue and firefighting capabilities, and support public safety. Includes impending risks to impacted communities, public infrastructure, and national security concerns.*
Food, Water, Shelter	• Mass Care Services • Logistics Management • Supply Chain Management • Infrastructure Systems	*Support systems that enable the sustainment of human life, such as food retail and distribution networks, water treatment, transmission and distribution systems, housing, and agriculture resources.*
Health and Medical	• Public Health • Healthcare • Emergency Medical Services • Fatality Management Services • Environmental Response/ Health and Safety • Infrastructure Systems	*Infrastructure and service providers for medical care, public health, patient movement, fatality management, behavioral health, veterinary support, and the medical industry.*
Energy (Power & Fuel)	• Infrastructure Systems	*Electricity service providers and generation, transmission, and distribution infrastructure, as well as gas and liquid fuel processing, and delivery systems.*
Communications	• Operational Communications • Infrastructure Systems	*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. Services include alerts, warnings, and messages, 911 and dispatch, and access to financial services.*
Transportation	• Critical Transportation • Infrastructure Systems	*Multiple modes of transportation that often serve complementary functions and create redundancy, adding to the resilience in overall transportation networks. This includes roadway, mass transit, railway, aviation, maritime, and intermodal systems.*
Hazardous Materials	• Environmental Response/ Health and Safety • Infrastructure Systems	*Systems that mitigate threats to public health or the environment. This includes facilities that generate or store hazardous substances, as well as all specialized conveyance assets and capabilities to identify, contain, and remove pollution, contaminants, oil, or other hazardous materials and substances.*

*COMMUNITY LIFELINES | The manner emergency managers assess and prioritize employment of capabilities to achieve stabilization.

**CORE CAPABILITIES | An interoperable means to characterize capabilities that may be assessed, built, or validated during preparedness or applied to response operations.

Figure 4: Community Lifelines 1-7, Defined

The Energy Lifeline (power and fuel) provides vital power and/or fuel to all critical infrastructure. Energy is one of the main five lifeline functions and its dependability is so critical that a power interruption will substantially disrupt the security and resilience of other critical infrastructure sectors. In turn, the Energy Sector depends on many other critical infrastructure sectors, such as transportation, water, and communications

A general outline of the interdependency among the lifeline functions is shown below in Table 1. The subsectors of Electricity and Fuel provide essential power and fuels to the Communication, Transportation, and Water Sectors, and 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 will be in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A.

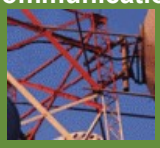
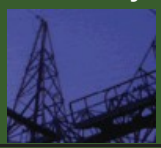
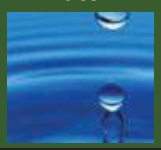
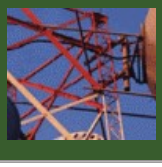
(Sub)sector Generating the Service	(Sub)sector Receiving the Service				
	Fuel 	**Electricity** 	**Transportation** 	**Water** 	**Communication** 
Fuel 		Fuel to operate power plant motors and generators	Fuel to operate transport vehicles	Fuel to operate pumps and treatment	Fuel to maintain temperatures for equipment; fuel for backup
Electricity 	Electricity for extraction and transport (pumps, generators)		Power for overhead transit lines	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 Power, Transportation, Water, and Communication

B. Risk Analysis of Community Lifelines

When stabilized, Community Lifelines are fundamental, integrated services that enable communities and governments to operate effectively and safely. When disaster strikes, it is important to identify which lifelines have been impacted, which lifelines need to be restored first, and what actions need to be taken to stabilize the most critical lifelines.

Assessment of the island's lifelines enables LUMA to identify which lifelines are most vulnerable and prioritize their stabilization, ensuring greater life safety and protection of property and the environment, while enhancing the Island's overall resilience. *Further analysis and ties to critical loads are located within the Area Restoration Prioritization List section of the Major Outage Restoration Annex (Annex A)*.

Table 2 below identifies each hazard and the anticipated levels of vulnerability, consequences, and probability of the hazard occurring. This vulnerability assessment addresses Puerto Rico's lifeline vulnerabilities and will assist LUMA in identifying the scale and complexity of a disaster, the lifelines it will impact, and the interdependencies of those impacts. Although it is not a complete gap analysis, this assessment will further assist LUMA in developing operational priorities, objectives, public information and communication recommendations, and response guidance.

Due to its unique 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. Table 2, with information sourced from ISP, Inc., identifies each hazard and the anticipated levels of vulnerability, consequences, and probability of the hazard occurring.

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

Table 2: Hazards ranked by vulnerability, consequence, and probability

*Includes hurricanes, tropical storms, and tropical depressions

1. Energy

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

In 2016, a fire that started at the Central Aguirre Power Plant was determined to be caused by faulty equipment and inadequate maintenance. This fire, at a singular plant, left an estimated 1.5 million people without electricity for 2.5 days. In 2017, Hurricane Maria caused a complete power outage and it was not until 11 months after landfall that the last neighborhood had power 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 the island that lasted approximately 96 hours. These earthquakes also damaged the island's largest power plant, Costa Sur. On July 29th, 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).

Energy is a critical Community Lifeline, but each of these incidents demonstrate 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. In the following sections, these interdependencies along with the natural and manmade hazards that could negatively impact LUMA's ability to provide service, will be analyzed.

a) Power Grid

Much of the power generated in Puerto Rico originates from the south coast, while most of the power consumption is on the north coast, where 49.2% of Puerto Rico's population lives. The electrical grid depends on the above ground T&D lines that go through the central mountainous parts of Puerto Rico in order to bring power to the rest of the island. Mountainous terrain may require specific actions and resources to provide workers executing repairs or maintenance access to lines and other infrastructure.

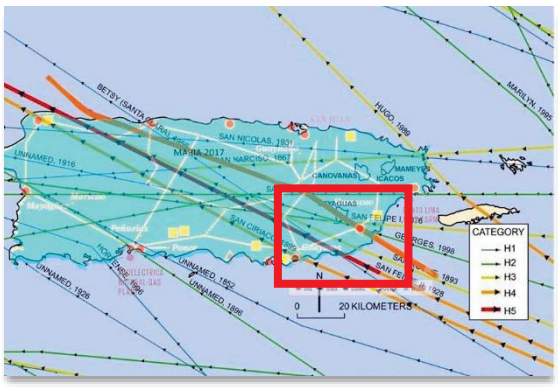


Figure 5: Historical hurricanes trajectories over the power generation layout of Puerto Rico

Puerto Rico's power system includes ten fossil fuel and ten hydroelectric

generation sites, owned and operated by PREPA, as well as 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 1st to November 30th, a six-month period where the Puerto Rico's electricity grid could be negatively impacted.

Figure 6: Major geological faults overlapping the power generation layout of Puerto Rico

As shown in Figure 5, 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 6. Up until July 2020, the Puerto Rico Seismic Network registered over 10,000 earthquakes in the Puerto Rico region. The handful of earthquakes with a magnitude greater than a 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 Eco Electrica.

Another important part of electric utility maintenance is vegetation management. LUMA's Vegetation Management Plan includes steps to improve and maintain the control of vegetation to achieve a more resilient T&D System and support preparation for emergencies.

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

b) Fuel

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

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

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

2. Food, Water, Shelter

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

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

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

a) Food

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

b) Water

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

Figure 7: Map of shelters (Source: Crowd Emergency Disaster Response Digital Corps, 2019)

Approximately 30 days after Hurricane Maria, there were still about 36% of those connected to PRASA's water system without access to water; this amounted 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 boil water notices without electricity.

c) Shelter

The FEMA Shelter Inventory Map identifies 452 shelters across the 78 municipalities in Puerto Rico (see Figure 7). During Hurricane Maria, approximately 12,000 people were in shelters across the island (Zorrilla, 2017). At a minimum, shelters need electricity to provide pressurized clean running water for basic hygiene needs, climate control, and lighting. Depending on shelter operations, electricity may also be required in the storage or preparation of food.

d) Agriculture

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

3. Transportation

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

Table 4: Components and subcomponents of the Transportation Community Lifeline

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

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

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

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

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

Despite the literal translation for Puerto Rico being “rich port”, there is only one fully logistically operational port in Puerto Rico – the Port of San Juan. If the Port of San Juan is negatively impacted by a disaster, there will be no way to receive equipment, supplies, and other mutual

aid resources. It could take weeks or months to adequately prepare one or two additional ports like Ponce or Ceiba.

4. Communications

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

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

Table 5: Components and subcomponents of the Communications Community Lifeline

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

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

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

Internal communications are also vital to emergency response and restoration operations. Communication networks are critical to LUMA's operations as the LUMA Emergency Operations Center (LEOC) must have the ability to disseminate information between the

customer call center, all Emergency Operation Centers, regional operations teams, elected officials, and all other resources deemed necessary.

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

Handheld portable radios normally have a limited transmission range, while mobile radios in first responder vehicles use the vehicle's power supply and have a bigger antenna that increases the transmission range, making them usable during a power outage (SAFECOM, 2016). The use of AT&T's FirstNet is a vital resource that will enable LUMA's emergency responders to communicate emergency information across the island to the various system emergency response teams (SERTs).

The COVID-19 pandemic has changed how we work, travel, and interact. Social distancing guidelines have caused an increase in the use of technology and virtual communications. This also applies to LUMA employees who have been working from home during the COVID-19 pandemic and who will continue to do so until these guidelines and restrictions are no longer necessary. LUMA will ensure the continuity of quality customer support during all operations to include emergency operations.

5. Health and Medical

The Health and Medical Community Lifeline is comprised of the emergency medical services and acute medical care needed to meet the immediate lifesaving and life-sustaining needs of survivors. As the medical care facilities are restored to normal capabilities, behavioral health services and public health operations will support longer-term survivor needs. This Lifeline is made up of five components as shown in Table 6 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 (EMS)	• Blood/Blood Products • Manufacturing • Pharmaceutical • Device • Medical Gases • Distribution • Critical Clinical Research • Sterilization • Raw Materials	• Mortuary and Post-Mortuary Services

Table 6: Components and subcomponents of the Health and Medical Community Lifeline

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

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

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

V. Concept of Operations

A. General

In the event of a disaster, LUMA will rapidly assess the impacts to the T&D infrastructure. At this time, LUMA will take the necessary actions to restore community lifelines as rapidly as possible, minimizing the impact to the citizens of Puerto Rico. LUMA will utilize event classification types for major events and phases of response. To ensure response integration and collaboration, the Puerto Rico Emergency Management Bureau's (PREMB) Incident Levels and LUMA's Event Classification Types are included in this ERP in Appendix B.

B. Plan Activation

The effective and timely activation of emergency response personnel is critical to the success of the response. During significant emergencies that affect multiple divisions, LUMA Energy may activate the Crisis Management Committee, Command Staff, and General Staff island-wide to support the needs of the response effort. An emergency shall be declared by the **LUMA Energy Chief Executive Officer (CEO) or his/her designee** when natural, human, or technological disasters threaten to produce conditions that result in a substantial impact to the T&D operations.

1. Organization Activation

If it is not possible to effectively manage the disaster through normal operating procedures, the LUMA Energy Emergency Response Organization (ERO) will be activated by the Crisis Management Office (CMO) at the direction of the LUMA CEO. Due to the size and nature of the activation process, it is intended to be a cascading one to maximize response efficiency and consistency.

The LUMA Incident Commander (IC), or his/her designee, shall subsequently establish a projected or actual Event Classification Type relative to the type and complexity of the event, resources that may be needed, and the expected impacts of the event. The IC will then determine the required Command and General Staff needed to activate the LUMA Emergency Operations Center (LEOC).

2. Decision Methodology

The emergency response process begins with an evaluation of system conditions that contribute to identifying the event type and possible EOC activation level. Criteria may also include weather forecasts, number of customers projected to be impacted, estimated damage to the T&D system, and estimated impacts to community lifelines and critical infrastructure. A Decision Flowchart will be used prior to an event to help establish the level of emergency response needed; the mobilization of the ERO and the activation of associated resources including mutual assistance support.

The Crisis Management Office (CMO), T&D Operations, and others consistently monitor weather forecasts. When it is determined that the forecast will be problematic, an alert is sent to the appropriate key response members to discuss initial coordination activities. LUMA personnel will use weather and other information to make the determination of which event type will be likely and which area(s) the company can expect impact. This team of individuals will include CMO, T&D Operations, and others, and may also include input from a third-party weather service provider in addition to the National Weather Service to support their decision(s).

If it is determined that a minor event is likely (Event Types 4-5), LUMA will manage the event through normal operational procedures. If the event escalates, protocols are in place to escalate the event to the LEOC. If it is predicted to be an emergency event (Event Types 1-3), LUMA will implement its pre-event protocols and activities under the ICS structure as appropriate for the predicted Event Type. This Plan allows for flexibility as needed.

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

- Identifying the IC and Event Type for the incident
- Initiating pre-event system conference call(s) with all required personnel
- Activating each required section under ICS including: Operations, Logistics, Planning and Intelligence, Public Information Officer, Finance/Admin, and Liaison Officer and implementing notifications for internal personnel to the extent needed
- Reviewing the appropriate checklists, plans, and procedures
- Acquiring the estimated resource requirements necessary for the assigned event type including mutual aid requests and contingency plans if those items are unavailable
- Initiating preliminary communications to the public, Lifeline Residential Service (LRS) 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 and Region/Divisional EOCs as appropriate for the event type assigned

- Initiating notifications to external providers such as staging site property owners, suppliers, contractors, etc. where necessary

For major forecasted events, Event Types 1, 2, and 3 (such as a major hurricane), there is typically a multiple-day advance notice. In these cases, if imminent, LUMA will activate all aspects of the Plan as outlined within this ERP. Preparation for such events is supported by reviewing the H-120 Timeline checklist to ensure daily progress is met against the planned response. More problematic events 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 Incident Command System.

C. LUMA EOC Activation

The LUMA EOC operates within five (5) activation levels that increase in intensity from Level 5 to a Level 1 with a Level 1 activation being the highest and most resource intensive. These five (5) activation levels align with the five (5) LUMA event classification types found in Section V-D of this Plan. When the Event Type is determined, the EOC Activation Level is then established with recommendations from the CMO. The LEOC activation levels may increase or decrease due to the complexity of the incident. The IC determines the level of command and general staff to activate in response to the incident.

Level 5 – Normal Operations

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

Level 4 – Heightened Alert

Conditions are developing (e.g., severe weather such as torrential rains or a tropical weather system) that could present a potential risk to LUMA in the near future. Therefore, a heightened level of situational awareness and monitoring is implemented with more frequent communications taking place among decision makers. Partial activation is likely with only those positions necessary, i.e., Public Information Officer (PIO), Emergency Management Officer, and Liaison Officer. 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 property.

Level 3 – High Alert

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 for the LEOC is established with necessary positions and may be dependent on the activation of and impacts to one or multiple Region and Divisional EOCs.

Institutional knowledge, system performance metric indicators and forecast confidence levels are utilized to determine a pre-event approach. Emergency response communication protocols are activated at the direction of the PIO with notifications being made to Lifeline Residential Service (LRS) Customers; Municipal, Regulatory, and Elected Officials; and LUMA staff. Pre-event Stage Reports, Restoration Stage Reports (RSRs), and Incident Action Plans (IAPs) are developed/submitted.

Level 2 – Emergency Conditions

Emergency event conditions are imminent and may cause significant impacts to LUMA operations. If the conditions are due to a severe forecasted weather event, Region and Divisional EOCs are already activated and potentially the full ICS structure is activated at the LEOC to support response and restoration activities. Daily system wide conference calls are conducted to coordinate response activities as well as operational period briefings conducted

at the beginning of each operational period. It is likely mutual aid will be requested and agreements activated. Emergency response communication protocols are activated to include Public Service Announcements (PSAs), online Outage Center, social media, e-mail/call blast messages, etc. Government of Puerto Rico and Federal level coordination may be required with Liaisons assigned, as appropriate.

Level 1 – Catastrophic Emergency

Emergency conditions are imminent that will likely cause or have caused a catastrophic impact. Region and Divisional EOCs are activated and the full ICS structure is activated at the LEOC to support response and restoration activities. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their ICS role.

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

Advance notice may be given with a severe weather threat such as a Category 1-5 hurricane, but events such as an earthquake may immediately initiate an EOC activation to a Level 1 based on severity of the earthquake and the level of system impact.

Table 7 provides a summary of the key activities that are associated with each EOC activation level.

EOC Activation Level	Normal Operations (Level 5)	Heightened Alert (Level 4)	High Alert (Level 3)	Emergency Conditions (Level 2)	Catastrophic Emergency (Level 1)
Situational awareness of resources	Y	Y	Y	Y	Y
Activation of the ERP and Incident Command		P	Y	Y	Y
Activation of the LEOC			P	Y	Y
Mobilization of resources		P	P	Y	Y
Notifications to Stakeholders		P	Y	Y	Y
Government of Puerto Rico and/or Federal Assistance Needed				P	Y

Table 7: EOC activation level key activities

Y – Yes P – Probable

D. LUMA Event Classification Type

All potential events, natural, man-made, and technological, with the potential to affect LUMA T&D System Operations are assigned a classification by the Incident Commander 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 will assist in identifying resource requirements and positions needed for an EOC activation at all levels of the ERO. This analysis typically 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 Classification Type. These classification types are directly tied to the establishment of EOC activation levels. As such, an event classification of Type 1 will also result in the establishment of an EOC Activation Level 1.

The IC may also deem it necessary to escalate or de-escalate the Event Classification Type and EOC Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions. The Event Classification Type will depend upon the analysis of the expected severity and complexity of an event and 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 to 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 (5) event types have been established. Types Five (5) and Four (4) are considered Non-Emergency Events and are restoration events managed as normal operations and/or an isolated event that does not necessitate the activation of the EOC unless escalation occurs.

Types One (1), Two (2), and Three (3) are Emergency Events with Type Three (3) being the less severe and Type One (1) representing catastrophic emergency conditions. They are as follows:

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

Level 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival the Trouble Shooter determines additional resources are needed, a supervisor is assigned and will secure additional line crews from the Electric Field Operations organization.

Type 4: Non-Emergency Event – Heightened Alert

These events typically include system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Electric Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Center(s) depending on the damage.

Type 3: High Alert Event (Moderate Regional Event)

This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for more than one region to potentially be impacted by activating the ICS structure and the opening of one or more divisional EOCs. This type of event is coordinated locally through daily Incident Command meetings/conference calls to coordinate pre-planning activities in advance of the event, restoration activities during the event, and demobilization activities postevent.

Type 2: Emergency Conditions

A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire island. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in this ERP.

Type 1: Catastrophic Emergency

A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecasted in advance of the event. This event calls for the full implementation of ICS with a LEOC activation of Level 1. All employees are assigned shifts and scheduled in relation to their role in the ERP. All Division and Regional EOCs are activated.

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

E. PREMB Event Classification

While LUMA maintains event classification types and EOC activation levels, PREMB also has a set of established incident levels (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 the Puerto Rico Emergency Management Bureau (PREMB) and identified in Appendix B. The scope and scale of the Government of Puerto Rico support depends on the impacts, scope, scale, and complexity of the incident. PREMB classifies events using the nomenclature ‘incident level’ (PREMB & DPS, 2021). PREMB’s incident levels align with FEMA’s and refer to the level at which PREMB employs Government of Puerto Rico resources 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 Deputy Commissioner, PREMB 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 changes.

Level III: Minor Incidents

- A disaster which, 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.
- Disasters requiring maximum recovery efforts and minimal response efforts, which existing PREMB resources can meet.
- Disasters requiring coordination among the involved Government of Puerto Rico and local entities due to minimal to average levels of damage.
- PREMB assistance may be limited to the activation of only one or two ESF primary agencies.

Level II: Moderate to Major Incidents

- A disaster which, due to its severity, size, location, and actual or potential impact on public health, welfare, and infrastructure, requires a high amount of direct Government of Puerto Rico assistance for response and recovery efforts.
- A disaster requiring elevated coordination among PREMB and whole community entities due to 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.

Level I: Catastrophic Incidents

- Disasters 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 level.
- Due to its severity, size, location, and actual or potential impact on public health, welfare, and infrastructure, a disaster requires a great amount of direct PREMB assistance for response and recovery efforts, for which the support capabilities do not exist at any level of government.
- Requires extraordinary coordination among Federal, Government of Puerto Rico, and local entities, due to the massive levels and the breadth of the damage, the severity of the impact, and the multi-island scope of the incident.
- The major involvement of the Government of Puerto Rico, all coordinating and primary emergency support function (ESF) agencies, and possible FEMA Region II is needed to support the requirements of the affected jurisdictions.

F. Critical Infrastructure and Facilities Restoration Prioritization

LUMA understands the challenges and potential disruption to its customers' lives resulting from electrical outages. LUMA will strive to restore power to all customers in the safest and most expedient manner possible. In support, LUMA Operations will utilize a priority matrix system, during both normal and emergency operations, which provides for the most efficient approach in 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.

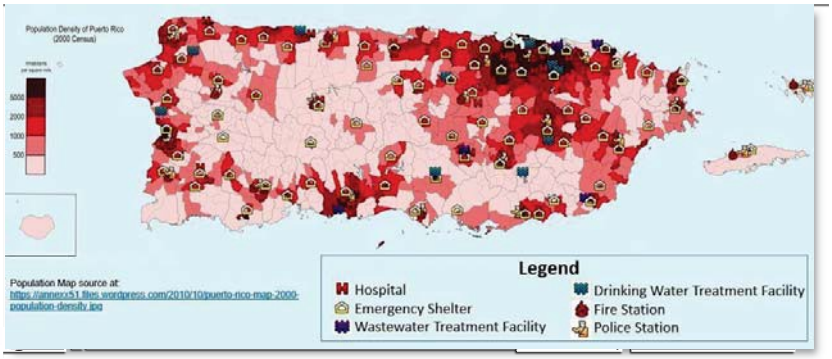
The Cybersecurity and Infrastructure Security Agency (CISA), under Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience, the Energy Sector is identified as uniquely critical because it provides an "enabling function" across all critical infrastructure sectors. Under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

1. Critical Infrastructure

Throughout Puerto Rico, there are many critical infrastructure vulnerabilities. With 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. For example, there are approximately 50 wastewater and 100 drinking water treatment facilities.

2. Critical Facilities

Per the American Hospital Directory, there are 58 non-federal, short-term, or acute care hospitals (American Hospital Directory, 2020). Of those, only one is a Level 1 trauma center. There are approximately 84 fire stations (FireCARES, 2020) and 13 jurisdictional regions in the Puerto Rico Police Bureau covering the entire Island (United States, 2011). The FEMA Shelter Inventory Map identifies 452 shelters across the 78 municipalities in Puerto Rico. Figure 8 depicts a generalized map of this infrastructure.



density in Puerto Rico (Source: Report: Build Back Better: Reimagining and Strengthening the Power Grid of Puerto Rico)

a) Level 1

Critical infrastructure and facilities identified as a Level 1 facility provide services that are *critical* to the health and safety of the public and are tied to at least one of the five critical community lifelines. These facilities include, but are not limited to the following:

- Hospitals and Emergency Medical Facilities
- Emergency Shelters, Cooling Centers, and Rescue Facilities
- Emergency Management Offices and Emergency Operations Centers
- Water Pumping/Lift Stations and Wastewater Treatment Plants
- Public Safety Entities: Fire, Police, and Paramedics
- Critical Utility and Communications Facilities
- Fuel Transfer and Fuel Loading Facilities (ports)
- Mass Transit (tunnels, ferry terminals, major rail facilities/rectifier stations)
- Airports
- Military Bases
- Critical Flood Control Structures

b) Level 2

Critical infrastructure and facilities identified as a Level 2 facility provide *significant* public services and may include some of the same type of 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.)

c) Level 3

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

- High-Rise Residential Buildings
- Customers providing key products and services (food warehouse)
- Managed Accounts, Large Employers, and Other Key Customers
- Other Government Buildings, Schools, and Colleges

3. Restoration Prioritization

Outages are prioritized by considerations of safety conditions, type and amount of damages to the system, critical community lifelines, customer type, and the number of affected customers. The designation of critical infrastructure or facilities within level 1, 2, or 3, however, does not guarantee or prioritize their restoration after a major event. SERTs will address emergency and life-threatening conditions such as public safety hazards or downed wires

reported as a priority. Restorations will occur in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A. LUMA will make prudent decisions that have the greatest gain for the overall T&D System stability and the greatest benefit for all customers.

VI. Organization and Assignment of Responsibilities

A. Emergency Response Organization

The LUMA Emergency Response Organization (ERO) is designed to enable effective and efficient emergency management and coordination that is both internal and external to LUMA Energy through a flexible and standardized management structure that is scalable enabling its use for all emergencies from day-to-day operations to a large-scale disaster. The ERO required to implement the emergency procedures is specified by the organizational chart included in Appendix A. The ERO 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 communications 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 Emergency Operations Centers (EOCs) (i.e., divisions) shall be activated at the request of the incident commander at a minimum. At times, it may be desirable to staff the EOC(s) and place other personnel on stand-by prior to the actual event when possible. The number of EOC personnel and mobilized resources will be dependent upon the size, scale, and complexity of the emergency event in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A. There are three defined levels to the ERO. They are Strategic, Operational, and Tactical and can be defined as:

- **Strategic Level**: Provides LUMA's strategic guidance for response to EOC staff as the LUMA Crisis Management Committee through the EOC Liaison. The strategic level does not direct the emergency response or tactical operations.
- **Operational Level**: Develops LUMA's response to the emergency (incident action planning) and oversees the implementation of the IAP. This group forms the LUMA Emergency Operations Center (LEOC) staff and can include the Regional EOCs, when activated.
- **Tactical Level**: Implements LUMA's response to the emergency, is composed of Divisional EOCs, and reports to the Region EOC, when activated, and/or the LEOC. This group is composed of the SERTs, damage assessment teams, and others.

B. Assignment of Responsibility

The LUMA ERO Organizational charts can be found in Appendix A relative to the positions listed below.

1. LUMA Crisis Management Committee

The LUMA Crisis Management Committee provides strategic direction to the LEOC staff during response and restoration activities. It is composed of the most senior level executives and is chaired by the CEO. The Crisis Management Committee consists of the following members:

Crisis Management Committee Chair (CEO/President)	Senior VP – Capital Programs
Chief Financial Officer	VP – HSEQ
Chief Information Officer	VP – Operations
VP – Regulatory	Chief Corporate Services Officer
Senior Director – Customer Experience	Chief People Officer
VP – Utility Transformation	

2. Command Staff

The Command Staff are led by the Incident Commander and includes the following positions:

- Incident Commander (IC)
- Deputy IC
- Emergency Management Officer
- Liaison Officer (LNO)
  - PREMB Liaison Officer (PLNO)
  - PREB and P3A Liaison Officer (P3LNO)
  - PREPA Generations Liaison Officer
- Public Information Officer (PIO)
  - Digital Communications Specialist
  - Customer Relations Specialist
  - Employee Communications Specialist
- EOC Manager (EOCM)
- Safety Officer (SOFR)
- Section Controller (CONT)

a) Incident Commander

The IC is responsible for directing and coordinating all aspects of the emergency response effort. This role's priorities are determined by the extent, size, duration, and complexity of the incident, as well as the availability of resources. The IC may determine that an emergency condition exists for the system or a division and invoke scaled response and recovery actions, as needed. This determination allows expeditious resource procurement and efficient allocation of existing assets.

The primary responsibilities of the IC include, but are not limited to:

- Estimate the event type associated with the incident and level of staffing needed in the LEOC.
- Activate the ERO and LEOC, as appropriate for the event level.
- ERP activation, as necessary.
- Utilize information and damage assessments.
- Determine the number of resources required to respond to an event including internal, external, contract, mutual aid etc.; and direct efforts to obtain the required number of resources throughout the event and allocating available resources on a system-wide basis.

- Ensure emergency communication protocols are implemented.
- Overseeing LEOC support activities. This may include routine coordination conference calls with the command and general staff chief positions, impacted Branch Directors, and municipal emergency management officials.
- Implement strategic objectives as instructed by the LEOC Crisis Management Committee and provide restoration response status information to senior management and the LEOC.
- Identify and mitigate adverse customer, regulatory, or other constituent sentiment and communicate resolution plans to the LEOC.
- Implement the ERP demobilization process including the structured release of resources.
- Implement post-event review processes including any post-event Municipal Official outreach programs and the creation of after-action reports and lessons learned.

b) *Deputy Incident Commander*

The IC may have a deputy, who could be a LUMA employee, or from an assisting organization. Deputies may also be used at section and branch levels of the ICS organization. Deputies 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. Duties include:

- Assess the situation and/or obtain a briefing from the prior Incident Commander.
- Determine Incident Objectives and strategy.
- Establish the immediate priorities.

c) *Emergency Management Officer*

The Emergency Management Officer is responsible for informing the IC of any event that may have a negative impact to the LUMA ERO during a response. The Emergency Management Officer will assist in the necessary pre-mobilization or mobilization efforts and will assist in the implementation of the appropriate ICS structure and the ERP, per the event classification type. The Emergency Management Officer may also contact the Chief People Officer as needed to assist in mobilization efforts. Other responsibilities of the Emergency Management Officer include, but are not limited to:

- Support use of ICS as the sole management system during emergency response events.
- Provide resources, advice, and counsel, as necessary.
- Host pre-mobilization and subsequent status calls as needed.
- Oversee mobilization of ICS organization.
- Host CMO calls as needed.
- Support demobilization efforts and communication of demobilization.

- Notify respective Branch Directors of any Regulatory requests / reporting requirements.

d) *Liaison Officer*

The Liaison Officer (LNO) serves as the primary point of contact for external representatives such as regional, Government of Puerto Rico, and/or federal agencies in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A. The LNO coordinates the assignment of LUMA personnel to government agencies' EOCs, as requested, and coordinates response activities and support with other government response agencies. Other responsibilities of the LNO include, but are not limited to:

- Periodic maintenance of contact lists which include:
  - critical facilities
  - local elected officials
  - local emergency management and response personnel
  - P3A, PREMB and Energy Bureau personnel
- Lists are maintained through the effective usage of a variety of computer software applications including Outlook, SharePoint, databases, spreadsheets, and others.
- Work with Municipal Officials from each community to share information, including identification of community restoration priorities.
- Ensure unity of message between LUMA and municipal government and non-government organizations.

The LNO oversees the following positions when activated:

- PREMB Liaison Officer (PLNO)
- PREB and P3A Liaison Officer (P3LNO)
- PREPA Generation Liaison Officer

e) *Public Information Officer*

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 will be managed in accordance with the communication protocols established by the LUMA Executive Team. 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
- Regulatory
- Governor's Office

- Puerto Rico Emergency Management Bureau

The PIO oversees the following positions when activated:

- Digital Communications Specialist
  - Provides multiple means of receiving response information for employees, customers, media, and other key stakeholders.
    - 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.
- Customer Relations Specialist
  - Contact Center POC at LEOC
    - Ensuring the Customer Service Center is adequately staffed for the expected emergency and staffing plans are made to ensure proper customer service throughout the event (24/7).
    - Ensuring systems and applications are in good working order and report any issues to IT.
    - Receive information from the PIO and Communications team on restoration efforts to provide for customers.
    - Disseminating accurate, timely information to the CSRs and customer service staff.
    - Ensure advanced notice to LRS Customers are made to proactively notify them of an expected outage, (if known).
- Employee Communications Specialist
  - Provide daily updates to LUMA employees through emails and postings.
    - Aids the PIO in crafting employee messages and distributing approved materials to employees at appropriate times.
    - Responding to employee inquiries for information related to the event.
    - Provide updates to the PIO regarding employee issues as appropriate.

Other responsibilities of the PIO include, but are not limited to:

- Ensure the maintenance of contact lists including print and electronic media contacts. Lists are maintained through the effective usage of a variety of computer software applications including databases, spreadsheets, and others.
- Ensure customer outage estimated times of restoration (ETRs) are broadcasted across all available LUMA platforms.
- Ensure unity of message to all stakeholders.
- 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 direction from 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 may be useful to incident planning.
- Maintain current information, summaries, and/or displays on the incident.
- Make information about the incident available to incident personnel.
- Ensure that all subordinate positions execute their specific duties and responsibilities.

f) EOC Manager

The EOC Manager is responsible for the management of the EOC facility and the EOC Team. The EOC Manager is also responsible for ensuring the Situation Report or Senior Leadership Brief is completed at regular intervals and contains timely and accurate information. The EOC Manager assists LEOC staff with WebEOC and any other responsibilities as requested by the IC. Translation coordination will be facilitated by the EOC Manager when necessary.

g) Safety Officer

The Safety Officer (SOFR) is responsible for coordinating the appropriate response to address work-related health and safety issues for all personnel responding to an emergency including external contractors. All industrial-related injuries and illnesses must be reported in accordance with LUMA's safety procedures, which contain instructions for completing documentation associated with injuries and illnesses arising during work-related activities.

The primary responsibilities of the SOFR include, but are not limited to:

- Support the mitigation of hazardous situations as identified.
- Exercise emergency authority to stop and prevent unsafe acts.
- Communicate with employees and contractors about responsibility and exercising emergency authority to prevent or stop unsafe acts when immediate action is required.
- Review the IAP for safety implications and provide safety messaging for inclusion in the IAP.
- Assign staff assistants qualified to evaluate special hazards.
- Ensure all applicable workplace safety rules and policies complied with during the restoration effort.
- Recommends measures for assuring employee safety, public safety, and the protection of LUMA employees.

- Allocates local Safety Health and Environmental personnel to affected branches.
- Oversee and ensure that an initial safety briefing is conducted with all arriving mutual aid and contractor crews and provide safety briefing documents each day during the restoration process for all LUMA employees and mutual aid or contractors.
- Ensure prompt investigations occur following a significant safety near-miss or actual event.
- Notify the IC of any significant events or conditions related to worker health and safety.
- Additional responsibilities as assigned by the LEOC IC.

h) Section Controller

During LEOC activations, the Section Controller provides administrative assistance and support to the IC as needed. The Section Controller also serves as the scribe for the Command Staff and is responsible for documenting section activities and other duties as assigned by the IC.

3. General Staff Overview

The General Staff represents and is responsible for the key functional aspects of the Incident Command structure organized into functional Sections. Each of the following Sections is led by a Section Chief who serves as the key position responsible for that function:

- Operations
- T&D System Operations
- Planning and Intelligence
- Logistics, and Finance/ Administration

General guidelines related to General Staff key positions include the following:

- Members of the General Staff report directly to the IC. If a Section Chief position is not activated, the IC has responsibility for that function.
- Only one person is designated as Section Chief for each Section.
- Deputy positions are established for each of the Section Chief positions. Deputies are individuals fully qualified to fill the primary position. Deputy Section Chiefs may be assigned supervisory responsibility for specific Branches/Divisions/Groups or Units within their Section.
- Section Chiefs may exchange informal information with any person within the organization, however Task Assignment, Resource Requests, and other formal communication takes place through the formal chain of command.

4. General Staff – Operations Section

The Operations Section is responsible for directing the response and restoration activities following an emergency event. The Section is led by the Operations Section Chief and is comprised of the following positions:

- Operations Section Chief (OSC)
- Deputy Operations Section Chief
- Damage Assessment Unit Leader (DAL)
- Debris Management Unit Leader (DML)
- Medical Unit Leader (MEDL)
- West Division Branch Director (Regional)
- East Division Branch Director (Regional)
- T&D System Operations Branch Director
- Site Safety Branch Director
- Priority Restoration Group (PRG) Branch Director
- System Emergency Restoration Team (SERT) Chief
- Section Controller

The Operations section manages field operations required to resolve problems arising from an events' impact or emergency incident including, but not limited to:

- Dispatching work to crews and tracking crew locations.
- Distributing tools and equipment.
- Coordinating of pole sets.
- Directing and managing wire down activities.
- Track reported wires down and dispatching appropriate resources to remedy or stand by to make the area safe.
- Create achievable restoration objectives.
- Ensure outages are restored within the projected global ETR and communicated, as required.
- Assist in developing a Regional IAP.
- Coordinate with the Planning and Intelligence Section for adequate resource and restoration monitoring.
- Ensure the PSC and LSC are aware of meals and lodging needs.

a) Operations Section Chief

The Operations Section Chief (OSC) is responsible for overseeing the response to the event, making the necessary repairs to the system, and for managing all tactical operations to achieve that objective, with guidance from the IAP. Major responsibilities of the OSC are to:

- Assure safety of tactical operations.
- Develop and supervise the operations portion of the IAP.
- Direct and manage tactical restoration operations.
- Request additional resources to support tactical operations.
- Approve release of resources from active operational assignments.
- Initiate or approve changes to the IAP regarding operational tactics.
- Maintain close contact with Incident Commander and subordinate Operations personnel.
- Ensure the positions within the Section execute their position-specific duties and responsibilities.

b) *Deputy Operations Section Chief*

The Deputy Operations Section Chief should have the same qualifications as the Operations Section Chief (OSC) and shall:

- Be prepared to assume the role of OSC.
- Assist in maintaining mission flow and documentation.
- Keep mission tracking systems updated and accurate.

c) *Damage Assessment Unit Leader*

The Damage Assessment Unit Leader (DAL) 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 Performance Metrics, found in Attachment 3 of Annex A.

The DAL also uses damage assessment information to estimate the ETR in accordance with the LUMA Performance Metrics, and the amount of resources, materials, and equipment needed to repair the system. The DAL works closely with the Operations Section Chief to develop and distribute damage assessment summaries and the ETR. The primary responsibilities of this position include, but are not limited to:

- Initiate and monitors progress of damage assessment teams.
- Receives resource information from Logistics to determine the amount of resources including damage assessors available for the event.
- Discuss damage assessment, projected ETR's, and projected number of restoration crew members, contractors, 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 to develop ETRs, materials, equipment, and resources and submit to the OSC.
- Develop an ETR between 24 and no later than 48 hours after the storms passage based on damage assessment, resources, and number of crews available and submit for approval to the Planning Section Chief for use in the IAP.
- Participate in post-emergency reviews to identify lessons learned, as instructed.
- Provide documentation to the Documentation Unit Leader.
- Ensure documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the After-Action Report (AAR).

d) Debris Management Unit Leader

The Debris Management Unit Leader (DML) is responsible for leading the LUMA disaster debris management system that is a collection of personnel, facilities, technical expertise, and material resources which are designated for use in the clearance, removal, transport, sorting, storage, recycling, and ultimate disposal of disaster debris.

The primary responsibilities of this position include, but are not limited to:

- Work with selected debris removal contractors, designated local (public and nongovernmental) support agencies and organizations, and involved state support agencies, (as applicable).
- Debris Management Team for each disaster will be determined by Incident Commander and/or Operations Section Chief, based on the disaster conditions and the anticipated scope and magnitude of the debris management effort.
- Assist in disaster debris management needs.
- Provide for the overall management and coordination of the debris management operation.
- Provide/coordinate resource support to the debris management operation (personnel, equipment, materials, vehicles, facilities, communications).
- Provide technical expertise in all facets of debris management operations.
- Coordinate with contractors, federal and state agencies, nongovernmental organizations, and tribal governments (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.

e) Medical Unit Leader (MEDL)

The Medical Unit Leader (MEDL) is responsible for ensuring occupational health of all incident personnel, including planning for and coordinating incident emergency response. Incident emergency response often involves MEDL coordination of patient evacuations/extractions from remote areas requiring good knowledge of available resources and their capability. The MEDL reports to the Logistics Section Chief (LSC) and works in the Logistics functional area.

The primary responsibilities of this position include, but are not limited to:

- Report to LSC for situation briefing.
- Determine level of medical services required and coordinate activities of medical personnel and auxiliary certified industrial first-aid attendants.

- Liaise with Safety Officer to review the Medical Plan and its inclusion into the overall safety plan.
- Prepare Medical Emergency Plan (ICS Form 206) and activate Medical Unit.
- Determine and notify nearest off-site hospital facilities.
- Arrange for ambulance services and establishment of a field medical station.
- Establish and verify emergency medical transportation and communications procedures.
- Inform unit leaders and supervisors of medical facilities and procedures.
- Respond to requests for medical aid, medical transportation, and medical supplies.
- Establish record keeping system for recording accidents and illness occurrences, inventory of supplies, key contacts and phone numbers, etc.
- Address medical needs for extended and/or escalated field response.

f) West Division Branch Director

The West Division Branch Director is responsible for overseeing the response to the event within their region and making the necessary repairs to the system, and for managing all tactical operations and resources to achieve that objective, with guidance from the IAP.

Major responsibilities of the West Division Branch Director are to:

- Manage Regional EOC.
- Oversees the SERT Chief and team.
- Assure safety of tactical operations.
- Develop and supervise the operations portion of the IAP.
- Direct and manage tactical restoration operations.
- Request additional resources to support tactical operations.
- Approve release of resources from active operational assignments.
- Initiate or approve changes to the IAP regarding operational tactics.
- Maintain close contact with Incident Commander and Operations Section Chief in LEOC.
- Provide updates to the Operations Chief and/or Deputy Chief on regional operations at regular intervals.
- Ensure the positions within the Section execute their position-specific duties and responsibilities.

g) East Division Branch Director

The East Division Branch Director is responsible for overseeing the response to the event within their region, making necessary repairs to the system, and managing all tactical operations and resources to achieve incident objectives with guidance from the IAP.

Major responsibilities of the East Division Branch Director are to:

- Manage Regional EOC.

- Oversees the SERT Chief and team.
- Assure safety of tactical operations.
- Develop and supervise the operations portion of the IAP.
- Direct and manage tactical restoration operations.
- Request additional resources to support tactical operations.
- Approve release of resources from active operational assignments.
- Initiate or approve changes to the IAP regarding operational tactics.
- Maintain close contact with Incident Commander and Operations Section Chief in LEOC.
- Provide updates to the Operations Chief and/or Deputy Chief on regional operations at regular intervals.
- Ensure the positions within the Section execute their position-specific duties and responsibilities.

h) T&D System Operations Branch Director

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 will control and direct 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 consists 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 System Operations Branch Director, the dispatch control center will follow 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 of this position include, but are not limited to:

- Control what comes on or off the system from a Generation, substation and line perspective.
- Direct all operational request and requirements to field personnel.
- Isolate the grid as necessary during system constraints or lack of capacity
- Provide field resourcing needs to planning and intelligence teams.
- Provide IC and LEOC awareness of overall system capacity loading, issues and priorities for the planning periods.
- Provide restoration priorities from a system perspective to the OSC.
- Provide information to calculate ETRs as system conditions and status changes.

i) Site Safety Branch Director

The Site Safety Branch Director is responsible for developing and recommending measures for assuring employee and public health and safety, and to assess and/or anticipate hazardous and unsafe situations. The EH&S Officer oversees the response to safety and environmental concerns and monitors LUMA crews for compliance with established safety and environmental procedures in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A.

Business and operational decisions throughout LUMA are to incorporate consideration of environmental, health and safety rules, policies and practices. In order to achieve these goals, all LUMA employees are asked to accept a personal obligation to know the corporate environmental, health and safety requirements that apply to their assigned responsibilities, and to use this information in planning and completing their work.

The primary responsibilities of this position include, but are not limited to:

- Ensure site safety objectives are met and adequate resources provided in response to updates/notifications from the LEOC.
- Provide advice and on environmental and safety issues.
- Develop measures to help assure public / personnel safety and effectively assess hazardous and unsafe situations.
- Direct and/or coordinate investigations as required in response to field accidents/injuries.
- Support and provide adequate field staffing to support event.

j) Priority Restoration Group Branch Director

The Priority Restoration Group (PRG) Branch Director is primarily responsible for the priority restoration of electrical service. The PRG will operate in a centralized or decentralized environment as required. The PRG will utilize the Outage Management System (OMS), STORMs, and system control centers to direct the activities of the PRG.

The primary responsibilities of this position include, but are not limited to:

- Schedule crews according to predetermined shifts.
- Disseminate dispatch instructions to crews.
- Conduct close-out of STORMs and OMS tickets with crews to receive reports on the nature of the work completed regardless of 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, 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 PRG line crews and provide training updates as needed.

k) Aviation Safety Officer

The Aviation Safety Officer is primarily responsible for implementing and coordinating safety and environmental programs and ensures compliance with required regulations, procedures, and policies with primary focus on aviation. The Aviation Safety Officer ensures responders and the public are properly safeguarded from the hazards of the aviation response to an incident and supervises and executes all aviation safety functions in support of the incident.

The primary responsibilities of this position include, but are not limited to:

- Ensure aviation safety objectives are met and adequate resources provided in response to updates/notifications from the LEOC.
- Provide advice on environmental and aviation safety issues.
- Develop measures to help assure public / personnel safety and effectively assess hazardous and unsafe situations.
- Direct and/or coordinate investigations as required in response to aviation accidents/injuries.

l) System Emergency Restoration Team (SERT) Chief

The System Emergency Restoration Team Chief, a function of the Operations Section, will carry out all tactical activities to restore operations impacted by the incident. The Chief will be activated at the discretion of the Region Operations Division Commander or the overall LUMA Incident Commander.

The primary responsibilities of this position include, but are not limited to:

- Ensures safety protocols and procedures are utilized.
- Obtain briefing and assigned prioritized objectives from the Regional Operations Division Commander.
- Obtain operational variances that may apply during the event (i.e. Dedicated phone lines for customers).
- Brief team on assigned incident objectives.
- Explain communication expectations.
- Communicate accomplishments, challenges, objective status and resourcing requirements.
- Lead the execution of IAP objectives for the group.
- Assign restoration work assignment to the restoration field crews/crew guides.
- Ensure that the team members have required documents (i.e. Maps, system contingency plans, contact numbers for team, staging areas).
- Dispatch restoration crews.
- Utilize the Restoration Priority Matrix.
- Record information of completed assignments.
- Provide updates to Regional Operations Division Commander as required.

m) Section Controller

Section Controller is a member of the Operations Section and documents EOC activities and serves as a scribe to assigned EOC staff. The Section Controller documents all activities and records information for the area assigned. Maintains a complete and accurate record of all events and key decisions that occur during and after the incident. Such records will be written and may be documented in map form. The Operations Section Controller will coordinate with other Section Controllers as necessary to ensure the effective use of SharePoint or other information sharing systems used.

5. General Staff – Logistics Section

The Logistics Section provides the logistical and field support required in each affected branch or division to enable Operations personnel the ability to focus on the restoration of services. The Logistics Section is responsible for the coordination of logistical planning and logistical response activities. The Logistics Section is led by the Logistics Section Chief and is comprised of the following positions:

- Logistics Section Chief (LSC)
- Deputy Logistics Section Chief
- Supply Unit Leader (SUPL)
- Resources Unit Leader (RESL)
- Mutual Aid Unit Leader (MAA)
- Information Technology Unit Leader (IT)
- Transportation/Fleet Unit Leader (TRUL)
- Food/Lodging Unit Leader (FLUL)
- Facilities Unit Leader (FUL)
- Corporate Security Unit Leader (CSL)
- Donations/Volunteer Management Unit Leader (DVML)
- Section Controller

The main responsibilities for the Logistics Section include, but are not limited to:

- Acquire any outside resources including line, tree, damage assessment, support, transmission, and other crews as requested by the PSC, as soon as possible.
- Ensure all acquired resources have adequate lodging, meals, materials, and transportation as requested.
- Establish and operate staging areas as determined by the IC and ensure site has adequate capabilities.
- Ensure regional stockrooms and facilities are staffed with Regional logistics personnel.
- Acquire all materials as requested and monitoring the Materials Management System (MMS) to order or re-stock materials.
- Establish the administration and mobilization of vendor contracts related to supplies and services (i.e. on-site fuel and stock delivery, janitorial/sanitary facility service).
- Develop and manage transportation requirements including acquiring additional vehicles as needed.

- Coordinate, acquire, and deploy mobile generators and other specialized equipment, as requested.
- Ensure the advanced planning and securing of critical resources and vendors.
- Develop, coordinate, and manage physical security requirements with the Puerto Rico Police Bureau and the respective municipal police commissioners.

a) Logistics Section Chief

The Logistics Section Chief (LSC) provides all incident resources to support the tactical execution of incident objectives. The LSC also provides all facilities, transportation, supplies, equipment maintenance, and fueling for incident personnel, and all off-site resources.

The primary responsibilities of the LSC include, but are not limited to:

- Ensure the maintenance of contact lists of mutual aid companies and contractors.
- Maintain contact lists of vendors, suppliers, contractors, hotels, caterers and other who provide materials and support services through the Logistics Section.
- Coordinate logistics activities across multiple regions and divisions.
- Coordinate the support of facilities, services, and materials in support of system restoration activities.
- Coordinate and directs staging site operations.
- Identify and estimate service and support requirements for planned and expected operations.
- Review requests for additional materials/fleet/staging site resources with the LEOC IC.
- Prepare and review applicable portions of the IAP and reviews proposed tactics for the next operational period(s) at planning meetings.
- When the LEOC is activated, activates the Supply Unit to check the availability of resources and arranges for delivery of necessary supplies.
- Provide site security to ERP-related facilities during emergency event response.
- Ensure that 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.

b) Deputy Logistics Section Chief

The Deputy Logistics Section Chief should have the same qualifications as the Logistics Section Chief (LSC) and shall:

- Be prepared to assume the role of LSC.
- Assist in maintaining mission flow and documentation.
- Keep mission tracking systems updated and accurate.

c) *Supply Unit Leader*

The Supply Unit Leader (SUPL) is responsible for managing, receiving, and distributing resources to include personnel, equipment, and supplies. The SUPL reports to the Logistics Section Chief (LSC) and works in the Logistics functional area.

The primary responsibilities of this position 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 amount 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 Staging Area Manager to maintain minimum resource requirements.
- Receive and respond to requests for personnel, supplies, and equipment.

d) *Resources Unit Leader*

The Resources Unit Leader (RESL) is responsible for establishing all incident check-in activities, preparing resource status information; maintaining displays, charts and lists that reflect the current 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 of this position include, but are not limited to:

- Assemble resource display materials.
- Assign duties to resource unit personnel.
- Establish check-in function at incident locations.
- Establish and maintain a resource tracking system.
- Establish the command post display on team organization and resources allocated based on 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 status of transportation and support vehicles and personnel.
- Maintain master roster of all resources checked in at the incident.
- Prepare organization assignment list (ICS Form 203) and organization chart (ICS form 207).
- Prepare appropriate parts of division assignments lists (ICS form 204).
- Provide resource summary information.
- Coordinate the demobilization of resources that are no longer needed, and document when each resource is demobilized.

e) Mutual Aid Unit Leader

The Mutual Aid Unit Leader (MAA) is responsible for utilizing the mutual aid agreements to benefit the response to and restoration of the transmission and distribution system. Electric utilities affected by significant outages frequently call on other utilities, pursuant to mutual assistance agreements, for assistance to help expedite response and restoration. Mutual aid assistance may be in the form of personnel, supplies and/or equipment and may be required to mitigate, repair, or restore the system to normal operations. Mutual aid assistance either will be furnished by LUMA or requested by LUMA.

- Assign a crew guide to the mutual aid crews.
- Provide the roster of crewing to the SERT Unit Leader.
- Verify personnel and equipment on property; coordinate with the Logistics Section to establish lodging, meals, and transportation.
- Coordinate with EH&S to conduct a safety orientation.

f) Information Technology Unit Leader

The Information Technology Unit (IT) is responsible for continuously assessing the event for IT related logistical needs and obtain and allocate resources as required to meet the demands of the event.

The primary responsibilities of this position include, but are not limited to:

- Ensure equipment within the LEOC is operational. If repairs or maintenance is required, notify the IC.
- Notify the IC of any abnormal conditions in the system.
- Ensure spare cell phones for distribution are available.
- Ensure electronic transmission devices are available for use, printers, faxes, etc.
- Maintain voice and data communications system throughout the event.
- Contact critical communications and IT vendors to put them on advance notice of an impending action.
- Provide maintenance on company provided equipment, as requested.
- Dispatch IT Reps to locations to respond to IT issues.

g) Transportation/Fleet Unit Leader (TRUL)

The Transportation/Fleet Unit 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 Transportation/Fleet Unit reports to the Logistics Section Chief (LSC) and works in the Logistics functional area.

The primary responsibilities of this unit include, but are not limited to:

- Plan, staff, and manage the Transportation/Fleet Unit to meet incident needs safely.
- Coordinate with the Logistics Section and other sections to help meet overall incident objectives.
- Manage support for out-of-service resources; transportation for personnel, supplies, food, and equipment; fueling, service, maintenance, and repair for vehicles and other ground support equipment; and development and implementation of the incident transportation plan.
- Establish or transition into a unit under the Logistics Section.
- Configure unit with personnel to support operations.
- Provide road closure and traffic light outage information to the LEOC and ensure that it is displayed in the LEOC.
- Ensure unit position logs are maintained.
- Identify issues, resource needs, and shortfalls for the next operational period.

h) Food/Lodging Unit Leader

The Food/Lodging Unit Leader is responsible for managing the Food/Lodging Unit for emergency response and disaster response and relief personnel. The Food/Lodging Unit Leader reports to the Logistics Section Chief and works in the Logistics functional area.

The primary responsibilities of this position 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 meal plan with food vendors.
- Establish communications with hotel vendors to identify availability of hotel rooms across impacted region(s).
- Disseminate lodging requirements to staff and monitor for requirements to be satisfied.
- Document 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.
- Provide summary to Logistics Section Chief daily per operational period.
- Coordinate feeding response personnel using field kitchens, contracted catering, and other available resources.
- Determine feeding needs at all incident facilities, including 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 monitors food orders.

- Establish or transition into a unit under the Logistics Section.

i) Facilities Unit Leader

The Facilities Unit Leader (FACL) is responsible for the maintenance and operation of all LUMA buildings, which are occupied during the emergency, to provide rest and sanitation facilities for incident personnel, and to manage base and camp operations. The Facilities Unit reports to the Logistics Section Chief (LSC) and works in the Logistics functional area.

The primary responsibilities of this position include, but are not limited to:

- Participate in Logistics Section planning activities.
- Determine requirements for each facility to be established, including the command post.
- Prepare and notify unit leaders of layouts of incident facilities
- Activate incident facilities.
- Provide base and camp managers.
- Obtain personnel to operate facilities.
- Provide rest facilities.
- Provide facility maintenance services – sanitation, lighting, and cleanup.
- Demobilize base and camp facilities.

j) Corporate Security Unit Leader

The Corporate Security Unit Leader (CSL) is responsible for providing security for all LUMA properties and assets and for providing a safe and secure environment for all employees and contractors during emergency response efforts.

The primary responsibilities of this position include, but are not limited to:

- Provide management of contract security guard service.
- Provide 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 to provide convoy escorts, advise on traffic concerns, and provide roadside safety details as needed.

k) Donations/Volunteer Management Unit Leader

The Donations/Volunteer Management Unit is responsible for coordinating the establishment of a formal volunteer reception process and ensuring all volunteers are officially registered. Donations/Volunteer Management Unit is also responsible for coordinating incoming donations from the public and organizations, both monetary and physical.

The primary responsibilities of this position include, but are not limited to:

- Identify a location to establish a Volunteer Reception Center to receive volunteers in an organized manner.
- Ensure a process is in place to register volunteers and accurately track their donated time.
- Coordinate the activation of the official account designated for monetary donations.
- Identify community partners/locations willing to accept and hold physical donations.
- Coordinate the activation of a Donations and Volunteer Management Team if capacity is exceeded.
- Maintain regular communications with representatives from all community partners involved in donation operations.

l) Section Controller

Section Controller is a member of the Logistics Section and documents EOC activities and serves as a scribe to assigned EOC staff. The Section Controller documents all activities and records information for the area assigned. Maintains a complete and accurate record of all events and key decisions that occur during and after the incident. Such records will be written and may be documented in map form, where useful. The Logistics Section Controller will coordinate with other Section Controllers as necessary to ensure the effective use of SharePoint or other information sharing system used.

6. General Staff – Planning and Intelligence Section

The Planning and Intelligence (P&I) Section is mainly responsible for the development and distribution of the IAPs, Situation Reports, internal and external reports, GIS mapping functions, and maintaining all incident documentation for record keeping. The P&I Section is led by the Planning and Intelligence Section Chief and is comprised of the following positions:

- Planning and Intelligence Section Chief (PSC)
- Deputy Planning and Intelligence Section Chief
- GIS Unit (GIS)
- Documentation Unit Leader (DOCL)
- Situation Unit Leader (SITL)
  - ETR Specialist
  - Regulatory Reports Specialist
  - OMS Reporting Specialist
  - Contact Center Specialist
  - Situation Unit Staff
- Check-In Staff
- Section Controller

The P&I Section primary responsibilities include, but are not limited to:

- Monitor the weather forecast and provide updates.

- Manage and administer the overall effort of collecting, processing, and reporting emergency service restoration information including overseeing the development and distribution of routine Restoration Status Reports (RSRs) and IAPs.
- Work with the East and West Operations Branch Directors to establish an accurate and timely reporting communication process to ensure restoration times are being provided by the regions.
- Determine the time frame for convening a pre-event meeting (pre-emergency) and initializing demobilization efforts.
- Document, maintain, and provide internal information about the status of the restoration effort to the IC and PIO.

a) Planning and Intelligence Section Chief

The Planning and Intelligence Section Chief (PSC) 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 ETRs. The PSC assists the Incident Commander in establishing incident objectives and recommends alternate strategies for the response as required. The PSC also establishes the battle rhythm of the LEOC by scheduling operational period briefings, planning meetings, and various reporting timelines.

The primary responsibilities of this position 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 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 Planning Section.
- Record and track both internal and external support resources utilized during an emergency event.
- Provide predictions on incident potential.
- Report significant changes in incident status.
- Ensure positions within the Section execute their specific duties and responsibilities.
- Oversee preparation of the Demobilization Plan.
- Oversee preparation and submission of Report Type I regarding customer outages and Report Type II regarding restoration resources.

b) Deputy Planning and Intelligence Section Chief

The Deputy Planning and Intelligence Section Chief should have the same qualifications as the Planning and Intelligence Section Chief (PSC) and shall:

- Be prepared to assume the role of PSC.
- Assist in maintaining mission flow and documentation.
- Keep mission tracking systems updated and accurate.

c) GIS Unit

The GIS Unit coordinates to prepare incident maps and displays by collecting and interpreting information. The GIS Unit reports to the Planning Section Chief (PSC) and works in the Planning functional area.

The primary responsibilities of this position include, but are not limited to:

- Participate in functional area briefings and after-action reports.
- Define, implement, and maintain a daily archival process.
- Provide written documentation, digital data, and products developed during the incident to the Documentation Unit and others.
- Assist in producing incident products by completing digital analysis.
- Develop, update, and maintain metadata.
- Coordinate with Situation Unit Leader to prepare incident maps and displays by collecting and interpreting information.
- Produces and updates maps within established guidelines and time frames.

d) Documentation Unit Leader

The Documentation Unit Leader (DOCL) is responsible for ensuring incident files are maintained, complete, and up to date in accordance with NWCG standards and agency policy. The DOCL reports to the Planning Section Chief (PSC) and works in the Planning functional area.

The primary responsibilities of this position include, but are not limited to:

- Report to the Planning Section Chief for situation briefing.
- Establish work area with files and photocopier.
- Retain and file duplicates of official forms and reports.
- Accept and file reports and forms submitted to unit.
- Check the accuracy and completeness of records submitted.
- Correct errors or omissions by contacting appropriate ICS Units.
- Provide duplicates of forms and reports to authorized requesters.
- Prepare incident documentation for Planning Section Chief when requested.
- Maintain, retain, and store incident files for use after demobilization.

e) Situation Unit Leader

The Planning and Intelligence Section Chief (SITL) is responsible for collecting and organizing incident status and situation information. The SITL is responsible for the evaluation, analysis, and display of that information for use by response personnel. The SITL reports to the Planning Section Chief (PSC) and works in the Planning area.

The primary responsibilities of this position 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 Planning Section Chief.
- 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 unit on request.

The SITL oversees the following positions when activated:

- ETR Specialist
  - Collects information & ensures ETRs are updated, relevant, etc. in the OMS.
- Regulatory Reporting Specialist
  - Develop all reports required for regulatory reporting: Pre-stage report, restoration stage reports, and final report.
- OMS Reporting Specialist
  - Collects information from the OMS related to outages and system status.
- Contact Center Specialist
  - Collects outage information from Contact Center agents and creates communications/messaging for customers.
- Situation Unit Staff
  - Develops the IAPs and SitReps.

f) Check-In Staff

The Check-In Staff is responsible for initiating LEOC check-in and check-out procedures and keeping track of all forms and sign-in sheets.

g) Section Controller

Section Controller is a member of the Planning and Intelligence Section and documents EOC activities and serves as a scribe to assigned EOC staff. The Section Controller documents all activities and records information for the area assigned. Maintains a complete and accurate record of all events and key decisions that occur during and after the incident.

Such records will be written and may be documented in map. The Planning and Intelligence Section Controller will coordinate with other Section Controllers as

necessary to ensure the effective use of SharePoint or other information sharing system used.

7. General Staff – Finance and Administration Section

The Finance and Administration Section is responsible for all fiscal matters related to the emergency event. Finance and Administration Section staff are led by the Finance and Administration Section Chief (FSC) and is comprised of the following positions:

- Finance Section Chief (FSC)
- Deputy Finance Section Chief
- Time & Cost Unit Leader (TCUL)
- Procurement Unit Leader (PROC)
- Claims Unit Leader (CLAL)
- Section Controller

The primary functions of this position include, but are not limited to:

- Track all costs related to the event and ensuring cost tracking and financing protocols are in place.
- Maintain accurate rosters and shift schedules of all responding internal personnel located in the LEOC, Branch EOCs, and Division EOCs, when applicable.
- Issue petty cash, procurement cards, and increasing limits on these as requested by the IC.
- Provide HR support and assistance programs to all employees and acquired resources.
- Provide procurement services for response and restoration activities.

a) Finance/Admin Section Chief

The Finance/Administration Section Chief (FSC) is responsible for managing all financial aspects of an incident. The primary responsibilities of this position include, but are not limited to:

- Track and manage all financial aspects of ERP activation.
- Track costs related 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 supply and support needs of the Section.
- Maintain daily contact with the LUMA CFO on finance matters.
- Ensure that personnel time records are completed accurately and in a timely fashion.
- Ensure that all obligation documents initiated during the ERP are properly prepared and completed.
- Brief LUMA administrative finance personnel on all incident-related financial issues needing attention or follow-up.

- Provide input to the IAP.
- Ensure the positions within the Section execute their specific duties and responsibilities.

b) *Deputy Finance/Admin Section Chief*

The Deputy Finance/Admin Section Chief should have the same qualifications as the Finance Section Chief (FSC) and shall:

- Be prepared to assume the role of FSC.
- Assist in maintaining mission flow and documentation.
- Keep mission tracking systems updated and accurate.

c) *Time & Cost Unit Leader*

The Time & Cost Unit Leader (TCUL) 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 TCUL reports to the Finance Section Chief. The TCUL works in the Finance/Administration functional area.

The primary responsibilities of this position include, but are not limited to:

- Establish cost reporting procedures.
- Provide forms and procedures for time recording and obtain check in lists.
- Maintain cost tracking, analysis, and estimates.
- Prepare cost summaries that provide total cost incurred and average cost per day.
- Ensure that all records are current and complete before demobilization.
- Brief Finance/Administration Section Chief on current problems, recommendations, outstanding issues, and follow-up requirements.

d) *Procurement Unit Leader*

The Procurement Unit Leader (PROC) is responsible for administering financial matters pertaining to vendor contracts and agreements and ensuring compliance with policies. The PROC supervises the Equipment Time Recorder and reports to the Finance Section Chief (FSC). The PROC works in the Finance functional area.

The primary responsibilities of this position include, but are not limited to:

- Arrange for emergency accounts and coding for service contracts and purchases.
- Provide administration and finance forms and procedures for purchases and contract management.
- Establish contracts with supply vendors as required.
- Finalize contracts and agreements and obtain signature from appropriate spending authority.
- Keep records of purchases and contracts.
- Coordinate cost data with Time & Cost Unit Leader.

e) Claims Unit Leader

The Claims Unit Leader (CLAL) 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 this position include, but are not limited to:

- Manages employees and or contractors who are injured or an accident occurs during the response to an incident.
- Receive and coordinate all claims-related issues regarding the event.
- Manages property claims.
- Manages list of insured LUMA properties and equipment to include values.
- Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the After-Action Report for the event.
- Ensure claims documentation complies with FEMA requirements for reimbursement.

f) Section Controller

Section Controller is a member of the Finance and Administration Section and documents EOC activities and serves as a scribe to assigned EOC staff. The Section Controller documents all activities and records information for the area assigned. Maintains a complete and accurate record of all events and key decisions that occur during and after the incident. Such records will be written and may be documented in map form, where useful. The Finance and Administration Section Controller will coordinate with other Section Controllers as necessary to ensure the effective use of SharePoint or other information sharing system used.

C. Mutual Aid Assistance

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

Mutual aid may be in the form of personnel, supplies, and/or equipment and may be required to mitigate, repair, or restore the system to normal operations. Mutual aid will be requested by LUMA. LUMA Energy will maintain a mutual aid roster of electric utilities which will include the names, addresses, and telephone numbers of personnel to contact at each company.

Requests for mutual aid are coordinated through the Logistics Section Chief and LUMA's CMO, typically serving as the Deputy IC. The mutual assistance resources obtained are then allocated between LUMA's East Division and West Division based on the incident needs. The resources allocated to LUMA may be pre-staged, taking into consideration the forecasted weather impacts and any pre-determined minimum staffing requirements.

The Operations Section Chief will review the system status and, after conferring with the Incident Commander, will re-allocate resources, as necessary. The re-allocation of resources will be based upon the damage assessments, the extent and type of damage, the number of jobs, the number of downed wires, the number of customers out of service, the type of available resources (i.e., LUMA teams versus small groups of contractor crews), the predicted estimated restoration times, and the difficulty travelling within the service area.

A Mutual Aid Unit within the Logistics Section may be activated when the Incident Command and General Staff deem it appropriate to request mutual assistance from other utilities for major outage events in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A. This is typically required for Level 1 Catastrophic Emergency incidents but may be used during lower level events as well. The OSC, in consultation with the IC and PSC, determine the number and type of mutual assistance crews and equipment required. The IC or designee will notify the LUMA Crisis Management Committee and CMO when mutual assistance crews are required.

VII. Direction, Control, and Coordination

A. General

LUMA has established the ERO 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. The Major Outage Restoration Annex to this ERP includes procedures that will be adhered to throughout the organization whenever a failure of electrical service occurs that is deemed to be an "Emergency Event".

Whenever possible, emergency response procedures will parallel normal operational procedures to minimize the need for specialized training or work practices wherever possible. This ERP provides the framework for the systematic response of resources when emergencies arise. The Annex A to this ERP, Major Outage Restoration Annex, defines a set of processes and protocols for determining the appropriate level of response during major emergencies for:

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

Note: **LUMA Energy will consistently emphasize public and employee safety as a top priority during any response.**

During an ERP activation, policy guidance is provided specifically by the LUMA Emergency Operations Center (LEOC) Crisis Management Committee which consists of LUMA senior executive leadership. Resource support and coordination is provided by the LEOC down to the Branch and Division EOCs. During normal operations, the LUMA CMO supports emergency preparedness through the development of safety standards and benchmarking, and delivery of training and exercises. Additionally, CMO emergency preparedness includes the acquisition and maintenance of response assets such as a mobile command center, office trailers, and communications equipment.

B. Incident Command System Structure and Coordination

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

This chain of command will be 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 to include, but not be limited to:

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

VIII. 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 Classification Type.

Internal and external stakeholder audiences include:

- Government of Puerto Rico and local government officials
- Customers
- General public
- Media outlets
- LUMA Emergency Operations Center (LEOC) Crisis Management Committee
- LEOC, Branch EOC, and Division EOC staff
- Senior LUMA officials, directors, and managers
- LUMA Employees

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
- IAP planning meetings
- IAPs
- Situation Reports
- Reports from OMS

IX. 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.

A. Communications with Customers

1. Notifications

During an incident, communication with the community becomes especially critical. Emergency communications may include alerts, warning and information not only from internal operations but external resources as well. These may include information about evacuation, curfews, and other protective measures and response status, available assistance, and other matters that impact LUMA's response and recovery in accordance with the LUMA Performance Metrics, found in Attachment 3 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 will communicate information through a variety of methods including, but not limited to:

- LUMA's website and Customer Outage Map
- News media
- Social messaging including the use of Twitter, Facebook, WhatsApp, etc.

2. Lifeline Residential Service Customers

Lifeline Residential Service (LRS) Customers may include elderly, and customers with a disability or medical condition that necessitates electric utility service. Customers who provide documentation certifying their need for electric utility service are added to the LRS customer database, which is verified annually.

Prior to the occurrence of an emergency event, the LUMA Customer Experience Team activates the automated outbound telephone calls to LRS Customers. The telephone messages are customized and contain event information and LUMA preparation actions. This information addresses the potential power outages and provides recommended protective actions to seek assistance from local public safety officials and human service agencies, as necessary.

Information is also provided to the news media for dissemination to the general public regarding pre-event preparedness and post-event restoration activities. This information is developed by the PIO and approved by the Incident Commander prior to dissemination through multiple communication platforms such as telephone, email, fax, and social media.

3. Real-time Information

The Digital Communications representative(s), will review and update LUMA's website to ensure that PSAs are posted on the website, providing real-time information to customers in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A. The Outage Map displays outage and restoration information. Outage information will be provided by region or town to include customers served and customers impacted. Customers will also see outage information, an estimated outage, and an ETR range. For example: ETR 5:15 PM to 7:15 PM.

B. Communications with Government Officials

1. Notifications

During an emergency event, LUMA will provide reports to municipal emergency managers or their designees that contain detailed information related to emergency conditions and restoration performance for each affected municipality. Reporting requirements for communicating to municipal emergency managers or their designees through the distribution of Pre-Event Stage Reports and Service RSRs is detailed in the Reporting Section of this ERP.

During emergency events, the Puerto Rico Emergency Management Bureau (PREMB), based in the PREMB Emergency Operations Centers, 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 Emergency Operations Center (EOC) during incident response. When the LUMA ERP is activated which may coincide with the PREMB EOC, the LUMA PREMB Liaison may be requested in their EOC. The role of the PREMB Liaison is to facilitate formal and informal two-way communication between LUMA and PREMB.

2. Post Event Communications

LUMA will continue to provide updates via PSAs through the Digital Communications Representative(s) following an emergency event which may include but not be limited to ETRs and outages until full restoration is established.

3. Meetings with Government of Puerto Rico Officials

Throughout the year LUMA will meet 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 that result from meetings, and status of each identified action item is submitted in the Advance Planning and Training Report filed annually.

4. Meetings with Municipal Officials

During an emergency event, LUMA will provide updates to municipal emergency managers or their designees that contain detailed information related to emergency conditions and

restoration performance for each affected municipality. These updates may be in the form of a conference call or notification report in accordance with the LUMA Performance Metrics, found in Attachment 3 of Annex A.

C. Operational Communications

1. Interoperability

Communications interoperability allows LUMA staff in the LEOC and the Division EOCs 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 procedures (SOPs), 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.

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 Command, General Staff, Division Directors, and Regional Commanders as part of the IAP.

3. Communications Information Flow Chart

During the development of the Information Flow Chart, please refer to page 34, Section V; Concept of Operations. Additionally, refer to Section VI Organization and Assignment of Responsibilities.

X. Administration and Finance

A. Reporting

There are several reports and documentation generated to facilitate and record the response to an emergency. These are broken out by those required by regulators and those utilized by LUMA during an emergency response. Each of the reports included here are tied back to the process in the Plan from which they are generated or for which they are used. The processes and activities in this chapter are initiated once the emergency event has been classified and the ERO has been activated. Table 8 details the types of reports and documentation that will be developed, and the key positions needed to develop the associated reports.

Reports and Documentation		
Internal Reports and Documentation	Regulatory Driven Reports and Documentation	After-Action Report
Key Positions	Key Positions	Key Positions
• Security Officer • Safety Officer • Environmental Officer • Planning and Intelligence Section Chief • Operations Section Chief	• Emergency Management • Planning & Intelligence Section Chief • Regulatory Liaison Officer	• Emergency Management • Command Staff • General Staff Section Chiefs

Table 8: Reports and Documentation

1. Internal Reports and Documentation

a) Incident Action Plans

The incident action planning process is used for all incidents involving the activation of the LUMA Emergency Operations Center (LEOC). The 'Planning P' is a tool used in applying the principle of Incident Action Planning. IAPs provide a coherent means of communicating the overall incident objectives in the context of both operational and support activities.

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

b) Damage Assessment Reports

A Damage Assessment Report is submitted once assessments have been completed in the affected areas. The Damage Assessment Unit within the EOC is responsible for drafting and submitting the damage assessment report to the Operations Section Chief.

c) *Safety Incident Reports*

The Safety Officer 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 to the Incident Commander or his/her designee and to the Documentation Unit.

2. Regulatory Driven Reports and Documentation

Appendix D to this Plan contains templates for all reports referenced in this section.

a) *Pre-Event Reports*

The Planning and Intelligence Section is responsible for documentation and reports related to this section. As required by PREB and P3A, reports will be submitted to the P3A, PREB, PREMB, appropriate regional representatives, and municipal emergency managers or their designees, that contain detailed information related to emergency conditions and restoration performance for each affected city and town in accordance with the Major Outage Event Performance Metrics found in Attachment 3.

Pre-Event Stage Notifications (for Events anticipated to reach Level 1, 2, 3 or 4)

During the Pre-Event Stage, LUMA Energy shall notify LRS Customers and identified Critical Facility contacts in areas that are anticipated to be significantly affected via automated call out of the anticipated event.

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

During the Pre-Event Stage, reports shall be submitted (1) twice daily at 8 a.m. and 6 p.m., or more frequently upon request; and (2) when the Incident Commander changes the event level. This report shall be submitted to the PREB, P3A, PREMB, and the LUMA Crisis Management Committee. The Pre-Event Report shall contain:

- Weather forecasting and monitoring information
- Planned storm conference calls (indicating date and time)
- 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
- Expected event classification type (describe expected severity), including all facts considered in the determination. In addition, describe any changes to event classification type, if applicable, and the facts considered in the determination
- Resource readiness (indicating actions taken to ensure availability of crews and material resources indicating type and quantity of available crews)
- Likelihood of the LEOC being activated (indicating date and time activated or predicted to be activated)

- Challenges anticipated or encountered in preparation for the anticipated emergency
- Any other pertinent information.

In addition to the above listed information, each Pre-Event Stage report shall include a table including, but not limited to the following information:

- Date and time of report.
- Estimated percentage of customer outages.
- Estimated number and type of resources required (including the number of crews and full-time equivalents).
- Number of internal resources secured (by type and including the number of crews and full-time equivalents).
- Number of external resources secured (by type and including the number of crews and fulltime equivalents).
- Estimated duration of restoration.

b) Service Restoration Stage Reports

During the Restoration Stage (for Level 1, 2 or 3 Events), reports shall be submitted to the P3A, PREMB, and the LUMA Crisis Management Committee that contain detailed information related to emergency conditions and restoration performance for each affected city and town.

The Planning and Intelligence Section Chief, when activated, is responsible for documentation and reports described in this section. Reports are typically assembled by the LEOC Situation Unit Staff based upon communication with the Command Staff, Operations Section Chief, and the Planning and Intelligence Section Chief and provided to the LEOC Crisis Management Committee, PREMB, and the P3A.

LUMA will provide updates on the ETR three times daily, at a minimum. The updates will occur at the completion of the damage assessment or after the first 24 hours following the start of the damage assessment, whichever occurs first. Estimated Restoration Times are reported in one or more of the following ways:

- LUMA Restoration Stage Report Type 1.
- Via telephone by the Customer Call Center Representative.
- LUMA's outage central website.
- Appropriate media outreach.
- Established LUMA Call Center (when activated).
- Municipal Liaisons (Level 1 and 2 Events).

Types of Restoration Stage Reports

Depending on the complexity and severity of the emergency event, the frequency of Type I and II reports may fluctuate but will be submitted at a minimum of three (3) times per day until restoration is complete. Report Type I is a report regarding customer outages and ETRs while a Report Type II is related to restoration resources.

c) *Reports to Municipal Emergency Management*

During an emergency event, LUMA shall provide reports to municipal emergency managers or their designees that contain detailed information related to emergency conditions and restoration performance for each affected city and town. Reports may be carried out in any the following ways:

- Scheduled conference calls with municipal officials, including emergency managers.
- Community Liaison communications (telephonic, electronic and/or face-to-face) with municipal officials, including emergency managers.
- Provision of emergency conditions and restoration information, including but not limited to outage and restoration information, priority wires-down locations, and critical facilities impacted by the emergency event.

For emergencies classified as Level 1 or 2 events, a Final Event Report will be completed and submitted to the LUMA Crisis Management Committee within 30 days of the completion of restoration activities. On certain occasions it may be requested to submit a Final Event Report for Level 3 events. LEOC Planning and Intelligence Chief will coordinate drafting and filing the Final Event Report.

3. *After-Action Review (Hot Wash)*

For Level 1, 2 and 3 events, LUMA's Crisis Management Office shall organize a meeting to review the details of the emergency response. The purpose of this after-action review, or hot wash, is to identify needed improvements to the ERP, procedures, facilities, or resources. To ensure a cycle of continuous improvement, individuals with responsibilities within the ERO are requested to fully participate in the hot wash evaluating performance and identifying functions and operations within the ERP that may need to be revised.

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

B. Records

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

C. Preservation of Records

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

D. Finance

LUMA's Disaster Recovery Federal Funds Procurement Guide is intended to provide a clear picture of LUMA's Federal Funds Procurement policies and procedures and will address the manner in which LUMA must conduct the selection, award, and administration of contracts funded by Federal awards.

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

However, in the case of public exigency or emergency a delay due to competitive solicitation will not be permitted. An exigency is a situation that requires or demands immediate aid or action. An emergency is an unexpected and unusually dangerous situation that calls for immediate action or an urgent need for assistance or relief. In these cases, LUMA may need to perform the procurement in a non-competitive manner.

Use of the public exigency or emergency exception is only permissible during the actual exigent or emergency circumstances. LUMA is expected to transition to a more appropriate method of contracting using full and open competition once the exigent emergency ends.

1. Crisis Procurements

Upon LUMA activating Crisis Management protocols (CM), the following steps to be taken. For clarity, unless and until CM has been activated, standard procurement processes apply.

1. CM activated and communicated organization wide.

2. CM project and tasks established by Finance.

   a) Establish a general ledger account to capture costs.
   b) Notify the organization of the newly created account to capture costs.

3. The Director, Procurement & Contracts is given Requisition Approval for the entire organization, notwithstanding existing Limits of Authority. The department's Business Continuity plan shall provide for delegation of this authority such that 24-hour coverage is maintained.

   a) Procure leveraging Federal Fund rules during the emergency period which is typically 72 hours.
   b) Ensure underlying support requirements is communicate to vendors.

4. Requisitioning in Oracle or Asset Suite to be performed internally by Procurement & Contracts:

a) Designate Procurement & Contracts staff to create requisitions based on email requests coding to the emergency project and task. The Director to approve all Requisitions with attached emails as back up.

b) Designate separate Procurement & Contracts staff to create Purchase Orders against the emergency Requisitions. Purchase Orders to follow standard PO Approvals.

5. As appropriate, Finance team members to be deployed to field sites to monitor and track supply additions and issuances.

6. Reporting on CM POs to be prepared for CM leadership, as required.

7. Upon deactivation of the CM, Procurement & Contracts to ensure appropriate single sourced justifications are in place.

XI. Advanced Planning, Training, and Exercises

A. Overview

Successful response to emergency events requires a Company-wide commitment to preparedness that is integrated into LUMA daily operations, not just during emergency events. LUMA's Emergency Management program is designed to increase disaster preparedness and response capabilities, resulting in the safe and reasonably efficient restoration of service during an emergency event. The program is based on a continuous cycle of plan development and exercising the plans and procedures to ensure they are effective, as shown in Figure 9. This continuous emergency preparedness cycle lends itself to continuous improvement.

Figure 9: LUMA's Preparedness Cycle

Emergency preparedness activities can include planning, training, and participating in exercises; attending meetings with public safety officials, The Crisis Management Office (CMO) 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 to include 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.

B. Planning

This ERP will be reviewed at least annually and revised every five (5) years. 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 Plan relevant.

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

C. Training

The CMO 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.

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 "Blue Sky" duties. LUMA will provide position specific training for personnel whose response and/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 Region and Division EOCs. ERP-related training reports are maintained by the CMO, including the type of training and training dates for each participating employee.

Skill and role-based training includes hands-on training in the associated computer-based programs utilized in their ERP assignment. Other skill-based training includes but is not limited to the emergency positions of Damage Assessment, Debris Removal, Wire Guard, Low Voltage Service Crew, and Customer Contact Center staff.

The Section Chiefs and Officers ensure that 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 blue-sky position. The meetings review the processes related to employees' primary emergency assignment, employees' completion of related training, tasks and tools associated with employees' primary emergency assignment, confirm that employees have been issued Personal Protective Equipment (PPE) required to complete their primary emergency assignment, and review of the obligation of employees to report to work when activated and that employees are aware of notification methods. Training on the ERP is conducted throughout the year and completed prior to June 1st.

D. Exercises

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

Discussion based exercises (including seminars, workshops, and tabletop exercises) are commonly used to familiarize exercise players with current plans, policies, agreements, and procedures, and to develop new plans, policies, etc.

Operations-based exercises (including drills and functional exercises) are used to validate and/ or evaluate plans, policies, procedures, and training; to clarify roles and responsibilities, and to identify resource gaps.

LUMA employs a variety of these exercise types based on the exercise goals and objectives. Discussion and operations-based exercises are conducted each year based on a schedule that is developed and approved annually by the CMO. One exercise that takes place every year simulates communication with outside agencies.

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

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

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.

E. Employee and Family Emergency Preparedness

In order to help employees and their families prepare for a prolonged outage, LUMA includes personal preparedness information and recommendations in the daily electronic newsletter LMC Corp Communications, sent to all employees.

The information and recommendations can be based on communications released by Ready.gov or by RedCross.org which provide preparedness actions and additional information that will benefit them and their families.

Strategies that will be utilized include, but are not limited to:

- Provide employees with resources to create a family emergency plan.
- Annually share information about Ready.gov's National Preparedness Month (September) along with their weekly activities to enhance preparedness at home.
- Provide hurricane-specific preparedness and response information.

- Provide employees with resources for reducing home hazards.
- Provide employees with resources on how to assemble a Disaster Kit.
- Provide employees access to the emergency alerts

XII. Plan Development and Maintenance

The LUMA ERP is a living document. As gaps become apparent, regulatory requirements change, problems emerge, or situations/environments change, this ERP will be modified to remain current and useful. Prior to April 15th of each year, all LUMA departments and functions will review their procedures, guidelines, checklists, and instructions relating to emergency response and revise them, as necessary. LUMA staff will verify all contact data included in the Plan to ensure all are current semiannually, at a minimum. This Plan and Annexes are to be submitted to 3A, PREB, PREMB, and the Office of the Governor no later than May 1st on an annual basis.

Each functional area of the ERP will review and update its database of employee and stakeholder contacts semi-annually. Elements of the review will include:

- Community Lifeline organizations and critical facilities.
- All utility personnel assigned to emergency response.
- Mutual assistance companies and contractors.
- LRS 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 to this database will be communicated to the LUMA CMO for inclusion in the next update of the ERP. In the event significant changes are made during the year, CMO will provide a timely briefing to employees.

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

A. Revisions

A revision may require development and distribution of a new version of this ERP depending on the volume edited or it is required to update to a new distribution software. The new version of the ERP should receive a new date and requires new signatures by LUMA officials.

B. Formal Plan Changes

Making formal changes to this LUMA ERP involves revising parts of the document by making specific changes to a limited number of pages. Changes are then sent to each agency or organization on the distribution list, along with a cover memorandum that details which pages are to be removed and which replacement pages need to be inserted in the document.

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

The original document date does not change and new signatures on the document do not need to be collected for formal plan changes.

XIII. Authorities and References

A. 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: Comprehensive Preparedness Guide (CPG) 101: Version 2.0 November 2010
- Disaster Relief Appropriations Act of 2013
- Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement, June 2020

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Attachment 1 – Explanation of Terms

Acronyms

AAR	After Action Report
BES	Bulk Electric System
CONT	Section Controller
CLAL	Claims Unit Leader
CMO	Crisis Management Office
COVID-19	Novel Coronavirus Disease 2019
CPG	Comprehensive Preparedness Guide
DAL	Damage Assessment Unit Leader
DML	Debris Management Unit Leader
DOCL	Documentation Unit Leader
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EOCM	Emergency Operations Center Manager
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ESF	Emergency Support Function
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
FSC	Finance Section Chief
GIS	Geographic Information System
HSEEP	Homeland Security Exercise Evaluation Program
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
IT	Information Technology
LEOC	LUMA Emergency Operations Center
LNO	Liaison Officer
LRS	Lifeline Residential Service (Customers)
LSC	Logistics Section Chief
MAA	Mutual Aid Agreement
MEDL	Medical Unit Leader
NIMS	National Incident Management System
NRF	National Response Framework
CMO	Crisis Management Office
OMS	Outage Management System
OSC	Operations Section Chief
PIO	Public Information Officer
PLNO	PREMB Liaison Officer
P3LNO	PREB and P3A Liaison Officer
POC	Person of Contact

PRASA	Puerto Rico Aqueduct and Sewer Authority
PREMB	Puerto Rico Emergency Management Bureau
PREPA	Puerto Rico Electric Power Authority
PRG	Priority Restoration Group
PROC	Procurement Unit Leader
PRPA	Puerto Rico Ports Authority
PSA	Public Service Announcement
RESL	Resources Unit Leader
RSRs	Restoration Status Reports
SCADA	Supervisory Control and Data Acquisition
SERT	System Emergency Restoration Team
SITL	Situation Unit Leader
SitRep	Situation Report
SOFR	Safety Officer
SOP	Standard Operating Procedure
SUPL	Supply Unit Leader
TCUL	Time & Cost Unit Leader
T&D	Transmission and Distribution

Terms

After Action Report (AAR) – 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 printed 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 value creating activities.

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 operational and business functions of LUMA.

Check-In – The process necessary to receive and begin accounting for incoming external resources to enable them to safely and effectively participate in emergency restoration activities.

Comprehensive Preparedness Guide (CPG) 101 – provides FEMA Guidance on fundamental planning and developing emergency operations plans (EOPs).

Community Lifelines – critical government and business functions essential to human health and safety or economic security.

Crisis Management – is 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 a Level 1, 2, or 3 facility provide services that are critical to the health and safety of the public and are tied to at least one of the five critical community lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.

Critical Infrastructure – A list of customers which the loss of electrical service would result in disruption of a critical public safety function are designated as "Critical Infrastructure". Examples include waste water 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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency – Any event, whether natural or manmade, that requires responsive action to protect life, property, and/ or operational capacity.

Emergency Event – An event where widespread outages or Service Interruptions have occurred due to storms or other causes beyond the control of LUMA. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

Emergency Response Plan (ERP) – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.

Emergency Support Functions - ESFs 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.

Geographical Information System (GIS) – A framework that is used to map the distribution system with land base information.

Homeland Security Exercise Evaluation Program (HSEEP) – 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.

Hot Wash - A facilitated discussion held immediately following an exercise or event among participants that is designed to capture feedback about issues, concerns, or proposed improvements.

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 (IC) – The individual appointed by LUMA's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Lifeline Residential Service (LRS) Customers – Also known as medical priority customers, means those customers who have provided documentation to LUMA of their medical conditions necessitating electric service.

Municipal Liaison – Means a liaison designated by LUMA to communicate with a municipality during an Emergency Event.

Mutual Assistance Agreements (MAA) – 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.

Outage Management System (OMS) – System used to identify customer outages, assign trouble crews, and record outage event statistics.

Post-Event Stage – The period immediately following restoration of service to all customers after an Emergency Event.

Pre-Event Stage – The period of time between when LUMA first identifies an impending Emergency Event and when the Emergency Event first causes damage to the system resulting in Service Interruptions.

Risk Analysis – the first step and process of identifying and analyzing defining characteristics and potential issues that may negatively impact organizations.

Risk Assessment – process of identifying the risk analysis and making judgements of potential events that may impact the organization.

Supervisory Control and Data Acquisition (SCADA) – 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.

System Level ERO – Multi-regional Emergency Response Organization.

Attachment 2 – LEOC Position Listing

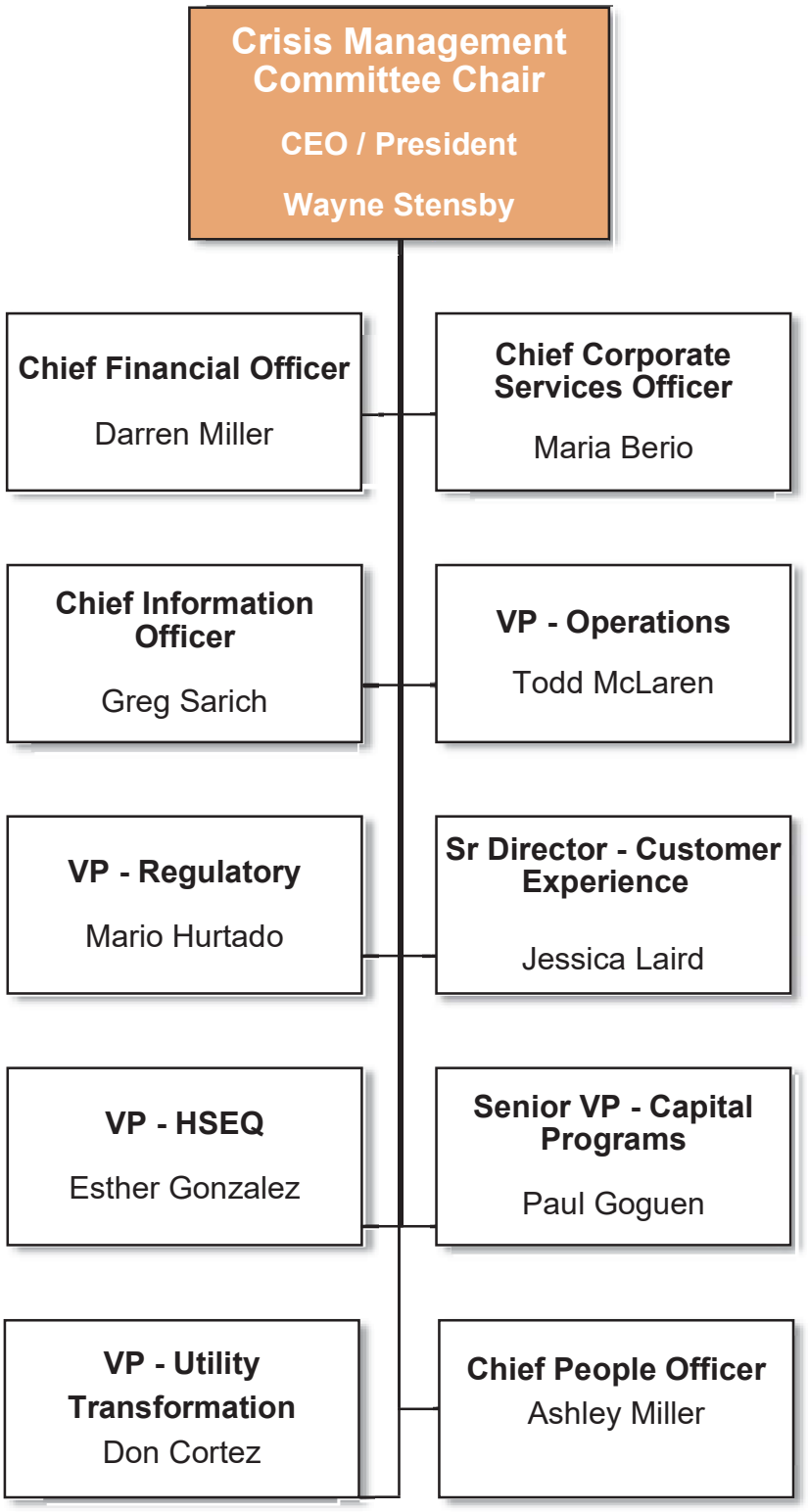
EOC Section	Position Title
Crisis Management Committee	Crisis Management Committee Chair (CEO/President)
Crisis Management Committee	Chief Corporate Services Officer
Crisis Management Committee	Chief Financial Officer
Crisis Management Committee	Chief Information Officer
Crisis Management Committee	Chief People Officer
Crisis Management Committee	Senior Director – Customer Experience
Crisis Management Committee	Senior VP – Capital Programs
Crisis Management Committee	VP – HSEQ
Crisis Management Committee	VP – Operations
Crisis Management Committee	VP – Regulatory
Crisis Management Committee	VP – Utility Transformation
Crisis Management Committee	Crisis Management Leader
Command	Incident Commander (IC)
Command	Deputy IC
Command	Emergency Management Officer
Command	Liaison Officer (LNO)
Command	PREMB Liaison Officer (PLNO)
Command	PREB and P3A Liaison Officer (P3LNO)
Command	Generation Liaison Officer
Command	PREPA Liaison Officer
Command	Public Information Officer (PIO)
Command	Digital Communications Specialist
Command	Customer Relations Specialist
Command	Employee Communications Specialist
Command	Customer Experience Specialist
Command	EOC Manager
Command	Safety Officer (SOFR)
Command	Section Controller (CONT)
Operations	Operations Section Chief (OSC)
Operations	Deputy Operations Section Chief
Operations	Damage Assessment Unit Leader (DAL)
Operations	Debris Management Unit Leader (DML)
Operations	Medical Unit Leader (MEDL)

Operations	West Division Branch Director
Operations	East Division Branch Director
Operations	T&D System Operations Branch Director
Operations	Aviation Safety Officer
Operations	Site Safety Branch Director
Operations	Priority Restoration Group (PRG) Branch Director
Operations	Section Controller (CONT)
Logistics	Logistics Section Chief (LSC)
Logistics	Deputy Logistics Section Chief
Logistics	Supply Unit Leader (SUPL)
Logistics	Resources Unit Leader (RESL)
Logistics	Mutual Aid Unit Leader (MAA)
Logistics	Information Technology Unit Leader (IT)
Logistics	Transportation/Fleet Unit Leader (TRUL)
Logistics	Food/Lodging Unit Leader (FLUL)
Logistics	Facilities Unit Leader (FACL)
Logistics	Donations/Volunteer Management Unit Leader (DVML)
Logistics	Corporate Security Unit Leader (CSL)
Logistics	Section Controller (CONT)
Planning and Intelligence	Planning and Intelligence Section Chief (PSC)
Planning and Intelligence	Deputy Planning and Intelligence Section Chief
Planning and Intelligence	GIS Unit (GIS)
Planning and Intelligence	Documentation Unit Leader (DOCL)
Planning and Intelligence	Situation Unit Leader (SITL)
Planning and Intelligence	ETR Specialist
Planning and Intelligence	Regulatory Reporting Specialist
Planning and Intelligence	OMS Reporting Specialist
Planning and Intelligence	Contact Center Specialist
Planning and Intelligence	Situation Unit Staff
Planning and Intelligence	Check-In Staff
Planning and Intelligence	Section Controller (CONT)
Finance	Finance Section Chief (FSC)
Finance	Deputy Finance Chief
Finance	Time & Cost Unit Leader (TCUL)
Finance	Procurement Unit Leader (PROC)
Finance	Claims Unit Leader (CLAL)

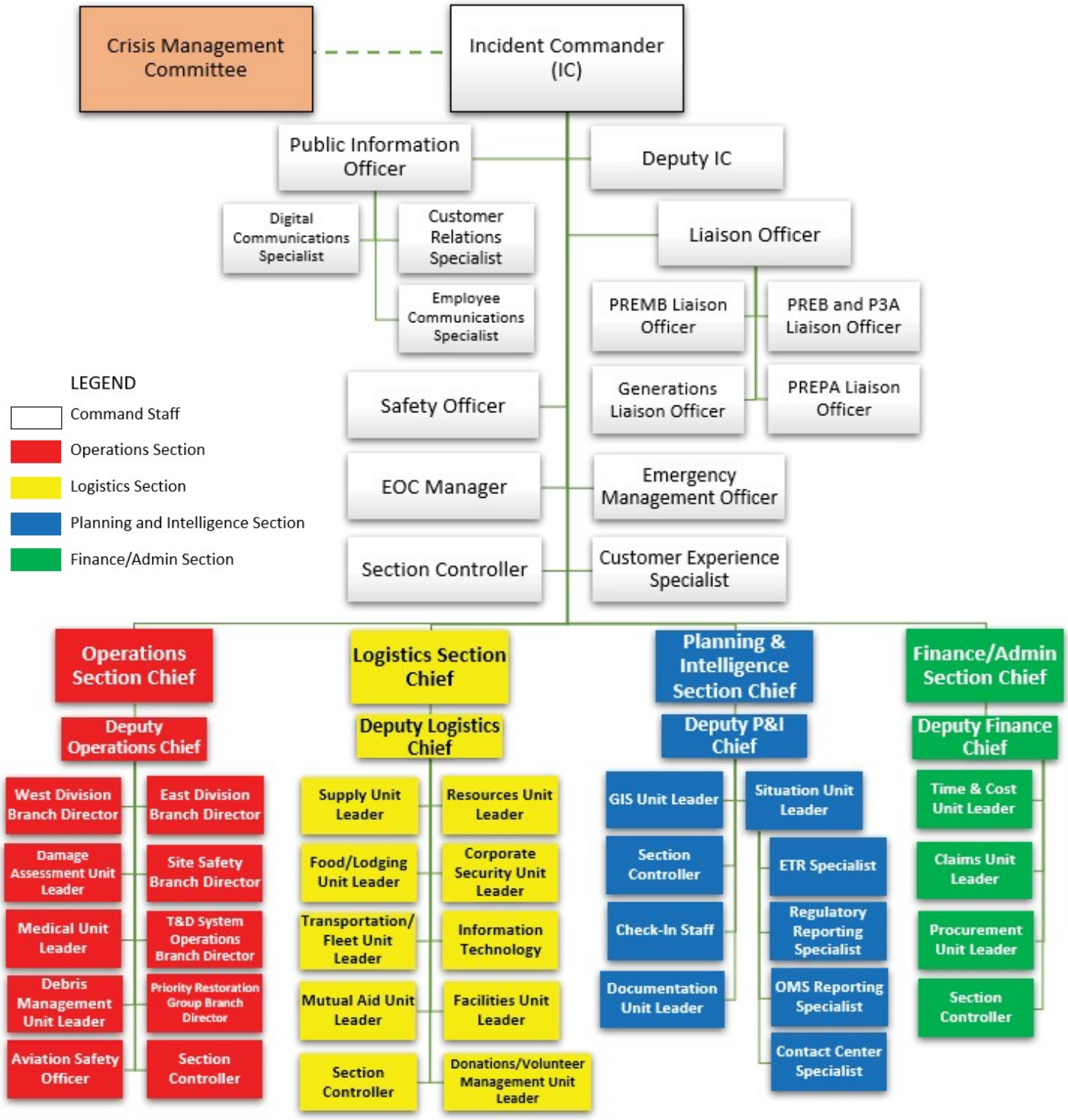
Finance	Section Controller (CONT)

Appendix A – LUMA ICS Structure

Crisis Management Committee Structure

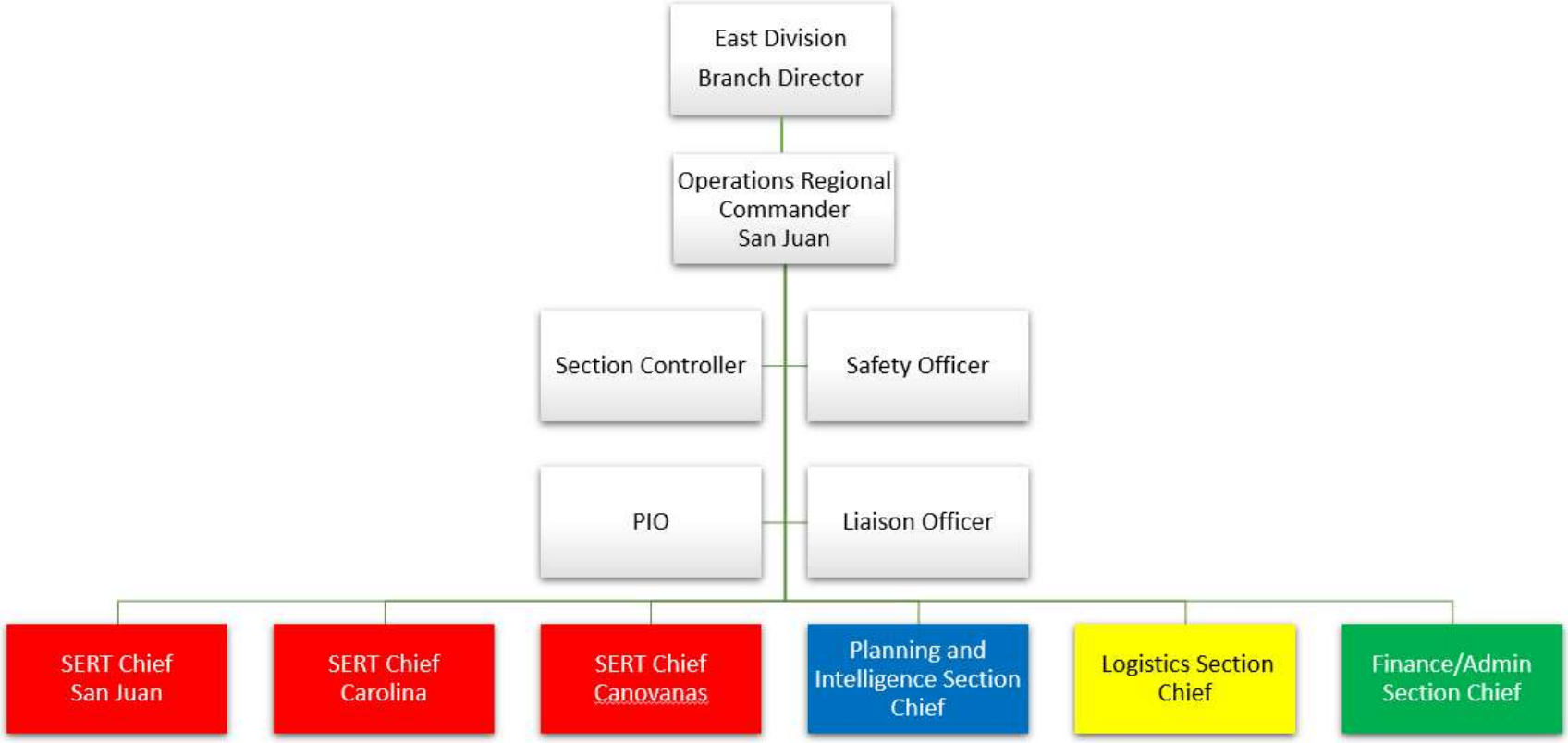


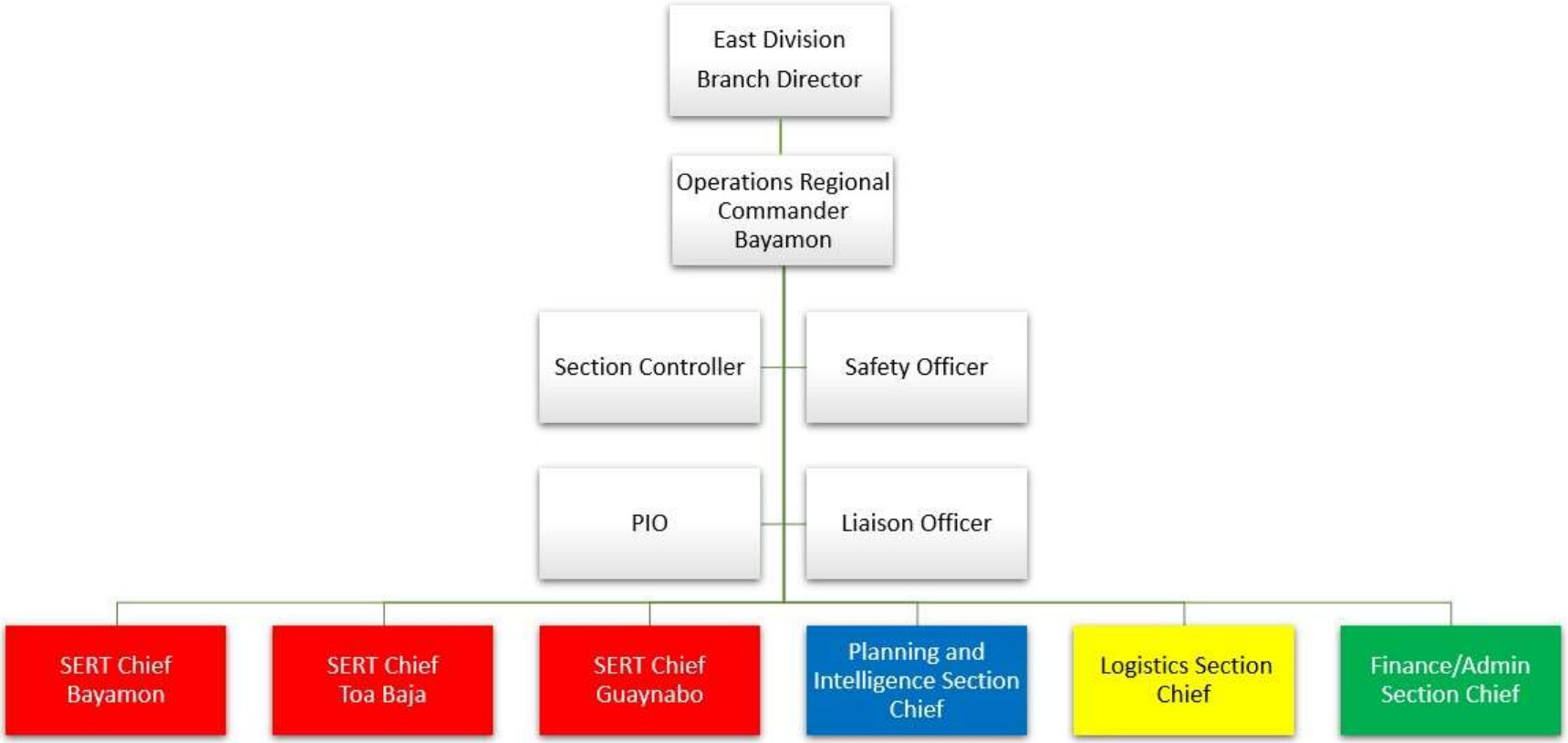
LEOC Structure

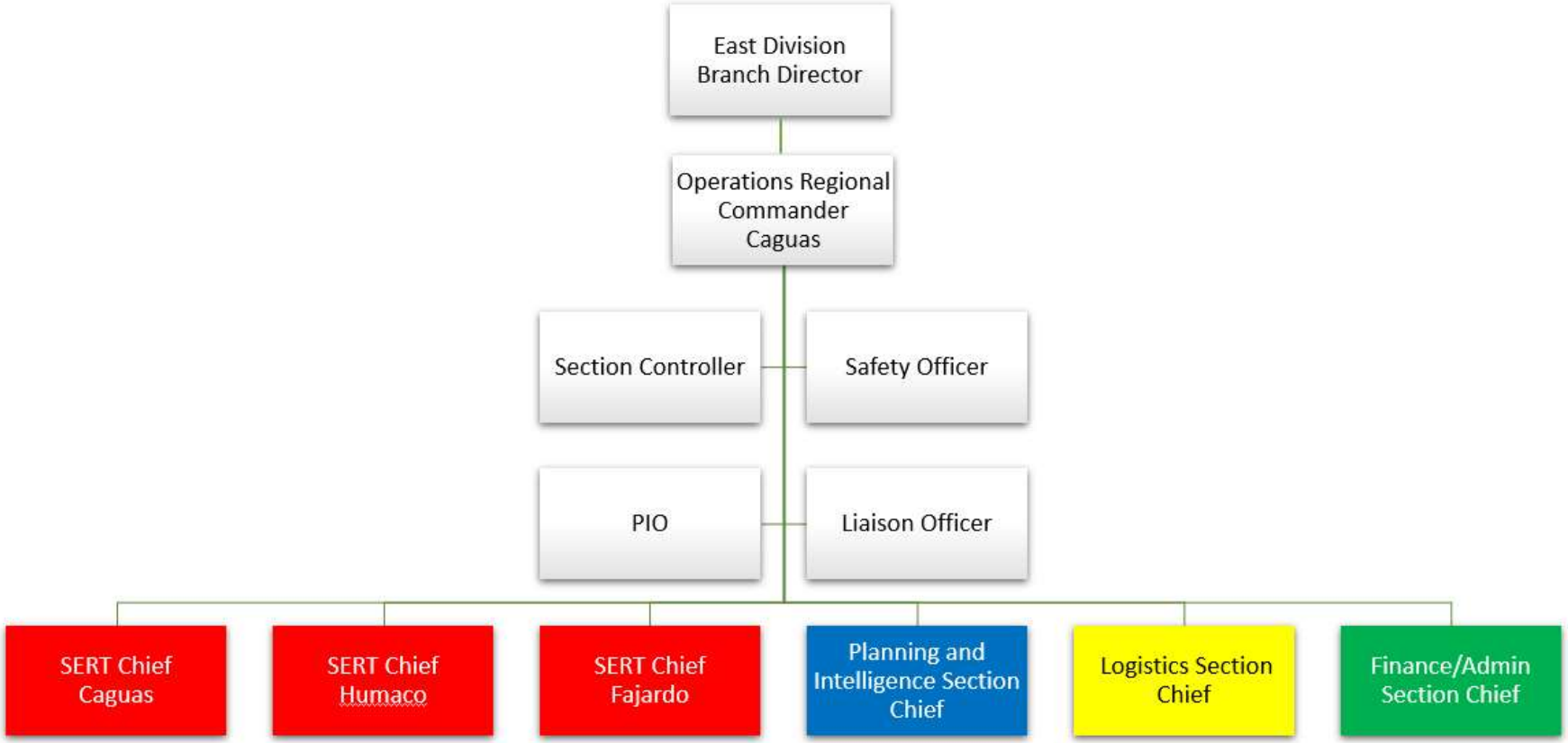


LUMA East Division Structure

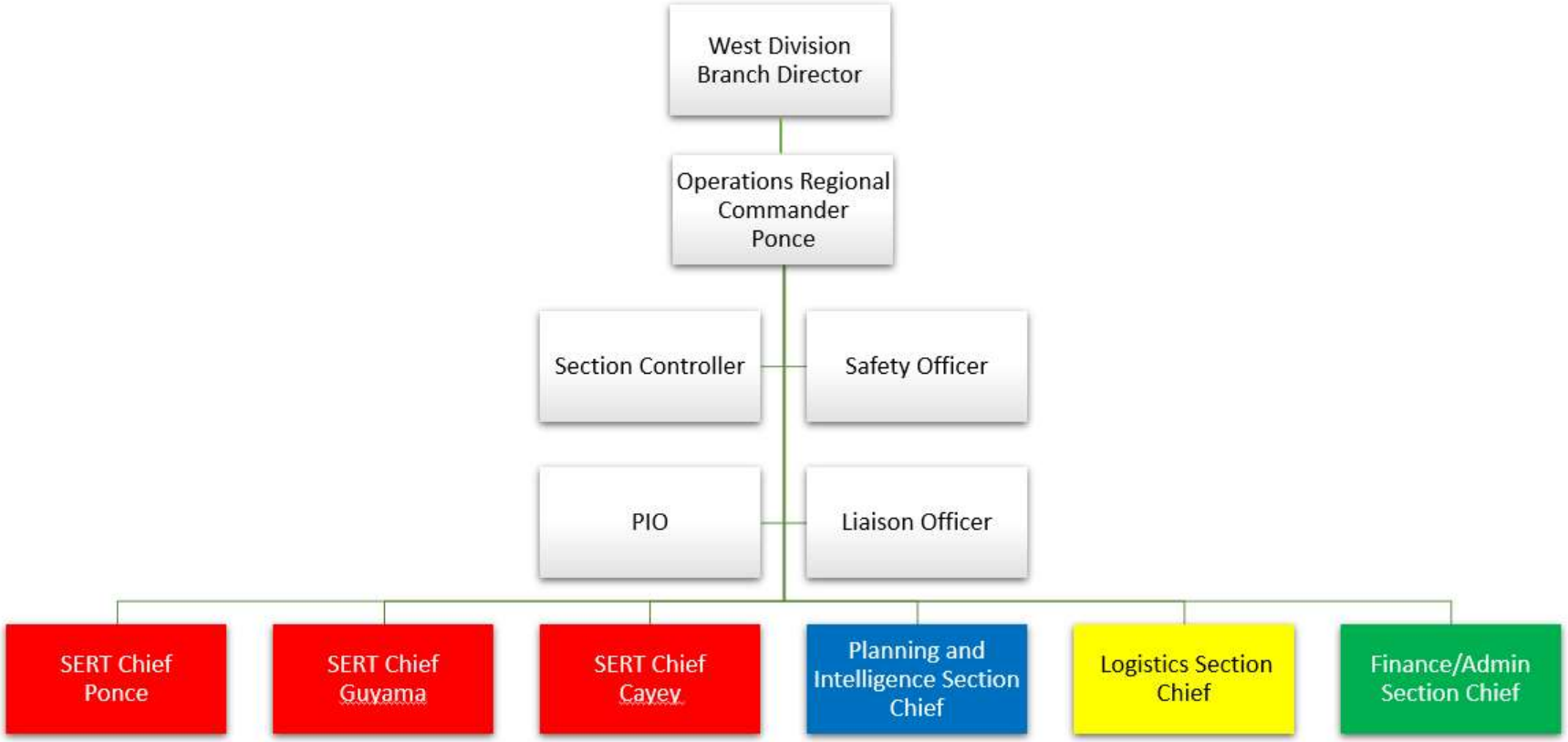
East Division Regional Structures




East Division
Branch Director
Operations Regional Commander Bayamon
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Bayamon
SERT Chief Toa Baja
SERT Chief Guaynabo
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief


East Division Branch Director
Operations Regional Commander Caguas
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Caguas
SERT Chief Humaco
SERT Chief Fajardo
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

West Division Regional Structures




West Division
Branch Director
Operations Regional Commander Mayaguez
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Mayaguez
SERT Chief Aguadilla
SERT Chief Yauco
SERT Chief San Sebastion
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief


West Division Branch Director
Operations Regional Commander Arecibo
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Arecibo
SERT Chief Manati
SERT Chief Barranquitas
SERT Chief Utuado
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

Appendix B – Event Classification and LEOC Activation Level

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Restoration Stage Report Type I

A Restoration Stage Report Type I will be submitted three times per day until restoration is complete. Times are to be set by the Incident Commander.

Event Information				
Event:				
Date/Time:				
Submitted by: **Name:**		**Position:**		
Region/ Municipality	**Total LUMA Customers**	**Total Customers Out**	**Outage %**	**Estimated Times of Restoration (ETR)**
Arecibo	**193906**	---		
Adjuntas	7529	---		
Arecibo	44035	---		
Barceloneta	10935	---		
Camuy	14778	---		
Cisles	7386	---		
Florida	4918	---		
Hatillo	17306	---		
Jayuya	6213	---		
Manati	20125	---		
Morovis	11278	---		
Utuado	13092	---		
Vega Alta	15213	---		
Vega Baja	21098	---		
Bayamon	**250505**	---		
Bayamon	77582	---		
Catano	9281	---		
Corozal	12775	---		
Dorado	16365	---		
Guaynabo	74016	---		
Naranjito	6885	---		
Toa Alta	24739	---		
Toa Baja	28862	---		
Caguas	**280318**	---		
Aguas Buenas	9695	---		
Aibonito	10281	---		
Barranquiles	10415	---		
Caguas	58196	---		
Cayey	17944	---		
Ceiba	5408	---		
Cidra	15741	---		
Comerio	6915	---		
Culebra	1329	---		
Fajardo	14434	---		
Gurabo	16303	---		
Humacao	25784	---		

Juncos	15432	---		
Las Piedras	14223	---		
Luquillo	7755	---		
Naguabo	10565	---		
Orocovis	7186	---		
San Lorenzo	15210	---		
Vieques	4628	---		
Yabucoa	12874	---		
Mayaguez	**235401**	---		
Aguada	16180	---		
Aguadilla	22886	---		
Anasco	11017	---		
Cabo Rojo	22355	---		
Isabela	21089	---		
Lajas	10012	---		
Lares	10066	---		
Las Marias	3146	---		
Maricao	1601	---		
Mayaguez	38969	---		
Moca	15154	---		
Quebradillas	10876	---		
Rincon	7823	---		
Sabana Grande	9251	---		
San German	12731	---		
San Sebastian	15647	---		
Ponce	**233641**	---		
Arroyo	9134	---		
Coamo	17133	---		
Guanica	9653	---		
Guayama	20963	---		
Guayanilla	9031	---		
Juana Diaz	20784	---		
Maunabo	5721	---		
Patillas	9681	---		
Penuelas	9482	---		
Ponce	68703	---		
Salinas	14794	---		
Santa Isabel	10367	---		
Villaba	9414	---		
Yauco	18781	---		
San Juan	**302579**	---		
Canovanas	11958	---		
Carolina	69136	---		
Loiza	4973	---		
Rio Grande	16739	---		
San Juan	175283	---		
Trujillo Alto	24490	---		
Total	**298,6102**	---		

Signature:_____ ***Date***: _____

Restoration Stage Report Type II

A Restoration Stage Report Type II will be submitted three times per day until restoration is complete.

Resource Readiness							
Crew Type	**Number Requested**	**Number in Service**	**Number Out of Service**	**Number in Rehab**	**Mutual Aid Requested**	**Federal Aid Requested**	**ETA for Requested Resources**
Internal Line							
External Line							
Debris Removal							
Damage Assessment							
SERT							
Support							
Staging							

Notes:

Weather Forecast (detailed):

Submitted by:

Name:_____ Position: _____

Signature:_____ Date/Time: _____

Pre-Event Stage Report

For known possible Emergency Events, a Pre-Event Stage Report will be submitted twice daily, and if the event type changes or as requested.

LUMA Pre-Event Stage Report		
1	**Date and Time of Report**	
2	**Weather Forecast & Monitoring**	
3	**Planned Event Conference Calls** (date/time)	
4	**Pre-event Communications with Public, Municipal Contacts & Elected Officials** (describe communication methods)	
5	**Pre-event Notifications with PREB, P3A, PREMB, Critical Facilities & Lifeline Residential Services** (describing communication methods)	
6	**Expected Event Classification Type and Changes to Event Classification Type** (and all facts considered in determination)	
7	**Likelihood of LUMA Emergency Operations Center (LEOC) Activation** (date/time LEOC opens) **and Activation Level**	
8	**Forecasted Percentage of Customer Outages**	

9	**LUMA Resource Readiness** (indicate actions taken and type/quantities)	
10	**Forecasted Number and Type of Total Resources Required** (number of crews and full-time equivalents)	
11	**Number of External Resources Secured** (by type and including the number of crews and fulltime equivalents)	
12	**Estimated Duration of Restoration Operations**	
13	**Problems Anticipated / Encountered for Event**	
14	**Any Other Pertinent Information:**	

Signature: _____ ***Date & Time:*** _____

The following information will be included in LUMA's After Action Report (AAR) for Event Types 3, 2, and 1. This information will be made available within 30 days of the deactivation of the LUMA Emergency Operations Center (LEOC) for the specific event.

Event Restoration Duration Summary

1	**Company Name**	
2	**Year**	
3	**Event Name** (if any)	
4	**Date/Time Event Start**	
5	**Date/Time Event End**	
6	**Event Duration** (in hours)	
7	**Total Customers Served**	
8	**Total Customers Affected**	
9	**% of Customers Affected** (relative to total customers)	
10	**Highest Peak # of Customers Affected**	
11	**Date and Time When Highest Peak of # of Customers Affected Occurred**	
12	**Total Customers Outage Hours**	
13	**Duration from Highest Peak to 95% Restored** (in hours)	
14	**CAIDI Highest Peak to 95% Restored** (in hours)	
15	**Duration from Highest Peak to 98% Restored** (in hours)	
16	**CAIDI Highest Peak to 98% Restored** (in hours)	
17	**Event CAIDI** (in hours)	

CAIDI: Customer Average Interruption Duration Index

Priority Wires Down Summary

1	**Company Name**	
2	**Event Name** (if any)	
3	**Location** (City/Town Name)	
4	**Priority Level**	
5	**Date and Time Call Received**	
6	**Date and Time First Company Resource Arrives on Scene**	
7	**Time Between Call Received and First Company Resource Arrived on the Scene** (in hours)	
8	**Date and Time of Repair**	

1. Narrative Description

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

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

2. Event Description

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

resource type.

3. Weather
    - Actual weather experienced
    - A narrative description of LUMA's evaluation of weather forecasts before and during the event and copies of all supporting weather reports
    - Maximum winds experienced
    - Duration of inclement weather
    - Type and amount of precipitation, including, but not limited to average amount of precipitation in service territory, and maximum amount of precipitation in service territory
4. Event Classification
    - List and discuss all factors used to derive event classification types before, during, and after the event
    - Describe any event classification type changes before, during, and after the event, and explain all factors supporting the change in classification
5. Equipment Damage
    - Number of transmission lines affected
    - List of transmission lines that became inoperative
    - List of substations affected
    - Number of distribution feeders affected
    - Number of distribution feeders locked out
    - Number of broken poles replaced – indicate location, size, and age of damaged poles
    - Number of feet of primary and secondary conductor replaced – indicate type and size
    - Number of feet of follow-up reconductoring remaining – indicate type and size
    - Number of damaged transformers – indicate size, type, and age of damaged transformers
        - Availability of replacement transformers
    - Repairs made
    - Estimate for repairs
    - Switching necessary to re-route power with adequate sectionalizing points
6. Trouble Order System
    - Number of trouble orders
    - Identify and describe any problems encountered on the LUMA's system
        - Was there sufficient manpower available to operate the system
    - If de-centralization occurred, identify and describe any problems encountered after

decentralization

7. Wires-Down Operations
    - Total number of Priority wires-down calls by priority level
    - For each day of the event and restoration period include:
        - outstanding priority wires-down calls by priority level
        - completed priority wires-down calls by priority level – provide in an active Excel spreadsheet;
    - A summary of priority wires-down response – provide in an active Excel spreadsheet
    - Number of non-priority wires-down calls
8. Crew Supplements
    - For all crew counts, please include both the number of crews and full-time equivalents
    - Total number of LUMA crews
    - Number and type of crews from outside LUMA
    - Total number of wires-down assessors
    - Total number of damage assessors
    - For each day of the Pre-event and Service Restoration Stage, total number of crews per day, by type (e.g., line crew, tree crew, wires-down crew, transmission crew, damage assessor)
    - For each day of the Pre-event and Service Restoration Stage, number of crews deployed, by type, to each district
    - For each day of the Pre-event and Service Restoration period, number of wires-down assessors and damage assessors used
9. Food and Lodging

    Summary of food and lodging related activities, including lessons learned
10. Helicopter
    - Were helicopters available?
        - How were the helicopters used?
11. Communication
    - Narrative description of Pre-event Stage, Service Restoration Stage, and Post-event Stage communication with:
        - public officials
        - the public
        - Lifeline Residential Service (LRS) Customers
    - Narrative description of Pre-event Stage, Service Restoration Stage, and Post-event Stage internal communication

- Identify all methods used for communication with the public, including a narrative description, the dates and frequency or use
- Narrative description of Municipal Liaison process during Pre-event Stage, Service Restoration Stage and Post-event Stage
- Number and locations of Municipal Liaisons

Signature: _____ ***Date & Time:*** _____

Emergency Response Plan

Annex A
Major Outage Restoration

LUMA ENERGY, LLC

CRISIS MANAGEMENT OFFICE

MaZ 10, 2021

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Crisis Management Office
LUMA Energy, LLC

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Approval and Implementation

LUMA Energy Emergency Response Plan

Annex A – Major Outage Restoration

[redacted]

May 23, 2021
Date

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I. Purpose

The purpose of LUMA's Major Outage Restoration Annex (the "Annex" or "Annex A") is to establish an operational and tactical comprehensive framework for responding to major outage restoration events. This Annex will assist the Emergency Operations Team to carry 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 the guidance for how LUMA responses 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 Companywide.

A. NIMS and the Incident Command System

LUMA has adopted the National Incident Management System (NIMS), a consistent, nationwide framework and approach that enables government at all levels (federal, state, local, tribal), the private sector and non-governmental organizations to work together to prepare for, respond to, and recover from the effects of incidents, regardless of cause, size, or complexity.

LUMA incorporates the use of Incident Command System (ICS) principles which provides a consistent, all hazards incident management methodology that allows LUMA's organization to integrate seamlessly into a nationally standardized response and recovery structure.

II. Scope

This Emergency Response Plan (ERP) Restoration Annex applies to emergency events caused by any hazard or threat that results in, or could result in, a major potential impact to the integrity of LUMA's Transmission and Distribution (T&D) system and/or a disruption of electrical service to LUMA customers. Additionally, the ERP applies to LUMA personnel and to any staff of LUMA Energy, affiliate company employees, contractors and mutual aid resources, or any other personnel working at the direction or under the authority of LUMA Energy.

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

LUMA's Emergency Operational Boundaries (shown in Figure 1) are split geographically into the West Division and East Division. There are three Regions within each Division and twenty SERT Boundaries which are made up of 78 municipalities.

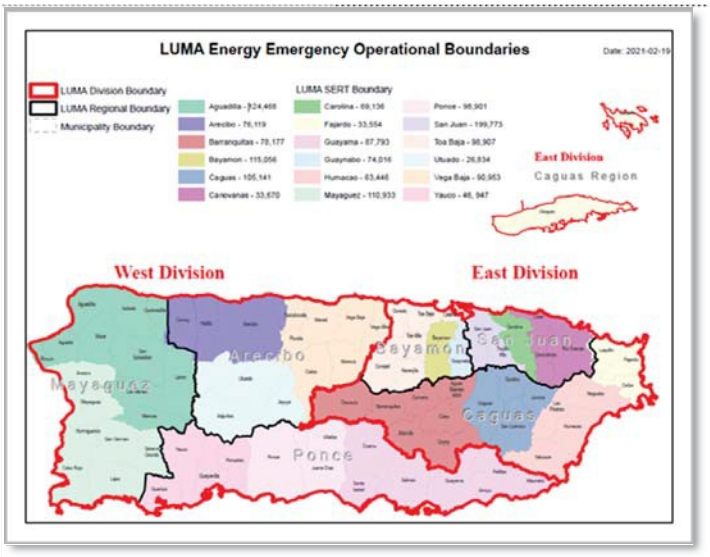


Figure 1: LUMA's Operational Boundaries

A. Guiding Principles

The guiding principles within this Annex are primary mechanisms to coordinate LUMAs preparedness, response and recovery actions when faced with any type of minor or major emergency event.

- LUMA will treat all customers, LUMA personnel and contract personnel with consideration and respect.
- LUMA will assess damage and relay information promptly. A high-level Company damage assessment will be provided within a reasonable timeline depending on the level of damage. Restoration estimates will be provided as each affected geographic area is assessed.
- LUMA follows all safety protocols creating the ability to respond to sites that pose a risk to public safety (such as downed energized conductors) with the highest priority.
- LUMA maintains environmental stewardship by complying with all environmental work practices and regulations.

III. Situation and Assumptions

A. 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, and is home to the capital, San Juan.

The effectiveness of this Annex is based on LUMA's commitment to prepare and implement procedures outlined within this Annex and the ERP – Base Plan. The development of an After-Action Report (AAR) will further enable ongoing improvement in LUMA's response and restoration processes. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected, and the magnitude of a major outage event vary, but the operational concept stays consistent. The level of recovery resources can be adjusted as needed.

LUMA will be taking an aggressive approach to harden the T&D electrical system across Puerto Rico, in order to withstand major weather events. Because of this, 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 to the location of the generation, LUMA will focus the hardening on key transmission lines to distribute energy to key load centers, critical system substation rebuilding will also be another area focus.

LUMA is committed to applying NME (Necessary Maintenance Expense) and FEMA funds to take the actions necessary to improve System Resilience through Storm Hardening, thus reducing the size and frequency of service interruptions even during Major Events. This involves a multi-faceted approach, including:

- Hardening key Transmission Lines that distribute energy to key load centers.

- Hardening the Feeder Backbone (alternatively referred to as the mainline or main gut, normally the three-phase part of the circuit that runs unfused from the substation to the normally open ties to other circuits or to 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 of Lightning Arrestors.
  - Performing physical inspections, identifying and categorizing deficiencies, and performing corrective maintenance on those deemed as requiring urgent or emergency action.
- Rebuilding of critical substations (particularly those susceptible to flooding), and
- Addressing the damaged or partially restored infrastructure caused by Hurricane Maria and recent seismic events.

This two-pronged approach will, over time, result in continued and sustainable improvement in restoration performance, while simultaneously reducing the number of customers experiencing outages during these major events.

B. Assumptions and Considerations

The ERP - Base Plan, Section III, identifies the overall assumptions and considerations. Identified within this Annex are in addition to, but not be 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, leaving the site safe until permanent repairs can be completed.
- Any delayed repairs are scheduled and completed in a timely manner.
- Assessments and the scheduling of needed repairs are conducted prior to discharging restoration crew resources.
- Mutual Aid Agreements or Memorandum of Agreements are maintained and activated when the scope of the incident will require additional resources beyond LUMA's capabilities.
- Facilitate coordinated response efforts and share information prior to and during the event to assist in establishing a common operating picture and efficient response.

IV. 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. LUMA has nine (9) EOCs; one LEOC, two Division EOCs, and six Regional EOCs. Organizational charts indicating lines of authority and the interrelation between organizational groups are included are included in Appendix A.

A. LUMA Leadership

Prior to, and during major storm events, LUMA's senior leadership will maintain an on-going and 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 and provides a platform to facilitate discussions regarding the potential sharing of personnel resources and other support functions between entities.

This coordinated approach is also important to the overall restoration response from a communications perspective, as it provides the mechanism for consistent messaging to employees, customers, and other external stakeholders. With the threat of a major storm or other system emergency, LUMA's leadership team and the Crisis Management Office (CMO) will activate all applicable functional areas (i.e., Operations, Planning, Communications, Logistics, etc.) to discuss and strategize a response to an event.

B. Emergency Response Organization

Figure 2 provides an overview of LUMA's Emergency Response Organization (ERO) and General Staff structure utilized during restoration activities. LUMA's organizational structure during outage restoration can be found in Appendix A to Annex A. Please refer to LUMA's ERP – Base Plan for a list of roles and responsibilities.

C. Employee Staffing Roster

LUMA maintains an employee contact sheet for all roles detailed within the Incident Command System (ICS) Restoration Roles and Responsibilities in Table 1. LUMA will continue to update the list annually or when required, due to personnel changes and/or updates. The full supplemental contact sheet can be found within Attachment 2 upon request.

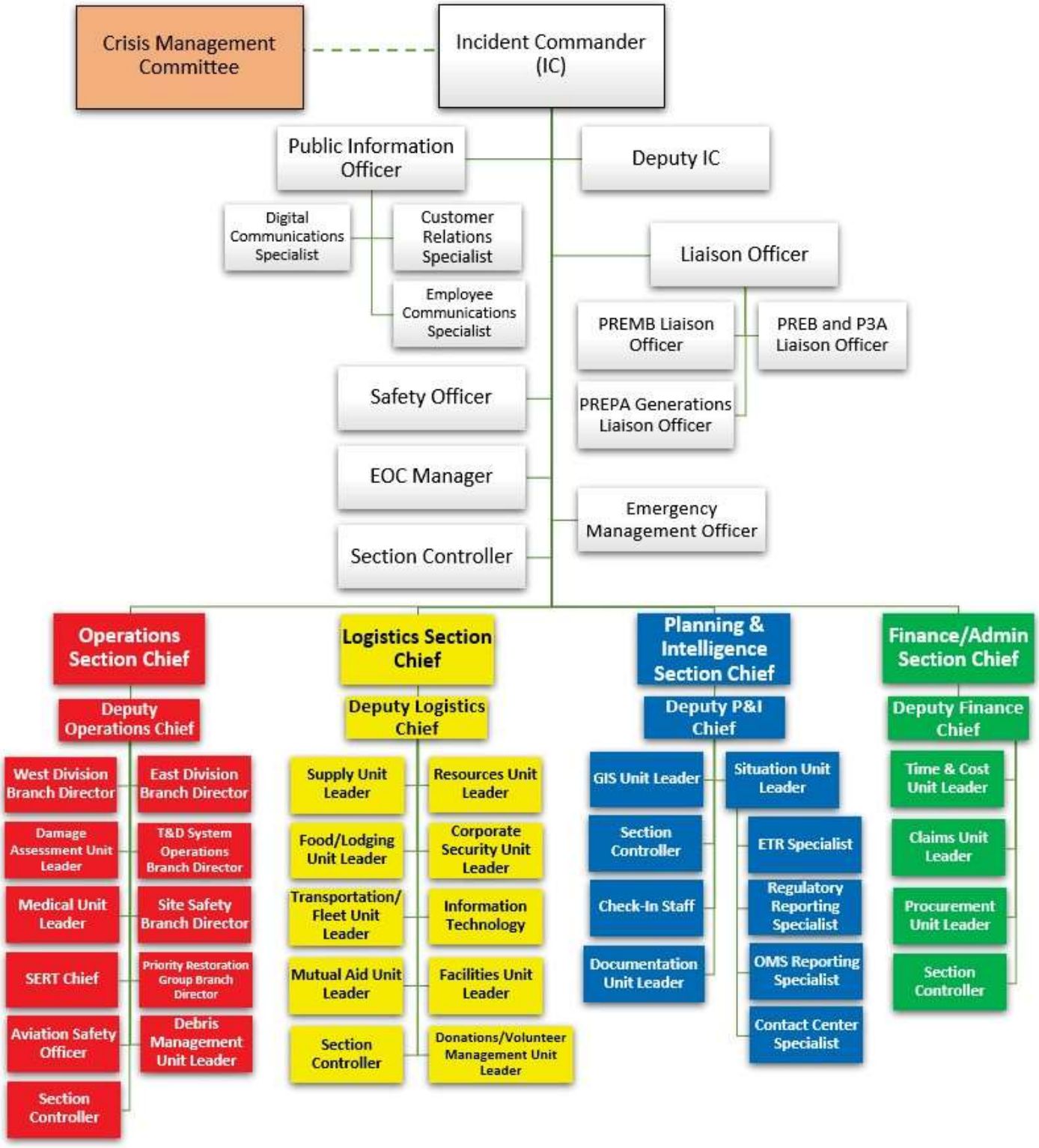


Figure 2: LUMA's Emergency Response Organization

V. Roles and Responsibilities

Table 1 details the key leadership roles during restoration operations and delineates significant corresponding function(s) that are coordinated in the respective areas

A. EOC Actions by Position

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Incident Commander (IC)	1. Once notified of a pending emergency event, begin an Activity Log to document actions and decisions throughout the event. 2. Review all related policies, procedures, forms and templates used during an event to ensure accuracy. 3. Initiate activities for appropriate resource acquisition and internal mobilization. 4. Initiate Pre-Event notifications and reports to regulatory, municipal and elected officials, when applicable (for Event Levels 1-3).	1. Ensure public safety maintains highest priority during restoration efforts and oversee restoration activities at the LEOC including resource acquirement and release, and demobilization. 2. Review and approve the IAP for the next operational period and continually reassess restoration response and objectives to ensure it addresses event escalation issues. 3. Establish a communication process and protocol to transfer restoration information to customers, regulators, and employees in a timely manner. 4. Using the information obtained from the different functions, determine if you need to alter response objectives/priorities and communicate any changes to the IC organization.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.
Operations Section Chief (OSC)	1. Ensure the staffing rosters for the Operations Section positions are up to date and ready to be used. 2. Following activation of the Incident Management Team, activate the appropriate Operations Section personnel, as needed. 3. Verify with the Branch Directors that all Operations positions are sufficiently staffed and that arrangements are made for 24-hour coverage.	1. Obtain a preliminary assessment of the number of customers affected and assist in development of restoration plans. 2. Oversees the conversion of the IAP's strategic goals into executable tactical plans that implement LUMA's restoration priorities. 3. Monitors the overall effectiveness of the field restoration activities to accomplish the stated IAP goals. 4. Ensure the Planning and Logistics Sections are aware of the operational resource requirements and are requesting and obtaining the necessary additional resources. 5. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
West Division Branch Director	1. Ensure the staffing rosters for the Branch Director's staff positions are up to date and ready to be used for their respective EOC. 2. Brief their respective EOC and staff on the impending threat and level of response. 3. Initiate activities for appropriate resource acquisition and internal mobilization.	1. Notify the Operations Section Chief if additional operational resources are needed. 2. Ensure safety procedures and protocols are being followed. 3. Ensure crew movements are communicated with Planning and Logistics Sections. 4. Maintain an awareness of the number of customers affected. 5. Notify the Operations Section Chief when it is known the restoration crews are being ready to be demobilized and redeployed, if necessary. 6. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.
East Division Branch Director	1. Ensure the staffing rosters for the Branch Director's staff positions are up to date and ready to be used. 2. Brief the EOC and SERT staff on the impending threat and level of response. 3. Initiate activities for appropriate resource acquisition and internal mobilization.	1. Notify the Operations Section Chief if additional operational resources are needed. 2. Ensure safety procedures and protocols are being followed. 3. Ensure crew movements are communicated with Planning and Logistics Sections. 4. Maintain an awareness of the number of customers affected. 5. Notify the Operations Section Chief when it is known the restoration crews are being ready to be demobilized and redeployed, if necessary. 6. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
T&D System Operations Branch Director	1. Assess generation status. 2. Asses T&D System status. 3. Evaluate Black Start Procedures 4. Ensure all T&D redundant systems are in functional operating condition. 5. Prepare staffing plan, schedules, and briefing for control centers as dictated for the event classification and LEOC activation level. 6. Ensure equipment is set up for the T&D System Operations ICS organization.	1. Control what comes on or off the system from a Generation, substation and line perspective. 2. Direct all operational requests and requirements to field personnel. 3. Isolate the grid as necessary during system constraints or lack of capacity 4. Provide field resourcing needs to planning and intelligence teams. 5. Provide IC and LEOC awareness of overall system capacity loading, issues and priorities for the planning periods. 6. Provide restoration priorities from a system perspective to the OSC. 7. Provide ETRs as system conditions and status changes.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.
Operations Regional Commander	1. As directed, notify SERTs and other personnel of the impending threat and level of response required. 2. Prepare staffing plan and schedules for respective Regional EOC as dictated for the duration level in the response matrix and approved by the Director. 3. Ensures equipment is set up in respective Regional EOC and operational, shift schedules for all SERT resources are developed and the process is operating efficiently.	1. Manages the overall readiness and operation of the assigned SERTs, including coordination. 2. Responsible for ensuring that all communications and restoration processes are being implemented as consistent with the ERP. 3. Ensures equipment is set up and operational, shift schedules for all SERT resources are developed and the process is operating efficiently. 4. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Priority Restoration Group (PRG) Branch Director	1. Schedule crews according to predetermined shifts. 2. Communicate with the OSC any staffing or restoration-related issues.	1. Disseminate dispatch instructions to crews. 2. Maintain communications with an assigned contact in the LEOC to address unique or emergency situations. 3. Conduct close-out of OMS tickets with crews to receive reports on the nature of the work completed regardless of manner of dispatch. 4. Conduct follow-up phone calls and/or emails when work is completed including notification to the Customer Experience Team as needed, Community Affairs, Regional and Municipal agencies. 5. Ensure adherence to the restoration priorities with all actions.	1. Participate in post-emergency reviews to identify lessons learned, as instructed. 2. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.
Area System Emergency Restoration Team (SERT) Chief	1. Ensure safety protocols and procedures are utilized. 2. Obtain briefing and assigned prioritized objectives from the Operations Regional Commander.	1. Ensure safety protocols and procedures are utilized. 2. Brief team on assigned incident objectives and communications expectations. 3. Communicate accomplishments, challenges, objective status and resourcing requirements. 4. Dispatch safety, damage assessment, priority restoration team and restoration crews. 5. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Planning and Intelligence Section Chief (PSC)	1. Participate in System-wide coordination conference calls and present any planning-related issues. 2. Organize, assign and brief your Planning team. 3. Aid the IC in determining the necessary amounts and types of resources needed for the anticipated event (make formal resource requests to the LSC once approved by the IC). 4. Communicate with the IC any staffing or planning-related issues.	1. Begin maintaining a detailed PSC activity log. 2. Manage and administer the overall effort of collecting, processing, and reporting emergency service restoration information for the event. 3. Compile, analyze and evaluate damage assessment and all other available trouble data to project an estimated number of resources, skills, and equipment required (and alter initial plans if required). 4. Make additional requests for crew resources, materials, and other needs through the LSC.	1. Ensure a proper demobilization of all planning restoration activities once notified. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Logistics Section Chief (LSC)	1. Ensure outreach to contractors, local vendors, and property owners on availability for resources. 2. Acquire outside resources including line, tree, damage assessment and support prior to a known event, as instructed by the IC and ensure the information is sent to the Regional Logistics Team(s). 3. Ensure stockrooms and equipment are adequately stocked to respond and prepare and pre-stage critical materials including storm kits when necessary. 4. Validate material stock levels against the damage predictive model and event classification 5. Establish contact with the Regional Logistics groups to ensure logistical processes and protocols are clear and there is no redundancy of efforts. Ensure responsibilities and hand-off of information for each group are understood and schedule periodic conference calls.	1. Receive and fulfill resource requests as received by the PSC (once approved by the IC) and ensure all responding resources have adequate lodging, meals, materials, and transportation, as needed. 2. Review current IAP for proposed tactics and track incident expansion/contraction due to restoration progress and changes in conditions. 3. Ensure that all personnel and equipment time records are complete and submitted to the Finance unit under the Administration Section at the end of each operational period.	1. Upon notification by the IC ensure a proper demobilization of the Logistics unit and all logistical-related activities. 2. Consider demobilization early enough during the incident that an adequate demobilization plan is in place prior to the need to release resources (review resource list to ensure accuracy and timely release). 3. Participate in post-emergency reviews to identify lessons learned, as instructed. 4. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Finance/Admin Section Chief (FSC)	1. Participate in System-wide coordination conference calls and present any Admin/Finance-related issues. 2. Coordinate procurement card increases and purchase orders prior to a known event and ensure the release of financial policies and work order numbers for use. 3. Coordinate with the LEOC on any facility needs and ensure the delivery and setup of any special equipment or generators at the EOC's, as needed.	1. Ensure that all storm-assigned personnel available are mobilized, the Finance/Admin Section is staffed as appropriate. 2. Ensure that all personnel and equipment time records are complete and submitted to the Finance Section at the end of each operational period. 3. Oversee the receiving and coordination of all claims-related issues regarding the event. 4. Working closely with Logistics, oversee event costs and estimate the total cost of the event prior to completion of the restoration efforts.	1. When appropriate, ensure an orderly demobilization of the Admin/Finance Section and related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.
Public Information Officer (PIO)	1. As needed, oversee issuance of a Company statement concerning the activation of the LEOC and the necessity to release employees so that they can perform their emergency positions. 2. Oversee proactive communications.	1. Responsible for maintaining the unity of message before, during and after an emergency event to: employees, customers, and media outlets. 2. Responsible for overseeing the collection, development, and dissemination of employee, customer, and public messages and communications. 3. Coordinates with the EOCs to ensure consistent and accurate messaging for all emergency events. 4. Ensure all news releases are reviewed and approved by the IC. 5. Develop accurate and timely information for use during press/media briefings. 6. Develop daily messages and provide to the Planning Section Chief for inclusion in the IAP. 7. Monitor and forward media information that may be useful to the Planning Section.	1. When appropriate, ensure an orderly demobilization of the PIO support staff and related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Liaison Officer (LNO)	1. Implement pre-event notifications to key stakeholders, including emergency planning officials, municipal officials, local government and non-government organizations, and others as required, in coordination with the PIO. 2. Disseminate information to the Liaison organization. 3. Ensure all required tools and technology are operating and available for use.	1. Notify and activate required Liaison support staff. 2. Ensure Liaisons are briefed on incident conditions and provide overall direction to regarding messaging for key stakeholders. 3. Inform the IC and General Staff of areas of concern and opportunities for coordination. 4. Deployment of LUMA liaison to serve in local municipal EOCs and ensure notifications are made to key stakeholders, including emergency management officials, municipal officials, local government and non-government organizations, and others as required, in coordination with the PIO.	1. When appropriate, ensure an orderly demobilization of the LNO support staff and related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.
Safety Officer (SOFR)	1. Ensure the staffing rosters for the Safety Officer's staff positions are up to date and ready to be used. 2. Participate in pre-event planning and operational conference calls and meetings. 3. Determine staffing needs based on the predicted or actual. 4. Event Classification Type or Event Level predictions. 5. Deploy Safety staff to various field locations as needed.	1. Provide regular reports and updates to IC. 2. Assign Safety staff as needed and ensure staffing level continues to be sufficient. 3. Ensure safety briefings are completed per the IAP for all personnel. 4. Notify IC about any safety related incidents. 5. Develop safety messages to be used during an event. 6. Facilitate Site Safety Inspections as appropriate. 7. Reiterate responsibility to all LUMA employees to stop unsafe acts if observed. 8. Ensure prompt investigation and documentation following a safety incident.	1. When appropriate, ensure an orderly demobilization of safety related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Table 1: EOC operations unit actions by role

VI. Restoration Strategy

A. Overview

The restoration strategy begins with the prioritized outages identified by the damage assessment teams and the outage management system (OMS). Restoration strategy takes into consideration outage information and identifies and compares that data to restoration protocols. System Emergency Restoration Teams (SERTs) must address emergency and life-threatening conditions such as public safety hazards or downed wires reported by first responders before any restorations begin.

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

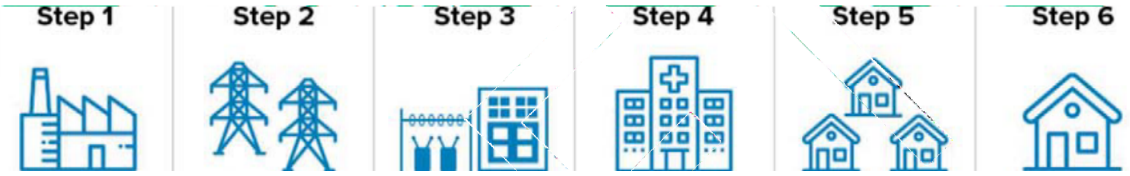


Figure 3: Prioritization of restoring power

1. Restore critical power assets – generation, micro grids and mini grids.
2. Repair key transmission lines – these lines transmit energy from generating stations to key substation.
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 (see Figure 4).
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.

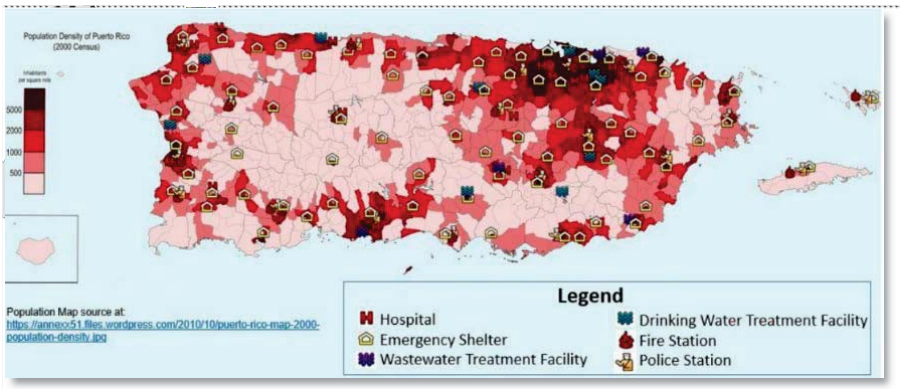


Figure 4: Map of Community Lifeline-related facilities

B. 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. These pre-storm actions assist LUMA to respond to outages more effectively, while ensuring that customers, employees, and key stakeholder groups are better informed and prepared when disasters strike.

1. 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 will strive 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.

2. First Responders

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

3. Governmental Organizations

Governments are defined as including government officials, local, city, and state emergency management organizations. LUMA will continue to strengthen relationships with these critical stakeholders through information sharing and collaboration throughout the year.

Members of LUMA's Crisis Management Committee will participate in PREMB and local municipality training programs centered on emergency planning and response protocols (i.e., ICS, NIMS, Homeland Security Exercise and Evaluation Program (HSEEP), etc.) throughout the year. These collaborative initiatives expand upon planning efforts and further promote information sharing between participating organizations.

LUMA will practice their 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 promotes 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.

VII. Concept of Operations

In the event of a major outage, LUMA will respond and rapidly assess the impacts to the Transmission & Distribution (T&D) infrastructure, and take the necessary actions to mitigate cascading effects from a long-term power outage and restore service, minimizing the impact to the citizens of Puerto Rico. To ensure response integration, the Puerto Rico Emergency Management Bureau's (PREMB) Incident Levels and LUMA's Event Classification Types are utilized and located in the LUMA ERP – Base Plan.

A. Restoration Operations

Restoration Operations conducted in response to an event impacting LUMA's electric system will be the responsibility of the Dispatch and Field Operations Section within the LUMA Emergency Operations Center (LEOC). The directives from the LEOC will follow the LUMA Restoration Strategy identified in Section VI.

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 East and West Division EOCs will report to the Operations Section Chief within in the LEOC.

The Incident Command System (ICS) is flexible depending on the level of decentralization for the event. Under the direction of the East or West Division Director the field teams will respond to the event as efficiently as possible.

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

The transition from response operations to restoration operations 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 start of the restoration period may 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 Electric System.
- Manpower available (along with timing of availability) to repair damage.

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

- Make Safe
  - When in a damage state LUMA's T&D infrastructure presents an extreme risk to the public, Safety Teams will rapidly response to protect and correct any identified situation.
- Damage Assessment (Rapid Survey and Detailed Assessment)
  - Damage predictions assist with estimations of time needed to assess and complete restorations.
- Prioritization of restoration
  - SERT priorities are identified and sorted by highest customer count. PRG priorities continue to be sorted by municipality identified Level 2 Critical Facilities (CF2) and Level 3 Critical Facilities (CF3) priorities within the Restoration Priority Matrix.
- Execution of tactical restoration operations
  - LUMA's continually supports the "Safety Always" objective, specific tactical objectives include fire/public-safety priority assistance, timely restoration, and providing useful, timely and accurate information to all stakeholders.
  - To facilitate expedient restoration and to maximize the optimal use of 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 and may include, but are 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 and/or number of customers affected by the repair, and the time necessary to complete each specific restoration.

2. Mobilization of Personnel

When an impending threat is known with reasonable certainty, precautionary deployment of personnel can facilitate a rapid response. The most critical component is the ability to be flexible in order to expand and retract to optimum levels as the threat becomes more certain. An anticipated and planned for 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 has overall responsibility for notifying the Command Staff, which includes the Safety Officer, the Liaison Officer, and the PIO in the activation of the LEOC. The Incident Commander may 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.

In accordance with the LUMA Performance Metrics for the Mobilization of Personnel, Table 2 identifies LUMA's mobilization timeline.

Mobilization of Personnel	
Time After Damage Prediction	**Percentage of Crews Deployed**
Within 24 hours	50%
Within 48 hours	80%

Table 2: Mobilization of personnel

a) LUMA Resources

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

Operational Managers are responsible for notifications to, and mobilization of, division personnel required for operational emergency response, proportionate with 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 will 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 Men Crews)
- Troubleman Underground Crews (Two Men Crews)
- Powerline Construction Crew
- Damage Assessment Teams
- Wire Watcher Teams

b) *On-Island Contingency Contract Crews*

The activation and assignment of crews is a vital part 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 may include any of the following:

- Troubleman Triage (One-Person Crews)
- Troubleman Overhead Line Crews (Two Men Crews)
- Troubleman Underground Crews (Two Men Crews)
- Underground Splicing Crews
- Powerline Construction Crew
- Tree Crews
- Damage Assessment Teams
- Wire Watcher Teams
- Substation Workers/Techs
- Telecom Workers
- Transmission Line Workers
- Equipment Operators

The T&D Electric Operations West and East Divisions are routinely engaged, on a continual basis, in the type of work necessary to restore electric service. Traditional lines of communication exist between these divisions that facilitate the coordination of the day-to-day contractor work forces in all conditions of readiness to the degree necessary.

c) *Mutual Aid and Off-island Support*

Mutual aid assistance is an essential part of the electric power industry's service restoration process and contingency planning on the island of Puerto Rico where utility qualified resources are limited. As an operating utility in Puerto Rico, LUMA will be an active member in mutual aid agreements and have contingency contracts in place which will enable LUMA to access mainland utility resources more efficiently.

LUMA also has the support of Quanta Services where they have staged pieces of heavy utility equipment on the island. When requested, Quanta will fly in skilled resources from the mainland that will be deployed to

respond with the on-island fleet. This combination of personnel and equipment will greatly decrease LUMA's restoration time.

d) National Guard Assistance

The National Guard Support Program provides for power restoration support from National Guard personnel when a catastrophic event occurs, and the customary sources of supplemental personnel, such as mutual assistance, contractors, or internal staff cannot provide adequate personnel to address needs. In order for the National Guard to be available for deployment, the Governor of the Puerto Rico must declare a "State of Emergency." As warranted and available, the Incident Commander may initiate actions to secure additional support available through the National Guard.

The National Guard is frequently called on to conduct disaster response and domestic emergency missions. These missions are a specific subset of the National Guard Civil Support (NGCS) mission area. Puerto Rico National Guard forces can provide surge logistics, transportation, communication assistance, and general-purpose capability to areas identified by the Puerto Rico Emergency Management Bureau to supplement LUMA emergency response expediting power restoration during the initial response to an incident. If National Guard Domestic Operations (NGDO) resources are deemed necessary, the following is a summary of roles that they could fulfill:

1. Public Safety
   a) Wire guarding for down wires
   b) Flagging for traffic control
2. Logistics Support
   a) Points of Distribution – including transportation and distribution of ice, or water to teams
   b) Fueling – delivery of fuel to vehicles and equipment engaged in power restoration work
   c) Lighting – delivery and operation of portable light towers to support restoration crews (they can operate, transport, and refuel any light towers provided to them by the company, Mutual Assistance Crews, contractors, or equipment rental companies)
3. Emergency Transportation
   a) Short-haul transport of cargo or materials from staging areas to point-of-repair locations
   b) High-axle transport of Damage Assessment Teams or Restoration Crews
   c) Aerial assessments (only as "lift of opportunity," when combined with an existing National Guard mission); should National Guard assets be utilized for aerial

patrols, National Guard pilots will be required to attend LUMA's training to ensure compliance with internal safety requirements

4. Heavy Equipment
   a) Supply dozers and backhoes for clearing right of ways of debris, building road access to powerlines in remote area
   b) Specialize equipment to access mountainous areas
5. Security
   a) Provide temporary security for job sites, critical substations and laydown yard
6. Communications Support
   b) Provide assistance with temporary communications in critical areas to assist with high priority restoration operations

Damage Assessment

A Damage Assessment (DA) is a key component of the restoration operations. The damage assessment process utilizes "two-person" teams, or additional support as needed, to physically inspect and report overhead primary and secondary damage locations associated with each locked out circuit. Assessment personnel are managed through the Regional SERT and provide their report to the Regional Commander. The order of evaluation is based on the restoration priority list.

Post-event, the T&D System Control Center will monitor and develop an initial system status report. This report is used to compare the current level of electric demand on the system to the forecasted demand.

The DA report is disseminated to the Operations Section in the LEOC where resources and equipment requirements to make the repairs and restore service are identified. Additional information on specific Damage Assessment protocols is in development.

a) Major Outage Event (MOE) Preliminary DA

LUMA will begin a preliminary DA of the affected area(s) and/or T&D facilities when it is safe to do so. The preliminary DA will be completed within a "reasonable time" at the beginning of the Operation Response phase. Reasonable times are identified in Table 3 and are in accordance with the MOE Performance Metric. The preliminary damage assessment will be performed primarily by the helicopter patrol with targeted land patrols when additional information is needed.

Preliminary DA Reasonable Time	
Event Categorization	**Response Time**
3 to 5 days	36 hours
5 to 10 days	72 hours
> 10 days	120 hours

Table 3: Reasonable time for preliminary damage assessments

Restoration

LUMA will utilize processes safely and efficiently to repair damage and restore electrical service. 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 damage assessments and repairs may commence when:

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

a) Prioritization

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

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

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

b) Situational Assessment

LUMA will complete 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 Classification Type has been determined, personnel will be assigned per the LUMA incident command structure.

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

- Eliminate Unsafe Conditions: the elimination of hazards to the public and takes precedence during emergencies. Safety Crew personnel are activated and required to:
  - Respond to reports of downed wires.
  - Cut, clear, and/or repair the primary and secondary hazards.
  - Clear wires so that service may be restored up to the location of the break.
  - Prioritize response to emergency calls based on the severity of risk for areas.
  - Additionally, at the initial stages of the restoration process, LUMA may be directly assigned to municipalities to “make safe” downed wires to remove trees and other debris from major roadways.
- Transmission Circuits and Substations: restoration is prioritized by the T&D System Operations Branch Director.
  - Determines the need for the bulk electrical system.
  - Damage assessment and repair of transmission lines and key substations.
  - Request personnel to support restoration of transmission service to substations.
  - Bulk distribution feeder circuits, not directly affecting substations, are assigned a priority, depending on the importance of the circuit and the effect of its loss on the bulk electrical system.
- Substation repairs are directed by the East or West Division Branch Director of the affected area in consultation with the T&D System Operations Branch Director.
- Primary Distribution Circuits and key feeder portions of ‘locked-out’ 3-Phase primary distribution circuits are restored by either cutting faulted sections clear or by opening sectionalizing devices (i.e. switches). Damages are repaired, restoring all 3-Phase primary distribution circuits.
- Secondary Distribution Lines and Services Areas where there is only damage to secondary distribution lines and services are restored simultaneously. Repair crews perform a final assessment of damage in the area and repair any additional damage found.
- Permanent Repairs - after all electric service has been restored, permanent repairs are made to any remaining temporary field

conditions. During restoration of service, if practical, permanent repairs are made to avoid hazardous conditions and eliminate duplication of effort.

B. LUMA Event Classification Type

All potential events, natural, man-made, and technological, with the potential to affect LUMA Operations are assigned a classification by the Incident Commander 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 will assist in identifying resource requirements and positions needed for an EOC activation at all levels of the ERO. This analysis typically 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 Classification Type. These classification types are directly tied to the establishment of EOC activation levels. As such, an event classification of Type 1 will also result in the establishment of an EOC Activation Level 1.

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

Five (5) event types have been established. Types Five (5) and Four (4) are considered Non-Emergency Events and are restoration events managed as normal operations and/or an isolated event that does not necessitate the activation of the EOC unless escalation occurs.

Types One (1), Two (2), and Three (3) are Emergency Events with Type Three (3) being the less severe and Type One (1) representing catastrophic emergency conditions. LUMA's Emergency Event Types (1-5) are described in detail in Tables 4-8.

Type	Anticipated LUMA Operating Conditions	
Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecast in advance of the event. This event calls for the full implementation of ICS and all employees are assigned shifts and are scheduled in relation to their role in the ERP. All Branch Division and Regional Emergency Operations Centers (EOCs) are activated. This type of event is coordinated through daily 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. Communication protocols are activated and discussion with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity impacts the entire system such that restoration activities may require ten (10) days or more once it is safe to begin restoration activities • Typically, > 50% (>700,000) customer interruptions at peak • Typically, > 50,000 Outage Event at Peak • This type of event is anticipated to occur between 1 and 4 times in a ten-year period
	Response Organization	• System-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Branch and/or Regional EOC level as directed by the PSC and OSC and approved by the IC • Remote Restoration Management Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • Liaisons are activated • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • LUMA will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written Incident Action Plan (IAP) is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities will be held

Table 4: Type 1 – Catastrophic Event

Type		Anticipated LUMA Energy Operating Conditions
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire territory. Type 2 events are usually forecast in advance. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in ERP. This type of event is coordinated through daily 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. All impacted Branch, Division, and Regional Emergency Operations Centers (EOCs) are activated. Communication protocols are activated and extended discussions with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity within a specific region or spread across the system is such that restoration activities are generally accomplished within a 7-day period once it is safe to begin restoration activities • Typically, 25% to 50% (350,000 to 700,000) customer interruptions at peak • Typically, >25,000 Outage Events at Peak • This type of event is anticipated to occur between 2 and 4 times in a five-year period
	Response Organization	• The system-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Branch and Divisional EOC level as directed by the Planning and Operations Section Chiefs and approved by the Incident Commander • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Community Liaisons are activated to EOCs to serve communities as directed by the Liaison Officer and approved by the Incident Commander • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written IAP is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities may be held

Table 5: Type 2 – Emergency Conditions Event

Type		Anticipated LUMA Energy Operating Conditions
Type 3 – High Alert Event (Moderate Regional Event)	Viewpoint	A Type 3 event represents the greatest range of uncertainty due to the severity of event being forecasted (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographical area that is threatened. This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for multiple regions to potentially be impacted by activating the ICS structure and the opening of one or more EOCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with less impact to areas that received greater damage. This type of event is coordinated through daily 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. Communication protocols are activated and extended discussions with local and state officials occurs prior to impact and through the restoration stage.
	Event Characteristics	• The damage severity within a specific district or region(s) is such that restoration activities are generally accomplished within a 48-72-hour period • Typically, 10% to 25% (70,000 to 350,000) customer interruptions at peak • Typically, >10,000 Outage Events at peak • This type of event generally occurs between 1 and 5 times per year
	Response Organization	• The Incident Command structure is activated at the System EOC level down to the local level • One or more of the EOCs may be activated to match the complexity of the event • Additional restoration support functions such as Decentralized Dispatching, Downed Wires and Damage Assessment may be established at a branch and/or divisional EOC as directed by the Planning and/or Operations Section Chiefs and approved by the Incident Commander • Community Liaisons are activated to operational EOCs as directed by Liaison Officer and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Staging Areas may be required in an area if it has been severely impacted and requires a concentrated number of crews and resources
	Resource Activation	• This response may require outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy may require a large increase in various staffing positions and teams • Additional restoration support functions may be staffed
	Communication/ Coordination	• A written IAP may be required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Life Support Customers, Municipalities, Elected Officials, and Regulators is conducted as necessary • Restoration Phase Reporting is required

Table 6: Type 3 – High Alert Event

Type		Anticipated LUMA Energy Operating Conditions
Type 4 – Non-Emergency Restoration Event (Heightened Alert)	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Centers depending on the damage. The Incident Command Staff is notified, and specific sections may be activated depending on the impact of the event.
	Event Characteristics	• The damage severity within a specific district is such that restoration activities are generally accomplished within a 12-24-hour period • The incident is usually 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
	Response Organization	• Incident Command Structure may be activated • Command and General Staff positions activated as needed • One or more EOCs may be operational depending on the geographical threat and complexity • Community Liaisons may be staffed at the activated EOCs as directed by the Liaison Officer and approved by the Incident Commander
	Resource Activation	• Internal restoration resources normally available • Restoration is generally accomplished with local assets possibly with assistance from other regional distribution line assets • Typically, 2-50 personnel may be deployed to EOCs that have been activated at the discretion of the Planning and/or Operations Section Chiefs and approved by the Incident Commander to perform other functions
	Communication / Coordination	• No written IAP is required • The operations and maintenance department may have briefings or regional conference calls to ensure the complexity of the event is fully communicated to management and that response staff receive the appropriate level of support required for the event

Type		Anticipated LUMA Energy Operating Conditions
Type 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival it is determined that additional resources are needed, a supervisor is assigned and will secure additional line crews from the Field Operations organization.
	Event Characteristics	• System activity is normal • Incidents are contained within the first operational period and last for less than 12 hours after resources arrive on scene • Typically, <1 % (14,000) customer interruptions at peak • Typically, <2,500 Outage Events at peak • Normal daily internal crew assignments
	Response Organization	• Incident Command Structure is not activated • Emergency Operations Centers are not activated
	Resource Activation	• Outage response is coordinated with local on-call personnel
	Communication/ Coordination	• No written IAP is required

Table 8: Type 5 – Normal Operations

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.
- Expected percent of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed such as a low wire, tree limb on conductor or damaged equipment.
- For all Event Classification 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.

C. Restoration Priority Matrix Guidelines

LUMA will strive to restore power to all customers in the safest timely manner possible. In support, LUMA Operations will utilize a Restoration Priority Matrix during both normal and emergency operations, which provides for the most efficient approach in 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

1. Downed Wires

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

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

- downed wires - pole-to-pole or downed wires - pole-to-building
- downed wires and burning
- sparking wires

Response to downed wires for performing the initial investigation and for clearing the hazard is under the direction of the Operations Section. The Planning & Intelligence (P&I) Section will assist Operations with the prioritization and identification of teams for assignment.

Dispatchers will determine the appropriate resources to be assigned to both evaluate and guard downed wires or make the incident safe and will 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.

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 has 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 primary conductor • Reported to be secondary conductor
4	Report of electric downed wire from other sources: • Primary conductor is indicated • Secondary conductor is indicated
5	Report of downed wire where type of wire is not indicated, and it appears the wire is not likely an electric conductor.
* Priority 3 includes reports from members of the 911 call center, police, fire, EOC personnel, and emergency managers.	

Table 9: Priority levels of downed wires

Damage assessment and/or repair personnel are then dispatched from the region or district area, through OMS, to assess and/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 will be determined. If necessary, the responder will either:

- Make the situation safe, so that wire is not a risk to the general public in the area.
- Standby 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 individuals are trapped by a downed wire, will result in the immediate dispatch of an Overhead Line Crew to the incident.

Remaining downed wire reports are then assigned to damage assessment and/or repair personnel, according to the downed wire priority, as referenced below (highest to lowest).

Damage assessment and/or repair personnel that are specifically dispatched to safeguard downed wire situations will respond to the location of the downed wire. After assessing the situation, the severity is determined based on the following guidelines (highest to lowest).

Severity Level	Description of Downed Wires
1	Downed wire conductor that *poses a high risk to public safety*, due to its location on a road or pedestrian-accessible area. These situations will require damage assessment and/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 will also require damage assessment and/or repair personnel to remain on-site until relieved by a Wire Watcher or the conductor can be verified deenergized by a qualified employee or contractor. Once the wire is known to be de-energized, the damage assessment and/or repair personnel will barricade or tape the area and then can move on to their next location.
3	Downed wire is a *secondary conductor*. Damage assessment and/or repair personnel will attempt to notify nearby customers and will barricade/tape off the area to clearly distinguish the hazardous area. If the wire is either open wire secondary or triplex service cable that has an exposed end (wire is broken), damage assessment and/or repair personnel will remain on-site until relieved by a Wire Watcher or a qualified employee or contractor has verified that the wire is not energized.
4	Downed wire is *not an electric conductor* and is *not in contact with an electrical conductor*, but is instead phone, cable, or other communications property. If the situation is safe, damage assessment and/or repair personnel will 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 to the responsible company.

Table 10: Severity of downed wires

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 in accordance with the Performance Metrics, (per the event categorization, see Table 11) while working in conjunction with local authorities after a Major Outage Event.

Downed Wires Reasonable Time	
Event Categorization	**Response Time**
3 to 5 days	18 hours
5 to 10 days	36 hours
> 10 days	60 hours

Table 11: Reasonable time for response to downed wires

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 and/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 will often deploy trained personnel comprised of trained high voltage line workers that have the proper skill sets to cut clear, and/or de-energize/ground downed wires. By completing this process transportation corridors become safely passible.

Where possible, a restoration crew will make the location safe. If required, a wire guard representative will be dispatched to the location to await SERTs. Restoration priorities are identified within the Restoration Priority Matrix, Table 12.

Priority Level	Description of Road Closures
1	Local and State roads and emergency service roads.
2	County 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 road closure from other sources where a downed wire may be the cause or ancillary to the primary cause of the road closure.
5	Report of road closure where the type of wire is not indicated, and it appears the wire is not likely an electric conductor.

Table 12: Road closures

3. Critical Facilities

Critical facilities identified as a Level 1 facility provide services that are critical to the health and safety of the public and are tied to at least one of the five 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).

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 and Cooling Centers and Rescue Facilities 3) Emergency Operations Centers (LUMA and Municipal) 4) Water pumping stations and Wastewater treatment plants 5) Fire, Police, 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 same type of facilities 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 type of facilities described in Level 2 depending on the event type but are considered to some extent less critical by government agencies: 1) Event Specific Concerns 2) High-Rise Residential Buildings 3) Customers providing key products and services (food warehouse) 4) Managed Accounts, Large Employers, and Other Key Customers 5) Other Government Buildings, Schools, and Colleges

4. Emergency Event Conditions

The Restoration Priority Matrix and Critical Facility Level protocols are consistent in both normal and emergency operations. If the event damage is so severe that all available resources are expended or damaged, LUMA's restoration efforts will focus on the major prioritization objectives listed below until additional operational crews and other mutual aid arrives:

1) Responding with appropriate resources to address emergency and life-threatening conditions.
2) Clearing of downed wires to facilitate prompt clearing of public safety hazards and opening critical transportation corridors.
3) Restoration of LUMA's Transmission Lines and Substation Facilities.
    a. Focusing on restoring crucial Transmission Lines that allows strategic dispatch of energy from key generation assets to load centers.
    b. Emphasis is placed on restoration of service to a LUMA's Transmission Lines feeding substations experiencing a "loss of supply".
4) Restoration of feeder breaker lockouts to restore large numbers of customers.
5) Restoration to Critical Community Lifelines.
    a. Service will be restored to critical facilities as quickly as possible. These circuits and locations are placed at the top of the restoration priority.
6) Communications with Customers and Stakeholders.
    a. It is vital that early and accurate communication of system conditions be made known, and that continuous updating occurs as storm restoration activities continue.
7) Minimum Restoration Time.
    a. Plans will be formulated to complete restoration efforts on all interrupted customers, following a severe storm, as quickly as possible. Restoration efforts will be prioritized in the following manner:
        i. larger area outages
        ii. smaller area outages
        iii. individual house service

5. Make Safe Protocols

LUMA recognizes the importance of clearing emergency evacuation routes and main thoroughfares after a major weather event or other emergency events that may affect transportation corridors. LUMA understands the significant role they play in assisting to provide safe areas by de-energizing and/or removing downed electrical wires that may be blocking roads or entangled in downed trees or roadway debris.

During large-scale weather events, the number of internal resources that are trained and readily available is limited, and the demand could greatly exceed those available. LUMA will anticipate the need for additional personnel to ensure "make safe" actions are taken and acknowledges that, depending on the impact of the emergency event, it

may be necessary to contract for additional qualified resources or reassign other available internal resources to support these activities.

VIII. Estimated Time of Restoration Guidelines

Providing accurate Estimated Time of Restoration (ETRs) is a top priority of LUMA's overall restoration process. LUMA aims to better serve its customers, municipal officials, and emergency support organizations by providing professional ETR administration and timely communication of essential information.

The timing, magnitude, and impact of an event factors into the ETR times, therefore LUMA will establish a baseline of projections to assist when determining operational goals and timelines. An ETR provides an estimate of when service will be restored to a customer, location, and/or work assignment based on the conditions seen on site, in conjunction with supporting historical data. Specific priorities and tactical objectives are guided by the application of available resources weighed against the foregoing priorities to optimize the overall response.

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

ETRs are segregated into three types: Global, Regional, and Local. 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. The classifications are naturally interconnected and follow a top-down input methodology based on anticipated operational actions, results, and damage assessments. The ETR information will ultimately become more precise as additional data and information is obtained, on a local level, and as restoration efforts progress.

- Global ETRs – Information is determined at a system-wide level.
- Regional ETRs – Information is determined at a regional level.
- Local ETRs – Information is determined at a municipal or a customer level basis.

Figure 4 provides a high-level overview of the typical ETR process during restoration efforts and includes a summary of targeted efforts and information availability during various stages of restoration.

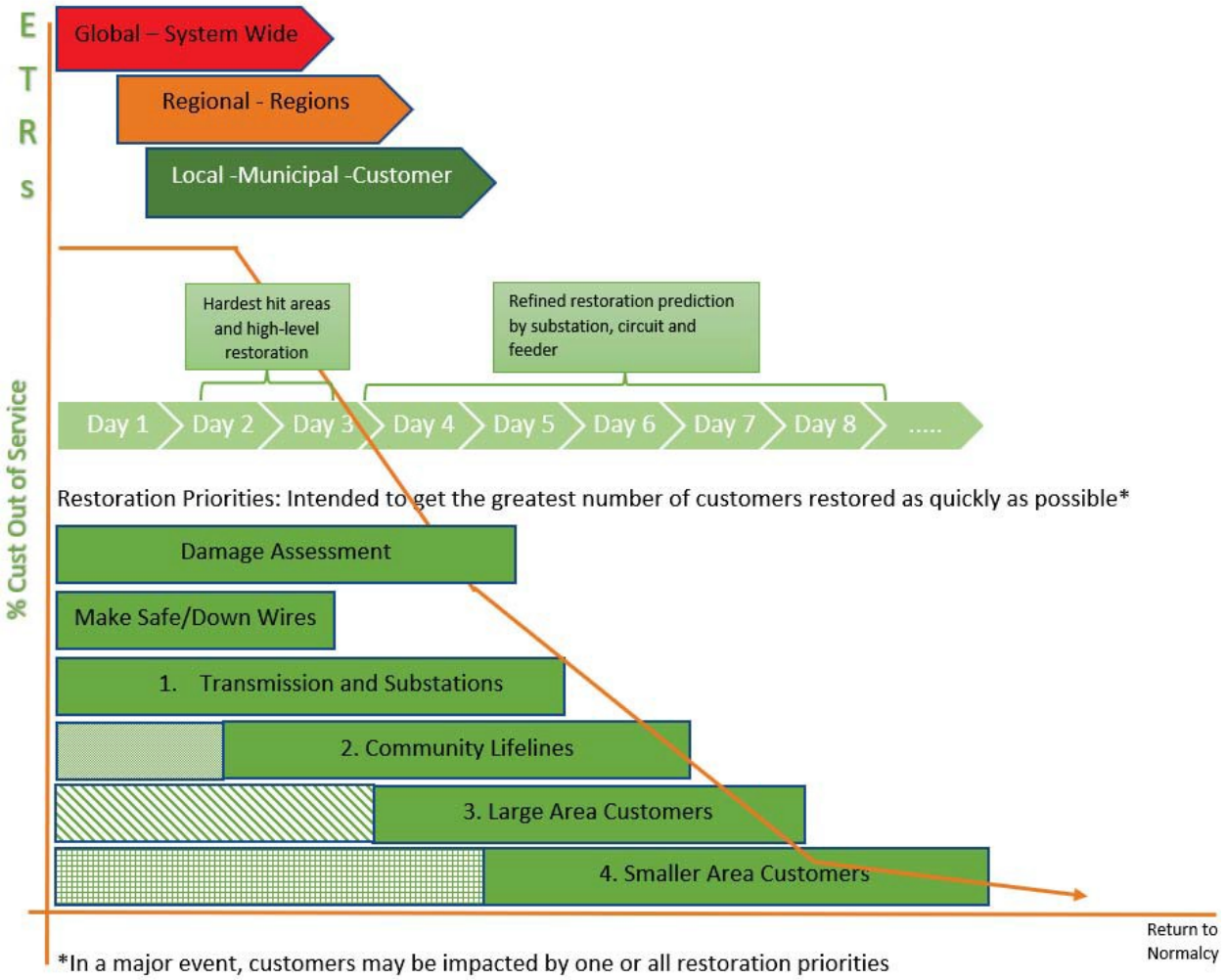


Figure 4: ETRs defined

The protocols are considered minimum requirements necessary to ensure all customers are adequately informed. During restoration, LUMA will continuously refine ETRs and update customer representatives, Interactive Voice Response (IVR) systems, and web sites in a timely manner as the situation changes. LUMA shall provide restoration information (customer outage counts, ETRs, etc.) to media outlets and public officials in affected areas during major outage events. Additionally, LUMA will issue at least one press release daily for all major outage events with an expected restoration period longer than 48 hours. Any additional information available now should be included in this notification even though notification may be required prior to the start of restoration. For widespread events, company-wide outage statistics should also be provided as part of the initial notification.

Estimated Time of Restoration	
Time After Damage Prediction	**Percentage of Service Restoration**
24 hours	90%
All ETRs should be updated every 24 hours	

Table 14: Estimated time of restoration for 90% of service outages

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 be available for account information. ETR information is readily available and disseminated to LUMA, stakeholders, and associated employees through multimedia platforms and the Interactive Voice Response (IVR). Internal personnel updates on ETRs will be made through the LUMA Dispatch Team. The anticipated actions related to the assessment and identification of ETRs are detailed in Tables 15 and 16.

Type 3 Events expected to last 48 hours or less:

Within the first 6 hours of the restoration period
• Notify regulatory authorities of expectation that the event will last less than 48 hours. The notification to regulatory authorities will state what LUMA has defined as the start of the restoration period. For events expected to last less than 24 hours, notification may be via IVR. • Provide available information to the public via customer representatives, IVR systems, and web sites. • In certain situations (e.g., nighttime event), only limited information may be available within the initial six-hour window. In these situations, the expectation is that the companies will inform Staff of the delay in determining the initial outage 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 restoration period will be less than 48 hours (or less) will be communicated as soon as possible, but no later than noon the following day. Any delay in establishing the initial storm expectations will not affect the time requirements below.
Within the first 12 hours of the restoration period
• Provide regulatory authorities with a global ETR and any available regional ETRs. • Prepare a statement for the press that includes known ETRs for the next upcoming news cycle and communicate with affected municipal and governmental officials (may or may not be by way of a municipal conference call).
Within the first 18 hours of the restoration period
• Establish ETRs for each locality affected and make them available to the public via customer representatives, IVR systems, and web sites.
Within the first 24 hours of the restoration period
• Consider issuing a press release for the upcoming news cycle based on conditions.
Reporting requirements during the event
• Provide restoration information updates four times daily to regulatory authorities (7AM, 11 AM, 3 PM and 7 PM). Updates should continue until otherwise directed by Staff. • Notify regulatory authorities when all storm related interruptions have been restored.

Table 15: Restoration activities for events 48 hours or less

Type 1 and 2 Events expected to last greater than 48 hours:

Within the first 6 hours of the restoration period
• The utility shall indicate that it will be a multi-day event (i.e., greater than 48 hours). Notification shall be made to regulatory authorities and will state what the Company has defined as the start of the restoration period. • 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 event), 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 outage 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 restoration period will be greater than 48 hours will be communicated as soon as possible, but no later than noon the following day. Any delay in establishing the initial storm expectations will not affect the time requirements below.
Within the first 12 hours of the restoration period
• Prepare a press release for issuance in time for the next upcoming news cycle and communicate with affected municipal and governmental officials (may or may not be by way of a municipal conferencecall).
Within the first 18 hours of the restoration period
• Schedule municipal conference call(s), unless an alternative municipal contact method is more appropriate. The first scheduled municipal conference call itself does not necessarily have to fall within the first 18 hours but shall be within the first 36 hours.
Within the first 24 hours of the restoration period
• Notify regulatory authorities of what areas sustained the most damage to the electric system and ETRs, where known, on a general geographic basis. • Issue a press release(s) for upcoming news cycles with the information described in previous bullet.
Within the first 36 hours of the restoration period
• For storms with expected restoration periods five days or less, provide regulatory authorities a global ETR. • Establish regional/county ETRs for areas expected to be restored in five days, even if the total restoration period 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. • The utilities must have completed the first scheduled municipal conference call. • Make ETR information available to the public via customer representatives, IVR systems, and web sites.

Within the first 48 hours of the restoration period
• For storms with expected restoration periods five days or less, provide regulatory authorities with ETRs by municipality. • Provide regulatory authorities with a global ETR (when outages are expected to less than five days, this is required within 36 hours). • Provide regional/county ETRs for heavily damaged areas where large numbers of customers are expected to remain without service for five or more days.
Beyond the first 48 hours of the restoration period
• For storms with expected restoration periods more than five days provide, estimated restoration times for each locality affected and make the information available via customer representatives, IVR systems, and web sites.
Reporting requirements during the event
• Provide restoration information updates four times daily to regulatory authorities (7AM, 11 AM, 3PM, and 7 PM), which shall continue until otherwise directed by Staff.

Table 16: Restoration activities for events greater than 48 hours

IX. Direction, Control, and Coordination

Whenever possible, emergency response procedures will 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 and 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.
- 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 VIII.

X. Communications

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

The Public Information Officer (PIO), through the LUMA Emergency Operations Center (LEOC), will communicate necessary and critical information. LUMA will communicate information through a variety of methods including:

- LUMA's website and Customer Outage Map
- Media Outlets
- Social Media (i.e. Twitter, Facebook, WhatsApp, etc.)
- Situational Reports to Local, Municipal and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)

A. Public Service Announcements (PSA)

When the PIO or other designee issues emergency PSAs for the purpose of updating customers, the general public, media, local elected officials, local municipal officials and employees, the Incident Commander (IC) must approve the final draft prior to its dissemination.

Public statements may include the following confirmed information:

- Number of customers affected
- Affected regions

- Numbers of crews
- Estimated time of restoration (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

PSAs are distributed to the following stakeholders:

- Customer Service Team
- Employees
- Media outlets
- Elected Officials
- Local Municipal Officials
- Regulatory and State Governmental Agencies

B. Media Communications

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

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

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

The goals are to:

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

C. Digital Communications

Prior to a known event, the PIO digital communications team member, will review and update the Company's website content. During the event, the designated member will

ensure that PSAs are posted on the website and that content is current. The website to be used is TBD at this time.

The Outage Map displays outage and restoration information in both geographically and in tabular format and will be provided by region or town including customers served and customers impacted on the tabular side.

Geographically, customers will also see outage information and an estimated outage location which a customer can view to access an estimated time of restoration (ETR) range. For example: ETR 5:15 PM to 7:15 PM.

D. Employee Communications

Internal communications are prepared and distributed before, during, and after an event, by the PIO team, through multimedia platforms, to ensure that all employees have the knowledge of the damages and impacts of the event. Information and updates, expectations for their support, the nature, scope, and status of LUMA's restoration response will be included. Messages include information consistent with that released to the general 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 will be sent by the PIO employee communications team. All information released will be 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
- Important employee information

E. Regulatory Officials

The PIO will prepare information for the Puerto Rico Energy Bureau (PREB) and the Puerto Rico Public Private Partnerships Authority Liaison Officer (P3LNO) who is responsible for maintaining contact with appropriate regulatory officials. Contacts are initiated at the earliest time feasible. The P3LNO will communicate with regulatory and elected officials prior to and during an emergency event using email, conference calls, and individual phone calls or other means, as necessary.

The East and West Division Branch Directors are responsible to liaise with emergency management agencies during non-emergencies and prior to a known major emergency. Once a predicted emergency event is forecasted, the Regulatory Reporting Specialist will prepare and submit Pre-Event Stage Reports, Event Stage Reports, and Post-event Stage Reports, as required by the MOE Performance Metric, and submit to the appropriate agencies as required until outages occur. For additional information on reporting, refer to the ERP – Base Plan, Section X.A. Government of Puerto Rico and Federal Emergency Management Agency (FEMA) officials will provide contact information for contacting the LNO during an MOE.

F. Municipal Officials

During events where the Division EOC is activated, the Customer Experience Team will provide staffing in the Division EOC to facilitate communications between the LEOC and municipal officials prior to an event and during the restoration effort.

Supporting municipalities severely affected by emergency events aides in prioritizing the restoration of electric facilities and may improve access to company facilities by attaining municipal support services.

A dedicated line of communication will be established in each Division EOC for responding to local municipal inquiries. The Division EOC staff shall prepare and maintain a list of cities, towns, and key contact information.

Each electric distribution division, during an emergency event, shall provide periodic reports to municipal officials including, emergency managers or their designees, that contain detailed information related to emergency conditions and restoration performance for each affected city and town.

The content and format of these periodic reports (Pre-Event Stage Reports and Service Restoration Stage Reports) as required by the PREB and P3A regulatory agencies can be found in Appendix D to the ERP-Base Plan.

The following communications are carried out by the Division EOCs to satisfy the regulatory reporting requirements:

- Scheduled conference calls with municipal officials, including emergency managers.
- Community Liaison communications (telephonic, electronic and/or in person) with municipal officials, including emergency managers.
- Communicate with key account customers. (See Table 2)
- Provision of emergency conditions and restoration information, including but not limited to:
    - outage and restoration information.
    - priority wires-down locations.
    - critical facilities impacted by the emergency event, through a community website portal that may be accessed by municipal emergency managers.

XI. Demobilization

Demobilization is the orderly, safe, and efficient return of an incident resource to its original location and/or status. The Incident Commander is responsible to initiate the De-escalation/De-mobilization process. Demobilization planning for de-escalation/de-mobilization is an on-going process that begins as soon as the response begins to facilitate accountability and ensure efficient resource management.

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

The Planning Section Chief will develop demobilization plans and ensure they are implemented as instructed by the IC.

The ERO may be fully demobilized when:

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

XII. Annex Development and Maintenance

This Annex is a living document. Development and maintenance to this Annex will be in conjunction with the LUMA ERP. Proposed changes should be sent to the CMO for approval and inclusion.

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

Attachment 1 – Explanation of Terms

Acronyms

CF	Critical Facilities
CLAL	Claims Unit Leader
CMO	Crisis Management Office
CSL	Corporate Security Unit Leader
DA	Damage Assessment
DOCL	Documentation Unit Leader
DSOC	Distribution System Control Center
DVML	Donations/Volunteer Management Unit Leader
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FAQ	Frequently Asked Questions
FEMA	Federal Emergency Management Agency
FLUL	Food/Lodging Unit Leader
FSC	Finance Section Chief
FUL	Facilities Unit Leader
HAZUS	Hazards U.S.
HES	Hurricane Evacuation Study
HSEEP	Homeland Security Exercise and Evaluation Program
HVX	Hurrevac
IAP	Incident Action Plan
IC	Incident Commander
ICC	Incident Command Center
ICS	Incident Command System
IMT	Incident Management Team
IT	Information Technology Unit Leader
IVR	Interactive Voice Response

JIC	Joint Information Center
LRS	Lifeline Residential Service
LSC	Logistics Section Chief
MAA	Mutual Aid Unit Leader
MMS	Materials Management System
MOU	Memorandum of Understanding
NHC	National Hurricane Center
NIMS	National Incident Management System
NWS	National Weather Service
OMS	Outage Management System
P&I	Planning and Intelligence
P3A	Puerto Rico Public Private Partnerships Authority
PIO	Public Information Officer
PREB	Puerto Rico Energy Bureau
PREMB	Puerto Rico Emergency Management Bureau
PRG	Priority Restoration Group
PROC	Procurement Unit Leader
PSA	Public Service Announcement
PSC	Planning and Intelligence Section Chief
QPF	Quantitative Precipitation Forecast
RC	Road Closure
RESL	Resources Unit Leader
RSR	Restoration Status Report
SCADA	Supervisory Control and Data Acquisition
SERT	System Emergency Restoration Team
SITL	Situation Unit Leader
SMS	Short Message Service
SOG	Standard Operating Guide
SUL	Supply Unit Leader
T&D	Transmission & Distribution
TCUL	Time & Cost Unit Leader

TRUL	Transportation/Fleet Unit Leader
TSOC	Chief Transmission System Control Operator
WFO	Weather Forecast Office
WPC	Weather Prediction Center

Terms

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 – Critical facilities identified as a Level 1,2, or 3 facility provide services that are critical to the health and safety of the public and are tied to at least one of the five critical community lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.

Damage Assessment (DA) – A mechanism utilized to determine the magnitude of damage and impact of disasters.

Demobilization – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.

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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency – Any event, whether natural or manmade, that requires responsive action to protect life, property, and/ or operational capacity.

Emergency Event – An event where widespread outages or Service Interruptions have occurred in the service area of the Company due to storms or other causes beyond the control of the company. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

Emergency Response Plan (ERP) – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.

Geographic Information Systems (GIS) – A framework that is used to map the distribution system with land base information.

Hurrevac (HVX) - National Hurricane Program's hurricane decision support tool used to assist in decision-making and responding to tropical cyclone threats and evacuations.

Joint Information Center (JIC) – A central point of contact for new media and interest parties to coordinate incident information activities.

Key Account Customers – Large industrial customers who may have their own electrical system that LUMA supplies power to.

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 (IC) – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Outage Management System (OMS) – System used to identify customer outages, assign trouble crews, and record outage event statistics.

Priority 1 Downed Wires: **Life Threatening/Imminent Danger** – An event in which utility equipment is preventing emergency response from performing rescue efforts and/or administering first-aid treatment to a person or persons who maybe injured or in danger of being injured.

Priority 2 Downed Wires: Hindering Emergency Operation – An event in which utility equipment is preventing emergency response personnel from responding to a situation which is not considered life threatening yet requires the attention of emergency response personnel.

Priority 3 Downed Wires: Non-Threatening Electrical Hazard – An event in which utility equipment creates the need for emergency response personnel and/or apparatus to remain on the scene in order to protect the public from the hazard created by the utility's equipment.

Supervisory Control and Data Acquisition (SCADA) – 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.

SMART Objectives – The establishment of all objectives should be created using the Specific, Measurable w/Measurement, Achievable, Relevant, Time-Oriented.

System Level ERO – Multi-regional Emergency Response Organization

Attachment 2 – Employee Staffing Roster

[Redacted]

Attachment 3 – Event Classification Types and LEOC Activation Levels

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Attachment 4 – Major Outage Metric

Table 17: Summary of Major Outage Event Performance Metrics

Description	Metrics	Comments	Location
1. Preparation Phase			
Completion of steps to provide timely and accurate emergency event preparation following an alert from U.S. National Weather Service or the company's private weather service, or the government of Puerto Rico has declared a state of emergency or when an event is known to be imminent or has occurred, in accordance with the Emergency Response Plan, for an event expected to affect the company's service territory.	Completion of each step counts separately: 1.1 Event-level categorization based on weather forecasts, system resiliency assessment and available resources. 1.2 Press releases issued/text messages/emails sent. 1.3 Municipal conference calls held. 1.4 Critical & essential customers alerted — based on established list with current information.[1] 1.5 Point of contact for critical facilities alerted — based on established list with current information. 1.6 Company compliance with training program as specified in the Emergency Response Plan. 1.7 Participation in all pre-event mutual assistance group calls. 1.8 Verify materials/stockpiles level based on forecast. If materials are not on hand, corrective steps taken in shortest reasonable time to correct the situation.		
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 through the Municipal Emergency Operations Center (EOC) through LUMA's Municipal Emergency Operations Center (MEOC) Liaison. **Reasonable Time** **Event Categorization** — **Response Time** 3 to 5 days — 18 hours 5 to 10 days — 36 hours > 10 days — 60 hours	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.	
3. Damage Assessment			
	After the beginning of the Major Outage Event and when it is safe to do so LUMA will begin a preliminary damage assessment of the affected area(s) or T&D facilities. The preliminary damage assessment will be completed within a "reasonable time" at the beginning of the Operation Response phase. The preliminary damage assessment will be		

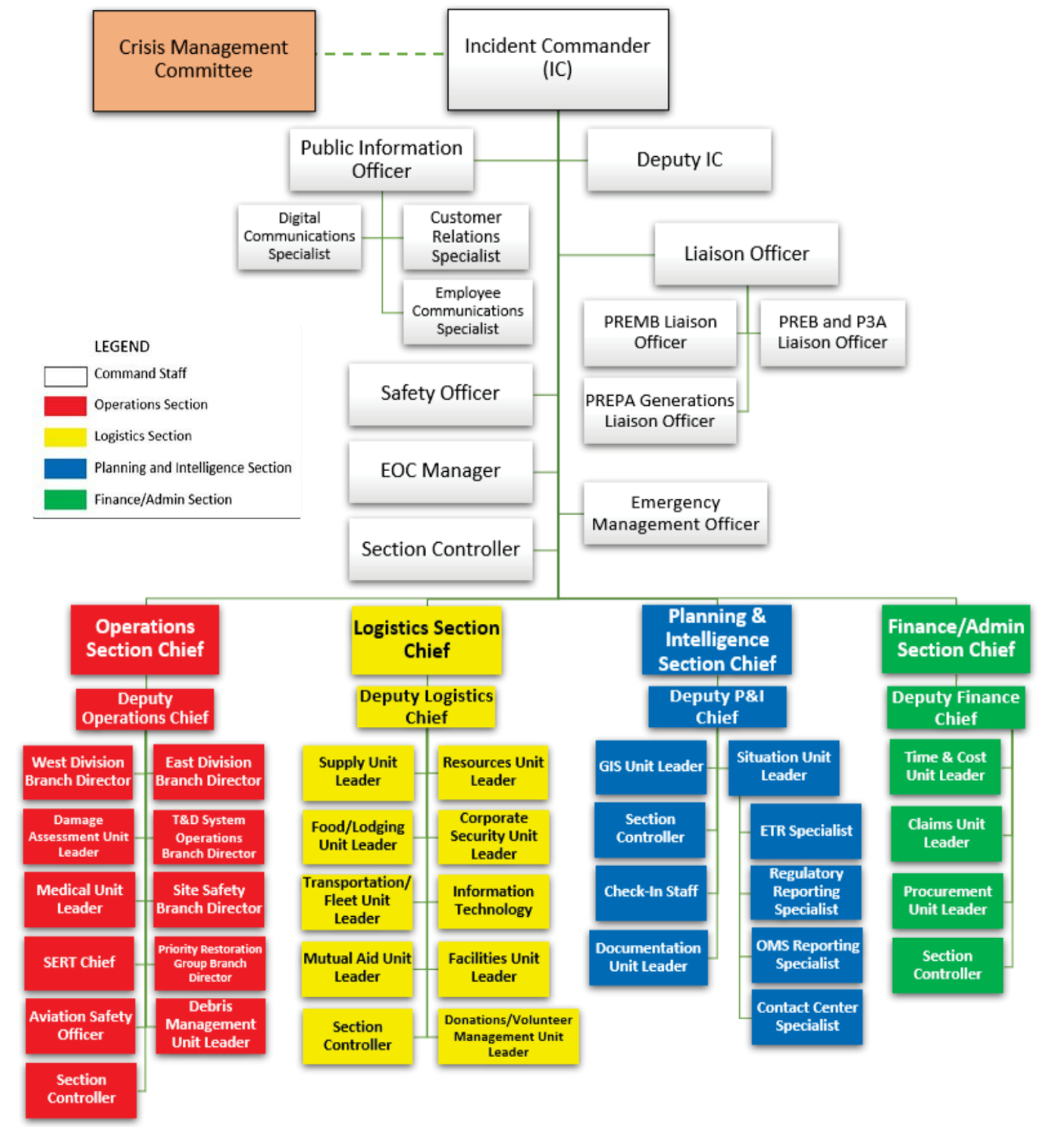
[1] This includes critical care customers (lifeline residential service customers).

	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. **Reasonable Time** **Event Categorization** — **Response Time** 3 to 5 days — 36 hours 5 to 10 days — 72 hours > 10 days — 120 hours		
4. Crewing			
50% of the forecast crewing [from mutual assistance] committed to the utility.	50% of the forecast crewing [from mutual assistance] committed to the utility. Three (3) days prior to a forecasted event occurring (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 stage materials, equipment and personnel at the required location prior to the weather event striking the area. Within 24 hours of the damage prediction, 50% of indicated internal crews and qualified contract crews will be deployed. Within 48 hours of the damage prediction, 80% of the indicated internal crews and qualified contract crews will be mobilized on island.		
5. Estimated Time of Restoration (ETR) for 90% of Service Outages			
Estimated Time of Restoration for 90% of service outages (made available by utility on web, IVR, to Customer Service Representatives (CSRs), etc.)	Publication of regional ETRs in accordance with guidelines.		
	Publication of municipal ETRs in accordance with guidelines.		
	A preliminary ETR for 90% service restoration will be made available on the Internet 24 hours after the preliminary damage assessment in pdf format.		
	ETRs on 90% service restoration to be made available on IVR and to CSRs by municipality or region.		
	All ETRs to be updated every 24 hours.		
6. ETR Accuracy for 90% Service Restoration			
Regional ETR accuracy Municipal ETR accuracy	Accuracy for 90% of service outage restoration and published in accordance with ETR requirement time. The ETRs used for this metric will be the ETRs posted after the thorough damage assessment is completed and not based on the preliminary damage assessment.		

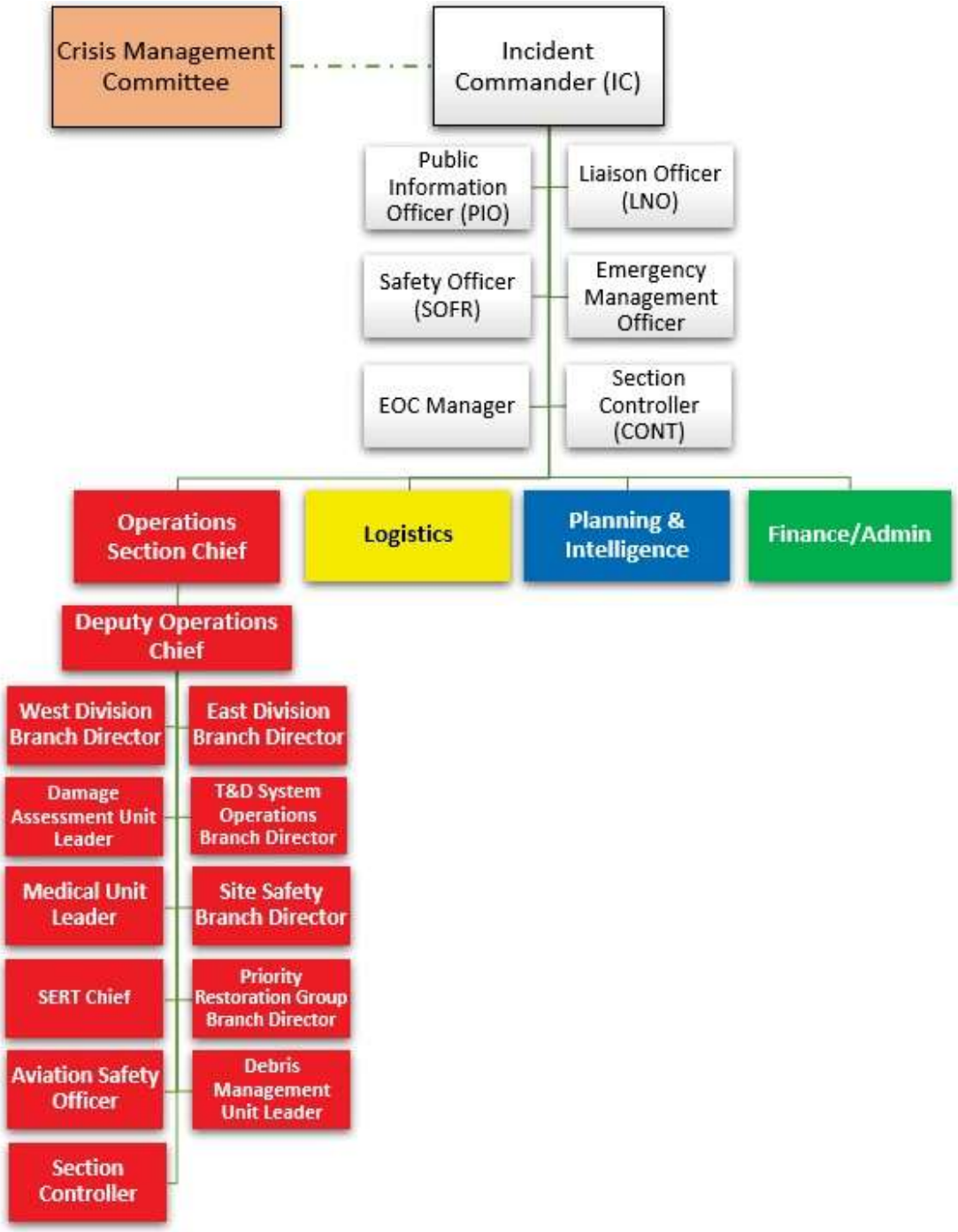
7. Municipality Coordination			
Coordination with municipalities regarding road clearing, downed wires, critical customers, etc.	Through the Municipal EOC the LUMA local Incident Command Center (ICC) Municipal Liaison will attend all scheduled Situation Report (SITREP) meetings. The Liaison will be the conduit for ICC information and requests. To track, the Municipal EOC must be activated so that all requests flow through it. LUMA's ICC Municipal Liaison will attend all scheduled SITREP meetings.		
8. Municipal EOC Coordination Puerto Rico Commonwealth/Federal EOC Coordination			
Coordination with municipal Puerto Rico Commonwealth and Federal EOCs.	Through the Commonwealth and Federal EOCs the LUMA Liaisons will attend all scheduled meetings. The Liaison will be the conduit for ICC information and requests. To track activity, the State and Federal EOCs must be activated and not a request from elected officials.		
9. Utility Coordination			
Coordination with other utilities (communications, water, etc.)	Establish contact points between utilities.		
10. Safety			
Measure of any employee or contractor injured doing hazard work during storm/outage and restoration.	Record safety incidents and include in safety report per LUMA Health Safety Environment & Quality (HSE&Q) standard.		
11. Mutual Assistance			
Crew requests made through all sources of mutual assistance or other pre negotiated contracts with utility service providers.	Three (3) days prior to a forecasted event occurring (when the event allows that much warning time), LUMA will complete a damage prediction to determine the requirements for on and off island mutual aid/pre-negotiated contracts with other utility service providers. LUMA will activate the required resources and place them on standby until the damage assessment is completed. After the initial damage assessment is completed, the requests for mutual assistance or other utility service provider crews will be made as follows: • Within 70 hours, 40% of crews • After 120 hours, 80% of committed mutual aid and other utility service provider crews will be requested		
12. Call Answer Rates			
Customer calls answered by properly staffed call centers (use of IVR and other technology is an acceptable solution).		TBD depending on size of major event.	
13. Web Availability			
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. In the event that no new information is available, the website must display the last time and date that information was			

updated. The website and/or section pertaining to outage impact and restoration may be taken offline for a short period during off-peak hours to perform system maintenance			
14. PREB and Administrator (P3A) Reporting			
Provide storm event information to PREB and Administrator in accordance with LUMA's Electric Outage Management System (OMS) guideline requirements to be established in the ERP for LUMA.	Information to be updated every 24 hrs.		
15. Customer Communications			
Availability of press releases, text messaging, email and social media.			
16. Outgoing message on telephone line			
Recorded message providing callers with outage information is updated within two hours of communication of press releases.		Available at Service Commencement Date. IVR will be managed in house	

Appendix A – LUMA ICS Structure

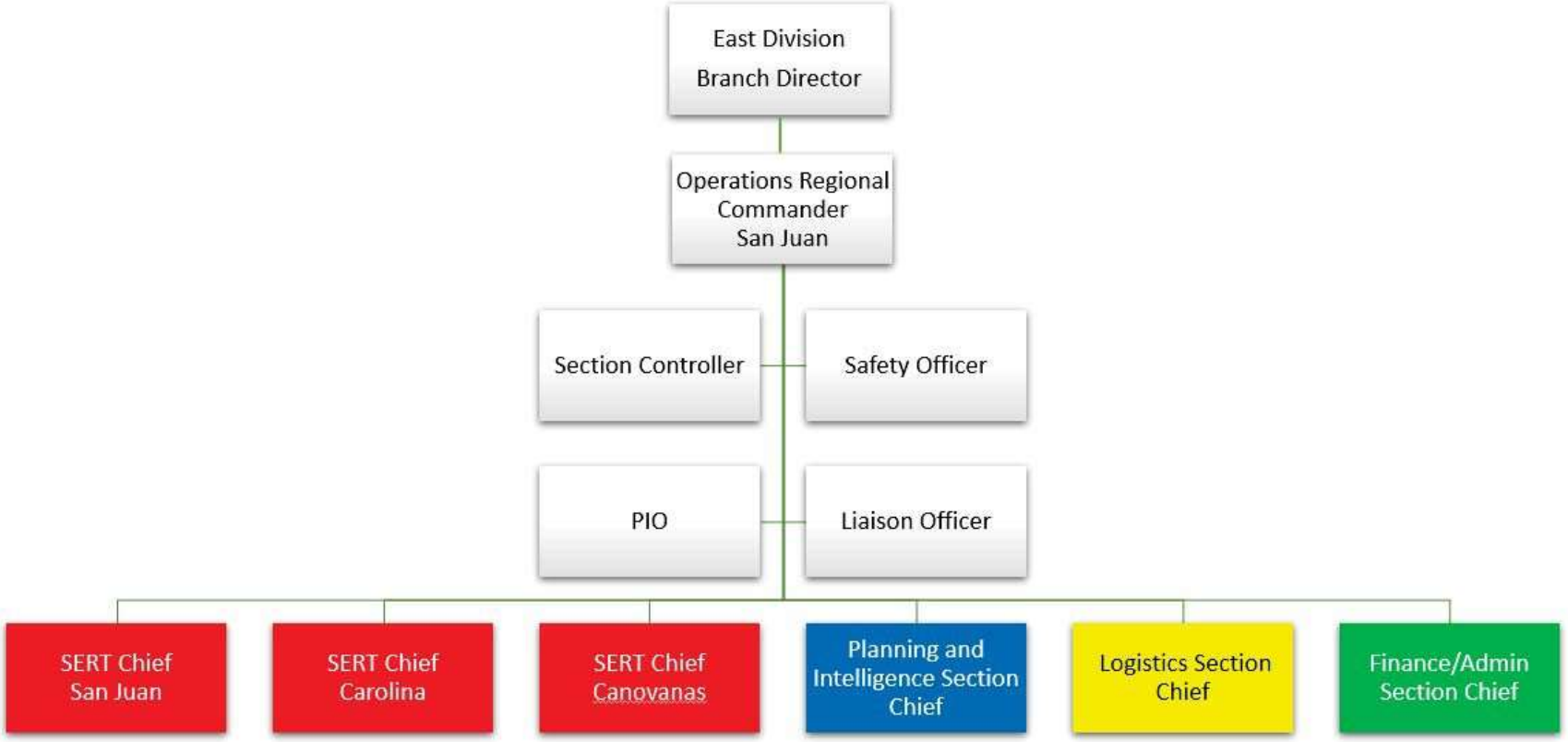


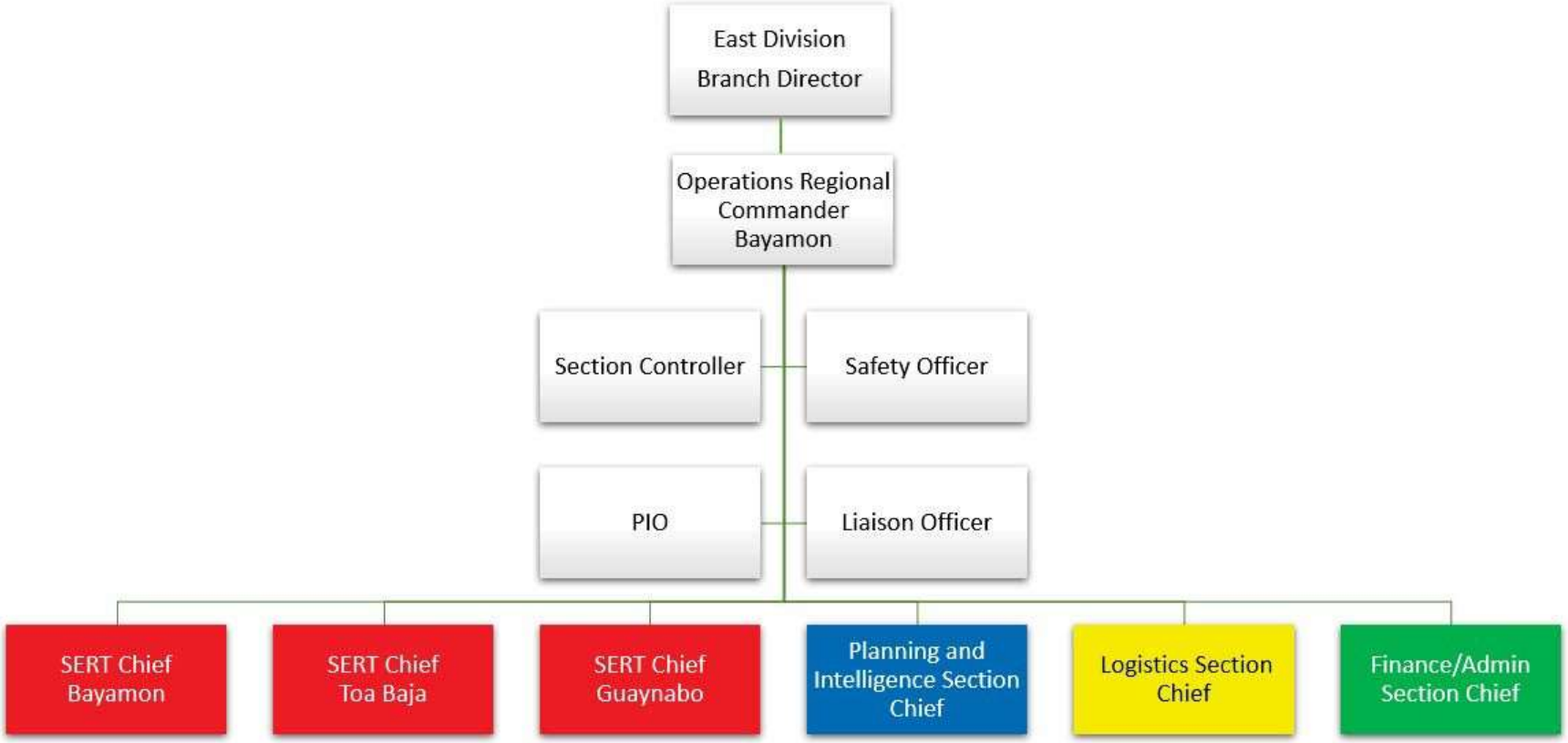
Operations Section

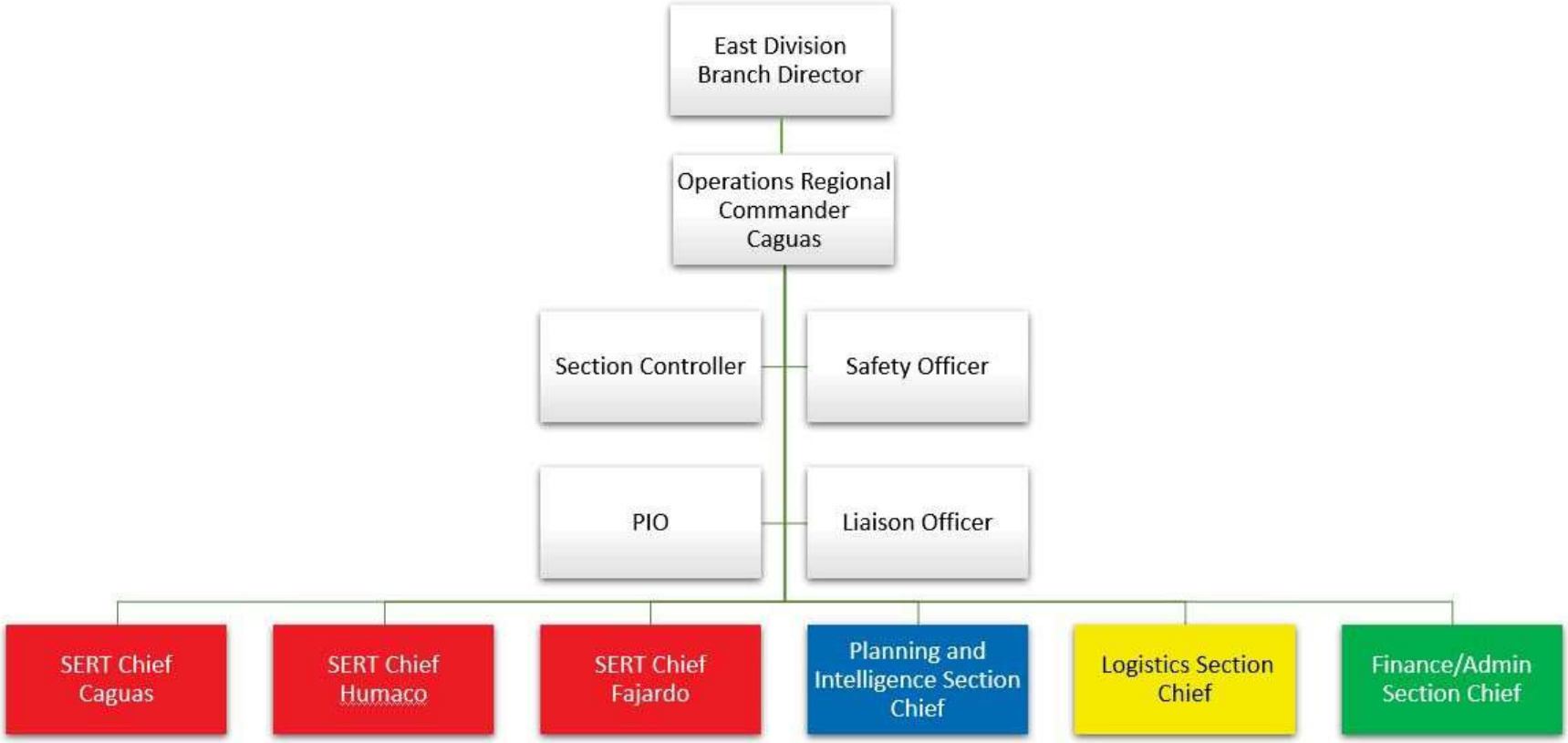


LUMA East Division Structure

East Division Regional Structures

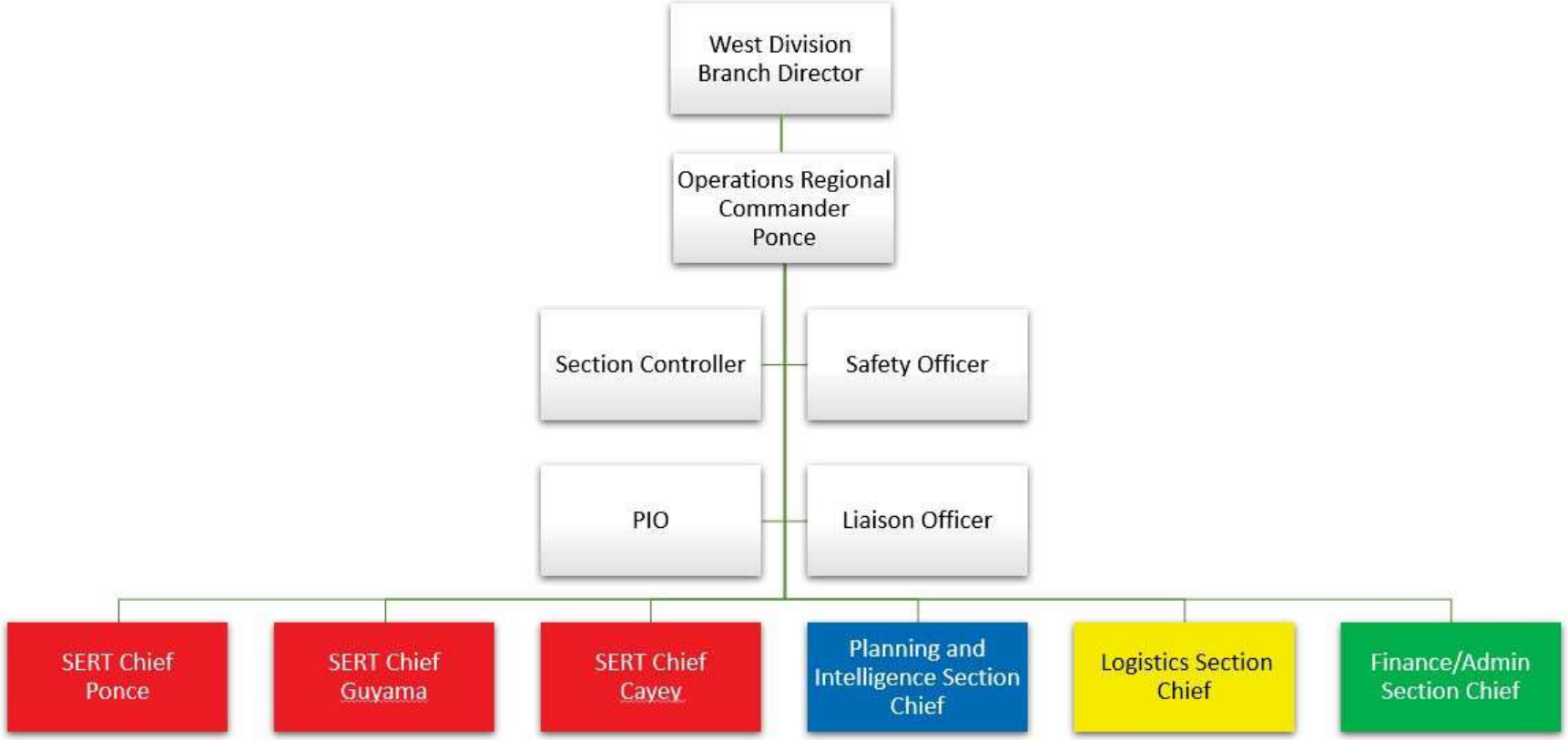



East Division
Branch Director
Operations Regional
Commander
Bayamon
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief
Bayamon
SERT Chief
Toa Baja
SERT Chief
Guaynabo
Planning and
Intelligence Section
Chief
Logistics Section
Chief
Finance/Admin
Section Chief

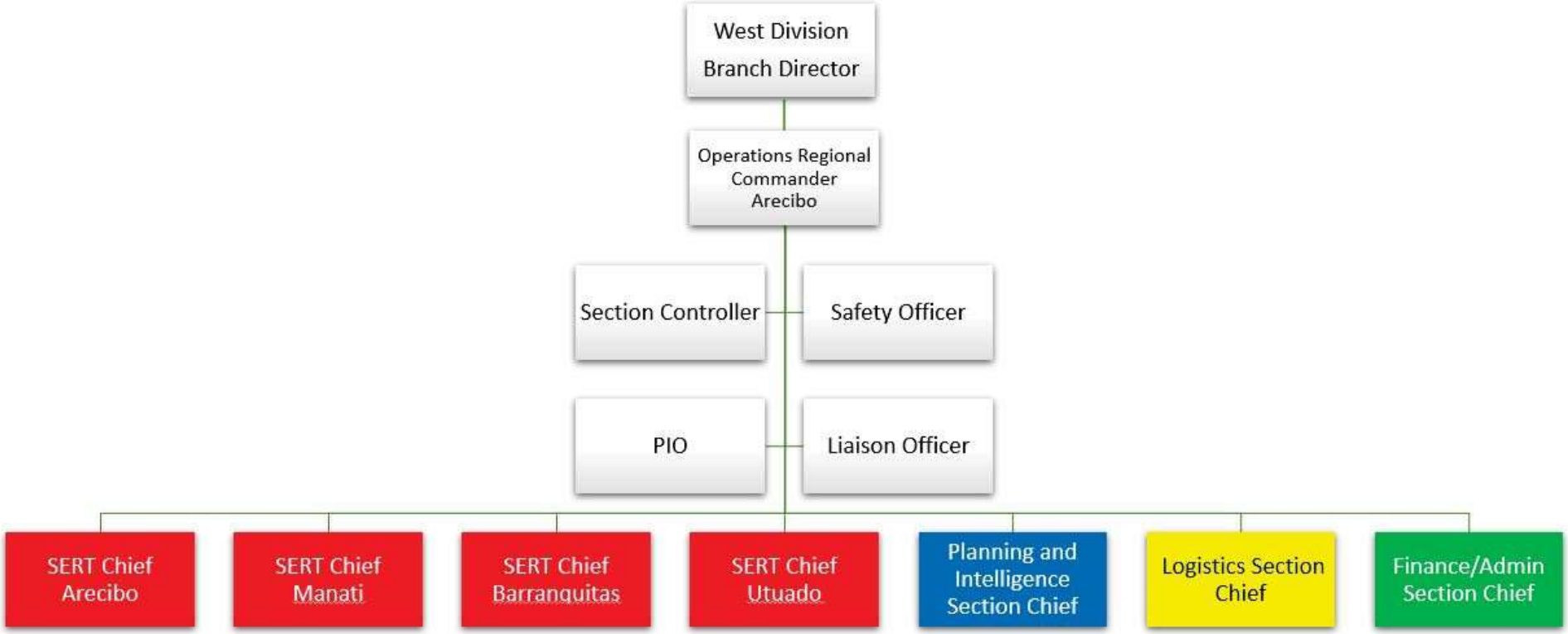

East Division Branch Director
Operations Regional Commander Caguas
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Caguas
SERT Chief Humacao
SERT Chief Fajardo
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

LUMA West Division Structure

West Division Regional Structures




West Division Branch Director
Operations Regional Commander Mayaguez
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Mayaguez
SERT Chief Aguadilla
SERT Chief Yauco
SERT Chief San Sebastion
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief


West Division Branch Director
Operations Regional Commander Arecibo
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Arecibo
SERT Chief Manati
SERT Chief Barranquitas
SERT Chief Utuado
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

Appendix B – Area Restoration Prioritization Lists

Arecibo Region

Arecibo District SERT Team

Customer	76,119
Substation	Redacted 02,
Key Transmission Feeders	Redacted Redacted
Municipalities:	Arecibo, Hatillo, Camuy
Hospitals	Polyclynic Factor, Pavia Víctor Rojas Metro Hospital, Dr. Sussoni Hospital, Pavia Hospital former Regional Hospital, Arecibo Medical Center, CDT Villa Los Santos, CDT Marcano, CDT Marrero

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

Line Number	Description	Customer
Redacted		
		Redacted Redacted

Critical Facilities Level 2

Line Number	Description	Customer

Redacted

Critical Facilities Level 3

Line Number	Description	Customer

Redacted

Redacted

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer

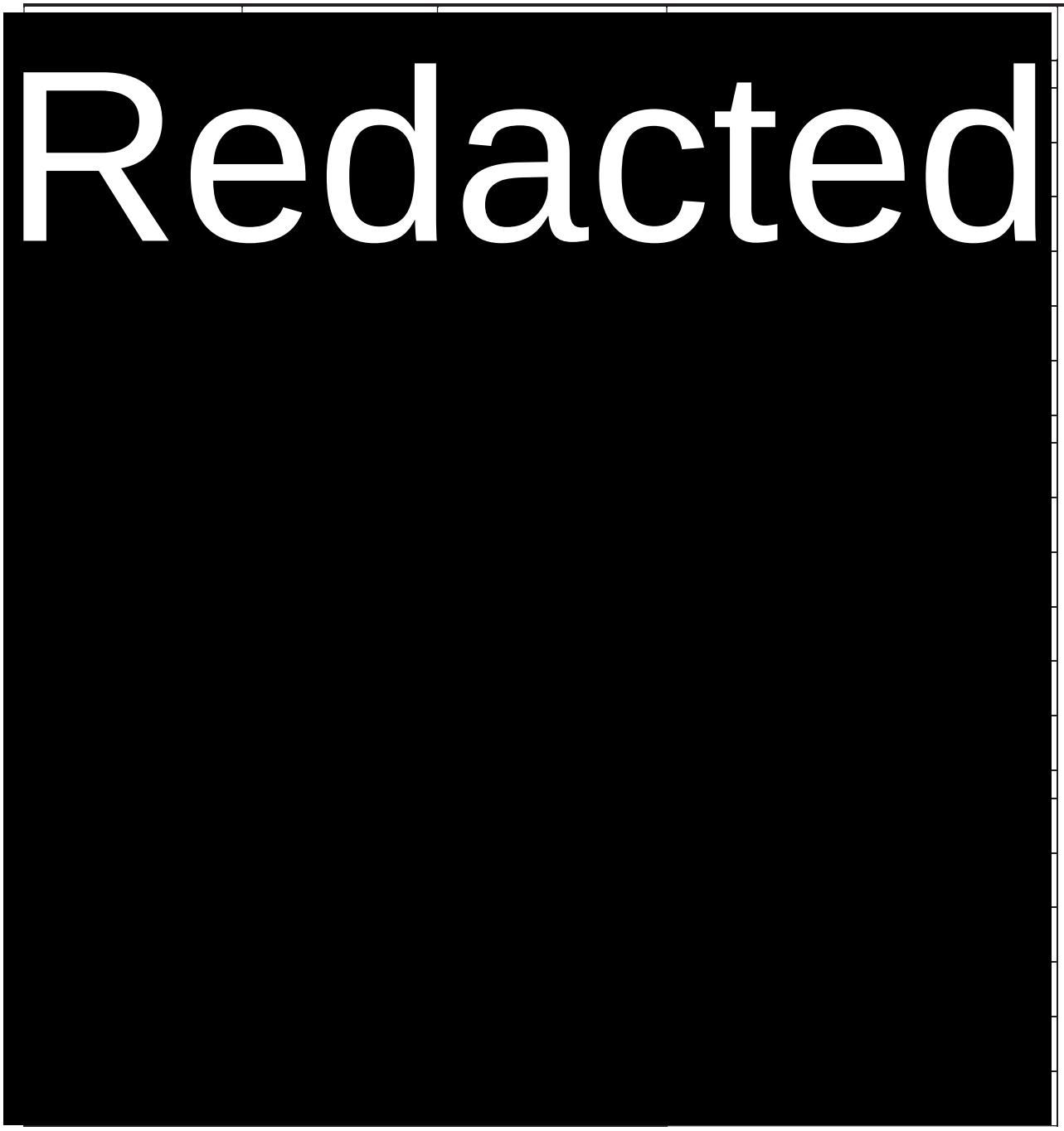
Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer
Redacted		


Redacted

Utuado District SERT Team

Customer	26,834		
Substation	[redacted]		
Key Transmission Feeders			
Municipalities:	Utuado, Adjuntas, Jayuya		
Hospitals	Metropolitan Mountain Hospital, CDT Caparros, Castañer Hospital of Adjuncts		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
	[redacted]	[redacted]	[redacted]
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
[redacted]			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	

Vega Baja District SERT Team

Customer	50,000		
Substation	Redacted		
Key Transmission Feeders	Redacted		
Municipalities:	Vega Baja, Vega Alta, Dorado		
Hospitals	Willma Vazquez, VEGA Baja CDT, Fresenius Diálisis Center, CDT Vega Alta, Vega Alta IPA Hospital, Diálisis Center, Golden CDT (Dorado)		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
	Redacted		
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			

Redacted

Vega Baja (Manatí) District SERT Team

Customer	90,953		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Barceloneta, Manatí, Vega Baja, Vega Alta, Morovis, Florida, Ciales		
Hospitals	Willma Vázquez, VEGA Baja CDT, Fresenius Diálisis Center, CDT Vega Alta, Vega Alta IPA Hospital, Diálisis Center, Golden CDT (Dorado), Dr. Sussoni Hospital, Regional Hospital,		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer

Critical Facilities Level 2			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	

Caguas Region

Cayey/Barranquitas District SERT Team

Customer	13,500
Substation	Redacted
Key Transmission Feeders	Redacted
Municipalities:	Barranquitas, Orocovis, Aibonito, Comerío, Coamo, Naranjito
Hospitals	Menonita Hospital Aibonito, Comerio, Baqtas and Orocovis Hospitals

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 2			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 3			
	Line Number	Description	Customer
Redacted			
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			

[redacted]

Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted	[redacted]	[redacted]	[redacted]
Critical Facilities Level 3			
Substation	Feeder	Customer	
Included in level 1 & 2			

Cayey/Barrenquitas District SERT Team

Customer	46,329
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Cayey, Cidra, Aguas Buenas
Hospitals	Menonita Hospital, Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Cidra's Municipal Hospital, Panamerican First Hospital, Aguas Buenas Municipal Hospital

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
	Redacted		
Critical Facilities Level 2			
	Line Number	Description	Customer

[redacted]

Caguas District SERT Team

Critical Facilities Level 3			
	Line Number	Description	Customer
	0800	Cidra Sect-Cayey TC	Nikini
	0800	Cayey TC-COMSAT	University of Puerto Rico
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			
Customer	105,141		
Substation			
Key Transmission Feeders			
Municipalities:	Caguas, Gurabo, Juncos, San Lorenzo		
Hospitals			
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			

	Line Number	Description	Customer
Redacted			
Critical Facilities Level 2			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 3			
	Line Number	Description	Customer
Redacted			
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
3006	Redacted		
3103			
3101			
3201			
3301			
30006			
3007			
3007			
3007			
3015			
3010			
3004			
3008			
3014			
1908			
3013			
3013			
3013			
3013			
3013			
3010			
3010			
3014			
3014			
3014			
3014			
3007			

Redacted

Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Humacao District SERT Team

Customer	63,446		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Yabucoa, Humacao, Naguabo, Las Piedras		
Hospitals	Ryder, HIMA, CDT Humacao, CDT Naguabo, CDT Yabucoa, Menonita		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	

Redacted

Redacted

Redacted

Redacted

Critical Facilities Level 2			
Substation	Feeder	Customer	

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Fajardo District SERT Team

Customer	37,585
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Luquillo, Fajardo, Ceiba, Vieques, Culebra
Hospitals	Hospital HIMA San Pablo Fajardo, Caribbean Medical Center Fajardo,

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer

Redacted

Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted		
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Critical Facilities Level 3			
Substation	Feeder	Customer	

Mayaguez Region

Mayaguez District SERT Team

Customer	110, 933
Substation	Redacted
Key Transmission Feeders	Redacted
Municipalities:	**Añasco, Mayagüez, Hormigueros, San Germán, Sabana Grande, Lajas, Cabo Rojo**
Hospitals	Hospital Perea Mayagüez, Clínica Yagüez, Centro Médico Mayagüez, Hospital San Antonio, Hospital Bella Vista

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer

Redacted

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

	Line Number	Description	Customer

Redacted

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer

Redacted

Redacted

Redacted

Critical Facilities Level 2			
Substation	Feeder	Customer	

Redacted

Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Redacted

Aguadilla District SERT Team

Customer	124,468
Substation	Redacted Redacted
Key Transmission Feeders	
Municipalities:	Aguadilla, Isabela, Quebradillas, Moca, Aguada, Rincón, San Sebastián, Las Marías, Lares
Hospitals	Hospital Municipal de Las Marías, Hospital General de Castañer-Lares Hospital de Lares, Hospital San Carlos de Moca, Hospital Buen Samaritano de Aguadilla, Quebradillas Medical Center, Shalom Medical Care, Centros Integrados de Servicios de Salud, Hospital CIMA

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 2

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 3

	Line Number	Description	Customer
	Redacted		Redacted

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

[redacted]

Ponce Region

Ponce District SERT Team

Customer	98,901
Substation	
Key Transmission Feeders	
Municipalities:	Ponce, Villalba, Juan Diaz
Hospitals	

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer

[redacted]

Critical Facilities Level 2

	Line Number	Description	Customer

[redacted]

Critical Facilities Level 3

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer
Redacted		

Critical Facilities Level 3		
Substation	Feeder	Customer
[redacted]		

Redacted

Redacted

Yauco District SERT Team

Customer	46,947		
Substation			
Key Transmission Feeders	Redacted		
Municipalities:	Guánica, Yauco, Guayanilla, Peñuelas		
Hospitals			
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Guayama District SERT Team

Customer	87,793		
Substation	Redacted Redacted		
Key Transmission Feeders	Redacted		
Municipalities:	Santa Isabel, Coamo, Salinas, Guayama, Arroyo, Patillas, Maunabo		
Hospitals	Hospital Menonita Guayama, Hospital de Emergencias Santa Isabel, Hospital Menonita Coamo, Centro de Emergencias Salinas, Centro de Emergencias Patilla, Centro de Emergencias Arroyo, Centro de Emergencias Maunabo		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Redacted			

Redacted

Critical Facilities Level 2			
	Line Number	Description	Customer

Redacted

	Redacted	[redacted]	[redacted]
	2 Redac	[redacted]	[redacted]

Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted	[redacted]	[redacted]

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer
[redacted]		

Redacted			

Critical Facilities Level 2			
Substation	Feeder	Customer	Comments
Redacted			

Critical Facilities Level 3			
Substation	Feeder	Customers	
Redacted			

Redacted

Redacted


Redacted

San Juan Region

San Juan (Monacillo & Río Piedras) Districts SERT Team

Customer	268,909
Substation	Redacted Redacted
Key Transmission Feeders	Redacted Redacted
Municipalities:	San Juan, Trujillo Alto
Hospitals	Hospital Capestrano, CDT Trujillo Alto, Hospital Pavía, Hospital San Gerardo, Hospital Pavía Santurce, Hospital Pavía Hato Rey, CDT El Belavar, Hospital San Jorge, CDT Parcelas Falú, Clínica Las Américas , Torre Médica Auxilio Mutuo, Centro de diálisis, Centro para Tratamiento del Cáncer, Unidad Transplante de Riñón, CDT San José

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

	Line Number	Description	Customer

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer

Redacted

Redacted

Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	

Redacted

San Juan (Carolina) District SERT Team

Customer	52,736
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Carolina
Hospitals	Hospital UPR Dr. Federico Trilla, Doctors Center Hospital, Metro Pavía Clinic

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer

Redacted

Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	

[redacted]

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Canóvanas District SERT Team

Customer	56,855
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Canóvanas, Loiza, Rio Grande
Hospitals	CDT Rio Grande - Community Health Center, Concilio de Salud Integral Loíza, Canóvanas CDT – Hospital Municipal Canóvanas

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

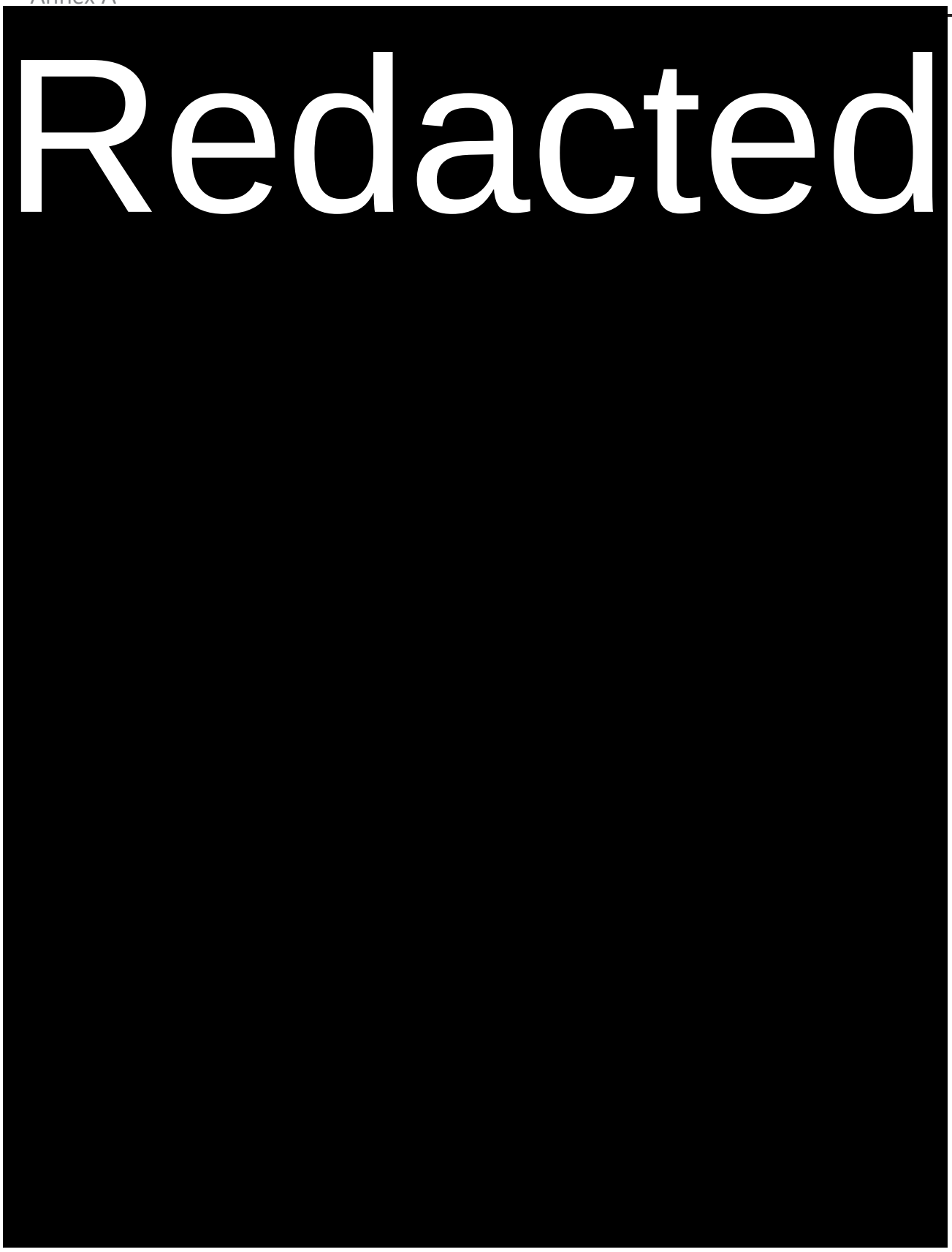
	Line Number	Description	Customer
	Redacted		

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer
Redacted		

Redacted


Redacted

Redacted

Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Bayamon Region

Bayamon(Guaynabo)District SERT Team

Customer	189,072
Substation	Redacted Redacted
Key Transmission Feeders	Redacted Redacted
Municipalities:	Guaynabo, San Juan
Hospitals	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, Hospital Metropolitano, CDT Guaynabo, Doctor's Center Hospital, San Juan Health Center, Hospital Pavía, Hospital PRESBY, Centro Médico de Puerto Rico, Hospital del Niño, Oficinas Médicas Hospital Metropolitano, Clínica Ciencias Médicas, Hospital Professional

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer
	Redacted		

[redacted]

Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted	[redacted]	[redacted]
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	

[redacted]

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Redacted			

Bayamon (urban)District SERT Team

Customer	189,072
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Bayamon , Toa Alta, Guaynabo
Hospitals	Hospital San Pablo, Regional de Bayamon, Hermanos Melendez, Doctor Center, Bayamon Health Center, Mepsi Center y la Torre Medica San Pablo

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Bayamon (lower density) Toa Baja (Palo Seco) District SERT Team

Customer	98,907
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Dorado, Toa Baja (Palo Seco), Cataño, Toa Alta, Naranjito, Corozal
Hospitals	Centro Médico Correcional, CDT Pájaros, Centro Emergencia MOHICA, CDT Toa Baja

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 2

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 3

	Line Number	Description	Customer
	Redacted		

Redacted

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer

Redacted

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Redacted			

Appendix C – Supplies

The vendors listed in this appendix are identified by region and the type of service they may provide to LUMA during response and restoration efforts.

Arecibo Region

Name	Number	Municipality	Mark the Type of Service			
Panchos Catering (Food)	(787) 646-2616	Arecibo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Quality Sea Food (Food)	(787) 638-5897		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
La Unión Cafeteria (Food)	(787) 881-6911		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
David Coffee Shop (Food)	(787) 639-9331		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Ice Plant Casellas	(787) 878-3135		Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Ice Plant Faria	(787) 881-6253		Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Riviera (Food)	(787)884-5366	Manatee	Materials	Equipment	Services	Tents
					X	
La Picadera (Food)	(939)238-9278	Manatee	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Name	Number	Municipality	Mark the Type of Service			
FERRETIA RIVERAS	787-869-3260	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
FERRETERIA LA MONTANA	787-869-3135	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
QUALITY CONCRETE	787-869-1387	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
ASTRO INDUSTRIAL	787-721-4041	SAN JUAN	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
MELOLAIKA Rest. Balalaika THE GREAT COFFEE	787-961-8282 787-859-6277 787-802-1703	gold Corozal Corozal	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
TOA ALTA (Total) COROZAL (Total)	787-246-4175 787-870-4216	QBD CRUZ Palmarejo Outline	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Econo Vega Baja II Supermarket Bakery Gardens	787-858-0958 787-855-1959	Vega Baja Vega Baja	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Econo Mendez Class Supermarket	787-883-2340	Vega Alta	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Golden Ice & Water Plant	787-278-2279	Vega Alta	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		
St. James Security Services, LLC	787-754-8448	St. John's	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
						X
Total, Golden Total, Vega Alta Total Vega Baja	787-270-0903 787-883-0999 787-855-1069	gold Vega Alta Vega Baja	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Grainger Caribe Inc. Astro Industrial	787-275-3555 787-721-4041	Cataño St. John's	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
3C Woods Hardware Store	787-474-3333	St. John's	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Grainger Roger Electric Grekory Equip.	787-275-3500 787-786-3361 787-272-4333	Caguas Bayamón St. John's	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms

Island Center	787-869-0877	Naranjito				
Santos Bakery	787-857-1916	Orocovis	Materials	Equipment	Services	Tents
Orocovis Ice Plant	787-298-4955					
Hannibal Rios	787-377-7847		Ice	Water	Gasoline	Bathrooms
			X			
Carlos Rodriguez	787-857-7625	Barranquitas	Food	Equipment	Services	Tents
Juan Bonilla	787-991-2964	Aibonito			X	
Carlos I. Pacheco	787-385-1858	Naranjito	Ice	Water	Gasoline	Bathrooms
Junir Gulf		Barranquitas	Materials	Equipment	Services	Tents
Tavín Tire Center		Barranquitas				
		(Barrancas)	Ice	Water	Gasoline	Bathrooms
					X	
Carlos J. Bonilla Esparra		Aibonito	Food	Equipment	Services	Tents
Javielo BBQ			X			
			Ice	Water	Gasoline	Bathrooms
Jacqueline Ríos González	787-735-7200	Aibonito	Food	Equipment	Services	Tents
Chino Criollo			X			
			Ice	Water	Gasoline	Bathrooms
Miguel A. Torres Rivera	787-857-2960	Barranquitas	Food	Equipment	Services	Tents
Kikis Pizza			X			
			Ice	Water	Gasoline	Bathrooms
Luis Collazo	787-867-2248	Orocovis	Food	Equipment	Services	Tents

La Cobacha Restaurant			X			
			Ice	Water	Gasoline	Bathrooms
David Crespo Crespo BBQ Coffee Shop	787-939-325-3267	Comerío	Food	Equipment	Services	Tents
			X			

Mayaguez Region

Name	Number	Municipality	Mark the Type of Service			
Select Supermarket (food)	787-830-7800 787-519-7086	Isabela	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Bakery El Cafetal (food)	787-544-6025 787-370-1454	Camuy, Quebradillas and Hatillo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Creole Sandwich (food)	787-830-1385	Isabela	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Bakery El Trigal (food)	787-830-3488	Isabela	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Naturagua, Inc.	787-262-8168	Hatillo	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
Agua Lemarie, Inc.	787-307-2342	The Marys	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
Popeyes Ice Factory	787-307-2342	The Marys	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Ice Factory	787-896-8914	San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Bakery and Pastry La Pepiniana	787-833-1648	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Ricomini Bakery and Pastry	787-832-0565	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Franco Pastries	787-0070	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Don Quixote Pizzeria and Restaurant	787-265-1045	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Nadal Ice	787-834-7400	Mayagüez	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
HIELERA NAZARIO	787-382-3207	Aguada	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
SANTOS COMMERCIAL	787-891-1270	Aguadilla	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
ALL CONTRACTOR	787-378-4406	Ponce	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
						X
EFRAIN SANTIAGO ELECTRICAL CONTRACTOR	787-877-1817	Moca	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

ICE FACTORY	787-896-8914	SAN SEBASTIAN	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
MOCA CONCRETE POLE	787-818-0720	Moca	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Toro Commercial	787-851-1570 787-851-1510	Cape Red	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Roger Electric	787-265-7575	Mayagüez	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
			Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Lechonera Figueroa	787-873-1080	Sabana Grande	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Mr. Special	787-851-1334	Cape Red	Materials	Equipment	Services	Tents
					X	

			Ice	Water	Gasoline	Bathrooms
			Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Rest. The Mariachi	787-280-4187	San Sebastian	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Cucumber Ice		San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Docho Garage		San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Garage		San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	

Bayamon Region

Name	Number	Municipality	Mark the Type of Service			
Golden Ice & Water Plant	787-605-3256	gold	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		
Bakery La Borinqueña	787-779-0707	Bayamón	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
OUTEK	787-644-9085	St. John's	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
Grainger	787-692-6347	St. John's	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
MENACO	787-463-2125	St. John's	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
The Ice Maker	787-795-2665	Levittown	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			

Roger Electric Hardware Store	787-786-3360	Bayamón	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
El Cable Hardware Store	787-795-7025	Toa Baja	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
QUALITY CONCRETE	787-869-1387	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
ASTRO INDUSTRIAL	787-721-4041	SAN JUAN	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
Grainger	(787) 275-3500	Cataño	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
3C Woods	(787) 783-8260	St. John's	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
By Diego Rental	(787) 781-3320	Guaynabo	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
BBQ sources	(787) 783-4582	Guaynabo	Materials	Equipment	Services	Tents

					X	
			Ice	Water	Gasoline	Bathrooms
Guiken	(787) 961-9292	Guaynabo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Manchego	(939) 338-3226	Guaynabo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
All Contractors & Serv.	(787) 378-4406		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
			X	X		
Econo Rial Supermarkets	(787) 707-0112	Guaynabo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Caguas Region

Name	Number	Municipality	Mark the Type of Service			
Rest. The Two Mangoes	787-73-98619	Citron	Food	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Victor Barreto	787-642-7094	Cayey	Materials	Equipment	Services	Tents
			X	X	X	
			Ice	Water	Gasoline	Bathrooms
Freddy Ice Planet	787-739-3133	Citron	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		
Roger Electric Grainger Electrical Island Commercial Berríos	787-746-7272 787-275-3500 787-761-7355 787-739-2831	Caguas Cataño St. John's Citron	Materials	Equipment	Services	Tents
			X	X	X	
			Ice	Water	Gasoline	Bathrooms
Hacienda el Josco Vic-Mar	787-737-2737 787-743-9124	Gurabo Caguas	Food	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Lord Electric Bermúdez and Longo	787-758-4040 787-999-3030	St. John's St. John's	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
José A. Baranda Ismael Rosa	787-746-2699 787-743-6958	Caguas	Materials	Equipment	Services	Tents

José A. Cruz Rafael Beltran	787-746-0282 787-734-2877		Ice	Water	Gasoline	Bathrooms
					X	
My Berjouri	787-243-0940	Humacao	Food	Equipment	Services	Tents
The Ikokal	787-640-9654	Humacao	X			
Delicias Cafe	787-285-3190	Humacao	Ice	Water	Gasoline	Bathrooms
Doredmar's Rest. Cafetería Revival Café	787-893-5189 787-216-2976	Yabucoa Naguabo				
Punta Santiago Recreation Center		Humacao	Lodging	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Plamas del Mar Resort Hotel Playa Lucia and Costa del Mar	787-893-4423					
C Prince	787-640-9524		Materials	Equipment	Services	Tents
Best Work	787-597-3566			X		
Esmo	787-764-4687		Ice	Water	Gasoline	Bathrooms
Electrical Comm.	787-733-0230					
DH Products	787-889-5118	Luquillo	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
The Ice Plant Flowers	787-887-2450	Rio Grande	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Econo Rial II	787-801-8030	Fajardo	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Misc.

						X
Caribbean Point	787-860-3845	Fajardo	Materials	Equipment	Services	Tents
Pan Rico	787-863-0774	Fajardo	Ice	Water	Gasoline	Bathrooms
Pascual Commercial	787 863-1538		Materials	Equipment	Services	Tents
			X			
Grainger	(787) 275-3500		Ice	Water	Gasoline	Bathrooms
Hilti Caribe	787-963-7060		Materials	Equipment	Services	Tents
			X			
Maderera Don Esteves	787-750-2000		Ice	Water	Gasoline	Bathrooms
Rober Electric	787-888-8950		Materials	Equipment	Services	Tents
			X			
Tecno-Lite	787-750-4344		Ice	Water	Gasoline	Bathrooms
National Lumber	787-863-2424		Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms

San Juan Region

Name	Number	Municipality	Mark the Type of Service			
DH Products	787-889-5118	Luquillo	Materials	Equipment	Services	Tents
Water The Mountain	787-760-5146	Trujillo Alto	Ice	Water	Gasoline	Bathrooms
				X		
The Ice Plant Flowers	787-887-2450		Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Econo Rial II	787-701-8030	Canóvanas	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Misc.
						X
The Bakery Family	787-876-9497	Loíza	Materials	Equipment	Services	Tents
Kike Cash & Carry	787-876-3295	Loíza	Ice	Water	Gasoline	Food
						X
Pascual Commercial	787-863-1538		Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Grainger	787-275-3500		Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
Hilti Caribe	787-936-7060		Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms

Lord Electric Bermúdez and Longo	787-758-4040 787-999-3030	Rio Piedras	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Candelaria Electric Services	787-502-4597		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Castellanas Restaurant Cafeteria	787-257-7795	Carolina	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
Chinese Paradise Restaurant	787-257-7950	Carolina	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
ECONO Supermarket	787-768-8379	Carolina	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
Roger Electric Grainger	787-776-0202 787-275-3500	Carolina Carolina	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms

Supplies Island Lord Electric	787-761-7355 787-758-4040	Trujillo Alto	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
Bermúdez and Longo Raul Dominguez	787-999-3030 787-505-6434	Trujillo Alto	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Ricardo Zapata	787-240-5054	Trujillo Alto	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
All Contractors	787-407-1620 787-378-4406	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		
Eddie's Water Supply	787-783-6073 787-597-1399	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		
Cristalia	787-680-8888	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		

Blue Fountain, Inc	787-163-3070 787-759-8210	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		
El Señorial Bakery	787-701-4040	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
May Flower Bakery	787-768-3995	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
The House of Taste	787-624-6061	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
Borincatering Services	787-697-6110	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Meals	
			Ice	Water	Gasoline	Bathrooms
Micky & Sweet Catering	787-753-1182	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Meals	
			Ice	Water	Gasoline	Bathrooms
Fior Cafe	787-528-2806	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms

Faccio Pizza	787-755-5415	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
The Criollo Banana	787-768-8072	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
Angelito's Café	787-725-6766	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
				20th		
Raíces Restaurant	787-705-9333	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
Morales Supermarket	787-720-2990	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Purchase	
			Ice	Water	Gasoline	Bathrooms
Econo Rial Supermarket, Altamira	787-707-0112	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Purchase	
			Ice	Water	Gasoline	Bathrooms
Cupey Alto Ice Plant	787-292-6862 787293-1085	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			20th			

San Juan Ice Plant Inc.	787-728-4045 787-726-5171	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			20th			

Ponce Region

Name	Number	Municipality	Mark the Type of Service			
Ponce ICE		Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Rene BBQ La Barquita De Fiesta	787-612-2792 787-866-8115	Guayama Salinas Guayama	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Septic		Juana Díaz	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
						X
Puma American Petroleum		Guayama	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Electric Service	787-864-5035	Guayama	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Coke		Cayey	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
Environics	787-781-7891	Caguas	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
La Hielera	787-938-7528	Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Tropical City	787-842-4251	Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		

JQ Maintenance	787-238-7959	San Germán	Materials	Equipment	Services	Tents
					X	X
			Ice	Water	Gasoline	Bathrooms
Grainger	787-275-3500	Cataño	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
Outek	787-644-9085	Guaynabo	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
Creole Delights	787-214-7994	Ponce	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Pizza Heaven	787-412-8253	Ponce	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Puma Garage	787-259-1569	Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Septix	787-840-9090	Ponce	Materials	Equipment	Services	Tents

			Ice	Water	Gasoline	Bathrooms
						X
Rentals M. Barrio	787-840-4740	Ponce	Materials	Equipment	Services	Tents
						X
			Ice	Water	Gasoline	Bathrooms
Gulf Garage	787-260-0289	Bo. Jacaguas	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
General Gases	787-843-0425	Ponce	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Environics	787-281-7891	St. John's	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
Santos Olivieri Hardware Store	787-845-3940	St. Elizabeth	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Electric Cowboy	787-825-1792	Coamo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
La Barquita	787-612-2792	Salinas	Materials	Equipment	Services	Tents

					X	
			Ice	Water	Gasoline	Bathrooms
Pichi's Hotel	787-835-7070	Guayanilla	Materials	Equipment	Meals	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
				X		
AEE Mechanics Workshop	787-521-8540	Yauco	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
AEE Monacillo	787-521-5966	Coordination of the Chief Technical Operations	Materials	Equipment	Services	Tents
						X
			Ice	Water	Gasoline	Bathrooms
						X
Café Bakery	787-856-8269	Yauco	Materials	Equipment	Meals	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Emergency Response Plan

Annex B
Fire Response

LUMA ENERGY

CRISIS MANAGEMENT OFFICE

May 10, 2021

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Handling Instructions

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Crisis Management Office
LUMA Energy

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Approval and Implementation

LUMA Energy Emergency Response Plan

Fire Response Annex

[redacted]

May 23, 2021
Date

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Contents

List of Tables

I. Purpose

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

This Annex 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 this Annex 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.

A.NIMS and the Incident Command System

LUMA has adopted the National Incident Management System (NIMS), a consistent, nationwide framework and approach that enables government at all levels (federal, state, local, tribal), the private sector and non-governmental organizations to work together to prepare for, respond to, and recover from the effects of incidents, regardless of cause, size, or complexity.

By ensuring the key elements of the Incident Command System (ICS) are implemented at each level within the organization, LUMA can accommodate municipal, regional, and system level emergencies. These key elements are easily replicated utilizing common roles and responsibilities.

II. Scope

This Annex applies to emergency events caused by a fire event or fire related hazards that result in, or could result in, a major impact to the integrity of LUMA's Transmission and Distribution (T&D) system and/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.

A.Guiding Principles

LUMA's Guiding Principles are primary mechanisms to coordinate LUMA's preparedness, response and recovery actions when faced with any type of minor or major emergency event. In accordance with the Guiding Principles, LUMA will:

- Treat all LUMA personnel, customers, and contract personnel with consideration and respect.
- Assess damage and relay information promptly. A high-level Company damage assessment will be provided within a reasonable timeline depending on the level of damage.
- Provide estimated times of restoration as the affected geographic area is assessed.
- Follow all safety protocols creating the ability to respond to sites that pose a risk to public safety (such as downed energized conductors) with the highest priority.
- Maintain environmental stewardship by complying with all environmental work practices and regulations.

- Maintain a focus on critical community lifelines throughout the response and restoration operations as defined in the LUMA ERP – Base Plan.

III. Situation and Assumptions

A. Situation

LUMAs ability to respond to an emergency fire event or fire-related hazards to lessen the effects of power outages to customers depends upon a combination of coordinated decisions internally and externally with regards to 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 for LUMA to provide continuous electric service to its customers.

The effectiveness of this Annex is based on LUMA's commitment to prepare and implement guidance and best practices outlined within this Annex and the ERP – Base Plan. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected and the magnitude of a major outage event 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 of this Annex. There are five (5) Event Types described in the Event Classification and LUMA Emergency Operations Center (LEOC) Activation Table, located in this Annex, Attachment 3.

B. Assumptions and Considerations

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

- Damage assessment(s) determines the impact and magnitude of damages and should be conducted within a reasonable timeline.
- Damage assessment reports identify affected geographic area(s) which contribute to the estimated time of restoration baseline projection.
- Normal resources and processes for support to impacted areas for power restoration may not be enough due to the severity and duration of the outage and 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 are maintained and activated when the scope of the incident requires additional resources beyond LUMA's capabilities.
- Potential weather conditions may affect the response and restoration actions.
- Assessment, prioritizing and scheduling of repairs are conducted throughout the response and restoration process.

IV. Concept of Operations

In the event of a major outage due to an emergency event that results in, or may result in damages to facilities or power outages, LUMA will respond and rapidly assess the impacts to the Transmission & Distribution (T&D) infrastructure and take 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 Classification Types are utilized and identified in the LUMA ERP – Base Plan.

A. Restoration Operations Strategy

The Dispatch and Field Operations Section within the LUMA Emergency Operations Center (LEOC) is responsible for the restoration operation strategies implemented by LUMA. In response to an event that affects the electric system's ability to provide power throughout Puerto Rico, directives from the LEOC will follow the LUMA Restoration Strategy identified in the LUMA ERP – Annex A, Major Outage Restoration ("Annex A"), Section VI.

1. Approach

Under the direction of the East or West Division Branch Director, the field teams will respond to the event as safely and efficiently as possible. The Incident Command System (ICS) is flexible and adaptable to the Event Type and EOC activation level identified in Attachment 2 of this Annex.

The ICS establishes:

- Lines of supervisory authority.
- Formal reporting relationships.
- Maintains reasonable spans of control at each level.
  - At a minimum, all Command Staff, General Staff, and Director ICS positions are responsible for primary and secondary staffing requirements within the incident command structure.

The transition from response operations to restoration operations will be considered when the following are addressed.

- Mobilizing/demobilizing their organization and resources as directed by the IC.
- Overseeing the deployment and direction of their staff in the performance of the specific tasks associated with their respective function.
- Making available a well-trained workforce to staff their respective function.
- Adhering to all applicable environment, health and safety rules, regulations and procedures.

2. Mobilization of Personnel

Most fires typically occur with little to no warning, therefore LUMA may be required to institute a rapid deployment of resources in the safest manner possible depending on the Event Type.

The most critical component to mobilizing personnel is the ability to be flexible in order to adapt to optimum levels 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 LUMA ERP-Annex A.

3. Damage Assessment

A Damage Assessment (DA) is a key component of the restoration operations. Assessment personnel are managed through the System Emergency Restoration Teams (SERT) and will provide their report to the Regional Commander. The order of evaluation is based on the Restoration Priority Matrix Guidelines which is identified within the Annex A., Section VII.E.

- The T&D System Control Center will monitor and develop an initial system status report. This report is used to compare the current level of electric demand on the system to the forecasted demand.
- The DA report is disseminated to the Operations Section in the LEOC where resources and equipment requirements are identified.
- Regional SERT teams execute restoration operations as identified by the LEOC and Regional Commanders.

4. Restoration

In accordance with the safety protocols and priorities established for emergency events identified within the LUMA ERP, response and restoration crews will be dispatched to pre-identified staging areas.

a) Prioritization

Outages are prioritized by:

- Considerations of safety conditions.
- Amount of damages to LUMA facilities and/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 LUMA ERP, Annex A.

b) Assessment

LUMA will complete an assessment of the electrical system by dispatching SERTs to determine and conduct emergency repairs.

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 minor or event. Municipal emergency response resources, such as law enforcement and/or fire departments, that respond to the incident should provide LUMA with the status of the area/facility before a damage assessment can be conducted.

Impacts to LUMA's facilities and infrastructure will be evaluated by conducting a thorough damage assessment. LUMA's restoration efforts will focus on the prioritization objectives listed below which include but are not limited to:

- 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.

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 will ensure "make safe" actions are taken and acknowledges it may be necessary to contract for additional resources to support "make safe" and restoration activities.

B. LUMA Event Classification Type

All potential fire incidents, either natural or man-made, have the potential to affect LUMA operations outside of the daily operational boundaries. If the incident triggers the activation of the LEOC, the IC is responsible for analyzing the severity and complexity of the incident with the collaboration and input of the Command and General Staff and determines the Restoration Event Type.

These classification types are directly tied to the establishment of LEOC activation levels. The IC may also deem it necessary to escalate or de-escalate the Event Type and LEOC Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions.

- Event Types 4 and 5 are Non-Emergency Events.
- Event Types 1, 2, and 3 are Emergency Events.
    - Type 1 is the most severe.
- Event Type 1 represent catastrophic emergency conditions.

- LUMA's Emergency Event Types are described in this Annex in Attachment 2.

V. Estimated Time of Restoration

Damages that cause electric system failure due to fire, and considerations regarding fire-related hazards(s) which may impede restoration operations, must be investigated upon notification of an impending or immediate emergency event.

Subsequently, timely and accurate Estimated Times of Restoration (ETR) must be 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 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 VIII, Tables 15 and 16.

VI. Direction, Control, and Coordination

This Annex provides the framework for the systematic response when emergencies due to fire arise and emergency restoration operations are required. Determination of an appropriate response is based on multiple factors which include:

- Damage Assessments
- Determination of the Event Type
- Coordinated response utilizing the Incident Command System (ICS)

The LUMA Emergency Response Plan (ERP) and its Annexes and Appendices identify the framework to respond and recover from natural or man-made events. For additional information related to direction, control, and coordination, refer to the ERP – Base Plan, Section VIII.

VII. Communications

LUMA will strive to provide timely, accurate and consistent communications prior to and during an incident. During a fire related event that requires the activation of the LUMA Emergency Operations Center (LEOC), the Public Information Officer (PIO), through the LEOC, will communicate necessary and critical information through a variety of methods that may include, but are not limited to the following:

- LUMA's website and Customer Outage
- Media Outlets
- Social Media (i.e. Twitter, Facebook, WhatsApp, etc.)
- Situational Reports to Local, Municipal and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)
  - LUMA is responsible for establishing a JIC and/or provide a liaison to the PREMB pre-established JIC.

LUMA has established a consistent messaging platform that is flexible to allow for expansion internally or externally, depending on the Event Classification Type which is identified within Attachment 2 of this Annex.

VIII. Demobilization

The Incident Commander (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 its pre-incident status. Demobilization planning is an on-going process that facilitates accountability and ensures efficient resource management.

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

The Planning and Intelligence Section Chief (PSC) will develop demobilization plans and ensure 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.

IX. Annex Development and Maintenance

This Annex is a living document. Development and maintenance to this Annex will be in conjunction with the LUMA ERP – Base Plan. Proposed changes should be sent to the Crisis Management Office (CMO) for approval and inclusion.

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

Attachment 1 – Explanation of Terms

Acronyms

CMO	Crisis Management Office
DA	Damage Assessment
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
MAA	Mutual Aid Agreement
NIMS	National Incident Management System
P&I	Planning and Intelligence
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau
PSC	Planning and Intelligence Section Chief
SERT	System Emergency Restoration Team
T&D	Transmission & Distribution

Terms

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 (DA) – A mechanism utilized to determine the magnitude of damage and impact of disasters.

Demobilization – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.

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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency Event – An event where widespread outages or Service Interruptions have occurred in the service area of the Company due to storms or other causes beyond the control of the company. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

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 (IC) – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Joint Information Center (JIC) – A central point of contact for new media and interest parties to coordinate incident information activities.

System Level ERO – Multi-regional Emergency Response Organization.

Attachment 2 – Event Classification Type

Type		Anticipated LUMA Operating Conditions
Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecast in advance of the event. This event calls for the full implementation of ICS and all employees are assigned shifts and are scheduled in relation to their role in the ERP. All Division and Regional Emergency Operations Centers (EOCs) are activated. This type of event is coordinated through daily 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. Communication protocols are activated and discussion with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity impacts the entire system such that restoration activities may require ten (10) days or more once it is safe to begin restoration activities • Typically, > 50% (>700,000) customer interruptions at peak • Typically, > 50,000 Outage Event at Peak • This type of event is anticipated to occur between 1 and 4 times in a ten-year period
	Response Organization	• System-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Division and/or Regional EOC level as directed by the PSC and OSC and approved by the IC • Remote Restoration Management Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • Liaisons are activated • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • LUMA will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication/ Coordination	• Federal resource coordination will likely be required • A written Incident Action Plan (IAP) is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities will be held

Table 1: Type 1 - Catastrophic Event

Type	Anticipated LUMA Energy Operating Conditions	
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire territory. Type 2 events are usually forecast in advance. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in ERP. This type of event is coordinated through daily 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. All impacted Division, and Regional Emergency Operations Centers (EOCs) are activated. Communication protocols are activated and extended discussions with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity within a specific region or spread across the system is such that restoration activities are generally accomplished within a 7-day period once it is safe to begin restoration activities • Typically, 25% to 50% (350,000 to 700,000) customer interruptions at peak • Typically, >25,000 Outage Events at Peak • This type of event is anticipated to occur between 2 and 4 times in a five-year period
	Response Organization	• The system-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Divisional EOC level as directed by the Planning and Operations Section Chiefs and approved by the Incident Commander • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Community Liaisons are activated to EOCs to serve communities as directed by the Liaison Officer and approved by the Incident Commander • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written IAP is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities may be held

Table 2: Type 2 - Emergency Conditions Event

Type	Anticipated LUMA Energy Operating Conditions	
Type 3 – High Alert Event (Moderate Regional Event)	Viewpoint	A Type 3 event represents the greatest range of uncertainty due to the severity of event being forecasted (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographical area that is threatened. This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for multiple regions to potentially be impacted by activating the ICS structure and the opening of one or more EOCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with less impact to areas that received greater damage. This type of event is coordinated through daily 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. Communication protocols are activated and extended discussions with local and state officials occurs prior to impact and through the restoration stage.
	Event Characteristics	• The damage severity within a specific district or region(s) is such that restoration activities are generally accomplished within a 48-72-hour period • Typically, 10% to 25% (70,000 to 350,000) customer interruptions at peak
	Response Organization	• The Incident Command structure is activated at the System EOC level down to the local level • One or more of the EOCs may be activated to match the complexity of the event • Additional restoration support functions such as Decentralized Dispatching, Downed Wires and Damage Assessment may be established at a Divisional EOC as directed by the Planning and/or Operations Section Chiefs and approved by the Incident Commander • Community Liaisons are activated to operational EOCs as directed by Liaison Officer and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Staging Areas may be required in an area if it has been severely impacted and requires a concentrated number of crews and resources
	Resource Activation	• This response may require outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy may require a large increase in various staffing positions and teams • Additional restoration support functions may be staffed
	Communication/ Coordination	• A written IAP may be required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Life Support Customers, Municipalities, Elected Officials, and Regulators is conducted as necessary • Restoration Phase Reporting is required

Table 3: Type 3 - High Alert Event

Type		Anticipated LUMA Energy Operating Conditions
Type 4 – Non-Emergency Restoration Event (Heightened Alert)	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Centers depending on the damage. The Incident Command Staff is notified, and specific sections may be activated depending on the impact of the event.
	Event Characteristics	• The damage severity within a specific district is such that restoration activities are generall accomplished within a 12-24-hour period • The incident is usually 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
	Response Organization	• Incident Command Structure may be activated • Command and General Staff positions activated as needed • One or more EOCs may be operational depending on the geographical threat and complexity • Community Liaisons may be staffed at the activated EOCs as directed by the Liaison Officer and approved by the Incident Commander
	Resource Activation	• Internal restoration resources normally available • Restoration is generally accomplished with local assets possibly with assistance from other regional distribution line assets • Typically, 2-50 personnel may be deployed to EOCs that have been activated at the discretion of the Planning and/or Operations Section Chiefs and approved by the Incident Commander to perform other functions
	Communication / Coordination	• No written IAP is required • The operations and maintenance department may have briefings or regional conference calls to ensure the complexity of the event is fully communicated to management and that response staff receive the appropriate level of support required for the event

Table 4: Type 4 - Non-Emergency Restoration Event

Type		Anticipated LUMA Energy Operating Conditions
Type 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival it is determined that additional resources are needed, a supervisor is assigned and will secure additional line crews from the Field Operations organization.
	Event Characteristics	• System activity is normal • Incidents are contained within the first operational period and last for less than 12 hours after resources arriv on scene • Typically, <1 % (14,000) customer interruptions at peak • Typically, <2,500 Outage Events at peak • Normal daily internal crew assignments
	Response Organization	• Incident Command Structure is not activated • Emergency Operations Centers are not activated
	Resource Activation	• Outage response is coordinated with local on-call personnel
	Communication/ Coordination	• No written IAP is required

Table 5: Type 5 - Normal Operations

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.
- Expected percent of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed such as a low wire, tree limb on 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.

Attachment 3 – Event Classification and LEOC Activation Levels

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation not impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Emergency Response Plan

Annex C
Earthquake Response

LUMA ENERGY

CRISIS MANAGEMENT OFFICE

May 10, 2021

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Approval and Implementation

LUMA Energy Emergency Response Plan

Earthquake Response Annex

[redacted]

May 23, 2021
Date

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I. Purpose

The purpose of LUMA's Earthquake Response Annex ("Annex") is to describe the key functions that LUMA will implement in response to an earthquake or earthquake-related hazard that affects facilities and infrastructure that provide electric service throughout Puerto Rico.

This Annex 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 earthquake or earthquake-related incident or event. A vital feature of this Annex 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.

A. NIMS and the Incident Command System

LUMA has adopted the National Incident Management System (NIMS), a consistent nationwide framework and approach that enables government at all levels (federal, state, and local), the private sector and non-governmental organizations to work together to prepare for, respond to, and recover from the effects of incidents, regardless of cause, size, or complexity.

By ensuring the key elements of the Incident Command System (ICS) are implemented at each level within the organization, LUMA can accommodate municipal, regional, and system level emergencies. These key elements are easily replicated utilizing common roles and responsibilities.

II. Scope

This Annex applies to emergency events caused by earthquakes and earthquake-related hazards that result in, or could result in, a major potential impact to the integrity of LUMA's Transmission and Distribution (T&D) system and/or a disruption of electrical service to LUMA customers. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

A. Guiding Principles

LUMA's Guiding Principles are primary mechanisms to coordinate LUMA's preparedness, response and recovery actions when faced with any type of minor or major emergency event. In accordance with the Guiding Principles, LUMA will:

- Treat all LUMA personnel, customers, and contract personnel with consideration and respect.
- Assess damage and relay information promptly. A high-level Company damage assessment will be provided within a reasonable timeline depending on the level of damage.
- Provide estimated times of restoration be as the affected geographic area is assessed.

- Follow all safety protocols associated with responding to sites that pose a risk to public safety (such as downed energized conductors) with the highest priority.
- Maintain environmental stewardship by complying with all environmental work practices and regulations.
- Maintain a focus on Critical Community Lifelines throughout the response and restoration operations as defined in the LUMA ERP – Base Plan.

III. Situation and Assumptions

A.Situation

Puerto Rico experiences hundreds of earthquakes of varying magnitude every year. The island is located above two congruent tectonic plates: the Northern American and Caribbean Tectonic plates. Pressure buildup between the plates results in a release of energy causing frequent earthquakes. Between December 2019 and January 2020, a string of earthquakes with magnitudes of five (5) or higher impacted the island (Figure 1) and severely damaged electrical infrastructure and the island's largest power plant, Costa Sur. Power outages impacted nearly the entire island and took over a week to restore.

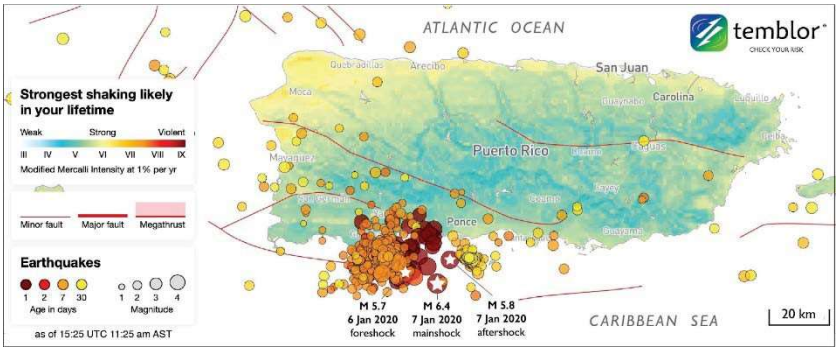

Figure 1- Puerto Rico Earthquakes. Dec. 2019- Jan. 2020 (Source: Temblor)

Earthquakes have the potential to expand into a major emergency and can affect the lives, property, and the ability of LUMA to provide continuous electric service to its customers. Puerto Rico's power generating facilities are at risk of damage as a result of earthquakes; Figure 2 illustrates the location of fault lines in relation to Puerto Rico's power generating facilities. LUMA's ability to respond to an earthquake and/or earthquake-related hazards to lessen the effects of power outages to customers depends upon a combination of coordinated decisions internally and externally regarding local emergency services personnel and resources.

Figure 2- Major Geographical Faults Overlapping the Power Generation Layout of Puerto Rico (Source: LUMA ERP- Base Plan)

The effectiveness of this Annex is based on LUMA's commitment to prepare and implement guidance and best practices outlined within this Annex and the ERP – Base Plan. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected, and the magnitude of a major outage event 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 of this Annex. There are five (5) Event Types described in the Event Classification and LUMA Emergency Operations Center (LEOC) Activation Table, located in this Annex, Attachment 3.

B. Assumptions and Considerations

LUMA's ability to respond to and recover from any type of minor or major event that may affect the electric service to its customers and related actions are outlined within the LUMA ERP – Base Plan and Major Outage Restoration Annex A. Identified below are additional assumptions and considerations regarding response to earthquakes which should include, but are not limited to the following:

- Earthquakes of high magnitude can inflict serious structural damage on electrical infrastructure and facilities. Cascading effects of earthquakes may include additional damages, large quantities of debris and simultaneous fires.
- Earthquakes can trigger earthquake-related hazards, such as aftershock earthquakes, tsunamis, surface faulting liquefaction, and/or landslides. For more information on these hazards, refer to the Hazards Assessment, Attachment 4.
- Damage assessment(s) determines the impact and magnitude of damages and should be conducted within a reasonable timeline.
- Damage assessment reports identify affected geographic area(s) which contribute to the estimated time of restoration baseline projection.
- Normal resources and processes for support to impacted areas for power restoration may not be enough due to the severity and duration of the outage.
- 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.
- 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 are maintained and activated when the scope of the incident requires additional resources beyond LUMA's capabilities.
- Potential weather conditions may affect the response and restoration actions.

- Assessment, prioritizing and scheduling of repairs are conducted throughout the response and restoration process.

IV. Concept of Operations

In the event of a major outage due to an earthquake or earthquake-related hazard that results in, or may result in damages of facilities or power outages, LUMA will respond and rapidly assess the impacts to the Transmission & Distribution (T&D) infrastructure and take 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 Classification Types are utilized and identified in the LUMA ERP – Base Plan.

A. Restoration Operations Strategy

The Dispatch and Field Operations Section within the LUMA Emergency Operations Center (LEOC) is responsible for the restoration operation strategies implemented by LUMA. In response to an event that affects the electric systems ability to provide power throughout Puerto Rico, directives from the LEOC will follow the LUMA Restoration Strategy identified in the LUMA ERP-Major Outage Restoration Annex A ("Annex A"), Section VI.

1. Approach

Under the direction of the East or West Division Branch Director the field teams will respond to the event as safely and efficiently as possible. The Incident Command System (ICS) is flexible with adaptability depending on the Event Type identified in Attachment 2 of this Annex.

The ICS establishes:

- Lines of supervisory authority.
- Formal reporting relationships.
- Maintains reasonable spans of control at each level.
  - At a minimum, all Command Staff, General Staff, and Branch Director ICS positions are responsible for primary and secondary staffing requirements within the incident command structure.

The transition from response operations to restoration operations will be considered when the following are addressed.

- Mobilizing/demobilizing their organization and resources as directed by the IC.
- Overseeing the deployment and direction of their staff in the performance of the specific tasks associated with their respective function.
- Making available a well-trained workforce to staff their respective function.
- Adhering to all applicable environment, health and safety rules, regulations and procedures.

2. Mobilization of Personnel

Most earthquakes typically occur with little to no warning, therefore LUMA may be required to institute a rapid deployment of resources in the safest manner possible depending on the Event Type.

The most critical component to mobilizing personnel is the ability to be flexible in order to adapt to optimum levels as the threat and/or extent of damages 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 LUMA ERP, Annex A.

3. Damage Assessment

A Damage Assessment (DA) is a key component of the restoration operations. Assessment personnel are managed through the Regional System Emergency Restoration Teams (SERT) and provide their report to the Regional Commander. The order of evaluation is based on the Restoration Priority Matrix Guidelines which is identified within the LUMA ERP, Annex A., Section VII.E.

- Assessment personnel should maintain safety and security protocols when conducting DA's after an earthquake in case of secondary earthquake-related hazards. Aftershocks may occur without warning up to days after the initial earthquake.
- The T&D System Control Center will monitor and develop an initial system status report. This report is used to compare the current level of electric demand on the system to the forecasted demand.
- The DA report is disseminated to the Operations Section in the LEOC where resources and equipment requirements are identified.
- Regional SERT teams execute restoration operations as identified by the LEOC and Regional Commanders.

4. Restoration

In accordance with the safety protocols and priorities established for emergency events identified within the LUMA ERP, Base Plan, response and restoration crews will be dispatched to pre-identified staging areas.

a) *Prioritization*

Outages are prioritized by:

- Considerations of safety conditions.
- Amount of damages to LUMA facilities and/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 LUMA ERP, Annex A.

b) *Assessment*

LUMA will complete an assessment of the electrical system by dispatching the SERT to determine and conduct emergency repairs.

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 and/or fire departments, that respond to the incident should provide LUMA with the status of the area/facility before a damage assessment can be conducted.

LUMA's facilities and infrastructure damages will be assessed by conducting a damage assessment. LUMA's restoration efforts will focus on the prioritization objectives listed below to include, 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.

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 will ensure "make safe" actions are taken and acknowledges it may be necessary to contract additional resources to support make safe and restoration activities.

B. LUMA Event Classification Type

All earthquake events have the potential to affect LUMA operations outside their daily operational boundaries. If the event triggers the activation of the LEOC, the IC is responsible for analyzing the severity, complexity, and size of the incident with the collaboration and input of the Command and General Staff and determines the Event Type.

These classification types are directly tied to the establishment of EOC activation levels. The IC may also deem it necessary to escalate or de-escalate the Event Type and EOC Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions.

- Event Types 4 and 5 are Non-Emergency Events.
- Events Types 1, 2, and 3 are Emergency Events.
  - Type 1 is the most severe.
- Event Type 1 represents catastrophic emergency conditions.
  - LUMA's Emergency Event Types are described in this Annex in Attachment 2.

V. Estimated Times of Restoration

Earthquake damages that cause the electric system to fail and considerations regarding earthquake-related hazards(s) which may impede restoration operations must be investigated upon notification of an impending or immediate emergency event. The timespan of an earthquake may prolong the Estimated Times of Restoration (ETR), given aftershocks and other earthquake-related hazards can occur after the initial event.

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 VIII, Tables 15 and 16.

VI. Direction, Control, and Coordination

This Annex 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:

- Damage Assessments
- Determination of the Event Type
- Coordinated response utilizing the Incident Command System (ICS)

The LUMA Emergency Response Plan (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 VIII.

VII. Communications

LUMA will strive to provide timely, accurate and consistent communications prior to and during an incident. During an earthquake related event that requires the activation of the LUMA Emergency Operations Center (LEOC), the Public Information Officer (PIO), through the LEOC, will communicate necessary and critical information through a variety of methods that may include, but not be limited to the following:

- LUMA's website and Customer Outage Map
- Media Outlets
- Social Media (i.e. Twitter, Facebook, WhatsApp, etc.)
- Situational Reports to Local, Municipal and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)

- LUMA is responsible for establishing a JIC and/or provide a liaison to the PREMB pre-established JIC.

LUMA has established a consistent messaging platform that is flexible to allow for expansion internally or externally, depending on the Event Type which is identified within the Event Classification Type- Attachment 2 of this Annex.

VIII. Demobilization

The Incident Commander (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 its pre-incident status. Demobilization planning is an on-going process that facilitates accountability and ensure efficient resource management.

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

The Planning and Intelligence Section Chief (PSC) will develop demobilization plans and ensure 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 event.
- All non-regional crews are released.

IX. Annex Development and Maintenance

This Annex is a living document. Development and maintenance to this Annex will be in conjunction with the LUMA ERP – Base Plan. Proposed changes should be sent to the Crisis Management Office (CMO) for approval and inclusion.

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

Attachment 1 – Explanation of Terms

Acronyms

CMO	Crisis Management Office
DA	Damage Assessment
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
MAA	Mutual Aid Agreement
NIMS	National Incident Management System
P&I	Planning and Intelligence
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau
PSC	Planning and Intelligence Section Chief
SERT	System Emergency Restoration Team
T&D	Transmission & Distribution

Terms

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 (DA) – A mechanism utilized to determine the magnitude of damage and impact of disasters.

Demobilization – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.

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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency – Any event, whether natural or manmade, that requires responsive action to protect life, property, and/ or operational capacity.

Earthquake – A term used to describe both sudden slip on a fault, and the resulting ground shaking and radiated seismic energy caused by the slip or other sudden stress changes in the earth.

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.

Emergency Event – An event where widespread outages or Service Interruptions have occurred in the service area of the Company due to storms or other causes beyond the control of the company. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

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 (IC) – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Joint Information Center (JIC) – A central point of contact for new media and interest parties to coordinate incident information activities.

Landslides – The movement of surface material down a slope that may be triggered by weather or earthquakes.

Liquefaction – The act of loosely packed, water-logged sediments at or near the ground surface losing their strength in response to strong ground shaking.

Surface Faulting – An offset of the ground surface when fault rupture extends to the Earth's surface.

System Level ERO – Multi-regional Emergency Response Organization.

Tsunami – A series of waves in a water body caused by the displacement of a large volume of water.

Attachment 2 – Event Classification Type

Type		Anticipated LUMA Operating Conditions
Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecast in advance of the event. This event calls for the full implementation of ICS and all employees are assigned shifts and are scheduled in relation to their role in the ERP. All Division and Regional Emergency Operations Centers (EOCs) are activated. This type of event is coordinated through daily 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. Communication protocols are activated and discussion with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity impacts the entire system such that restoration activities may require ten (10) days or more once it is safe to begin restoration activities • Typically, > 50% (>700,000) customer interruptions at peak • Typically, > 50,000 Outage Event at Peak • This type of event is anticipated to occur between 1 and 4 times in a ten-year period
	Response Organization	• System-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Division and/or Regional EOC level as directed by the PSC and OSC and approved by the IC • Remote Restoration Management Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • Liaisons are activated • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • LUMA will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication/ Coordination	• Federal resource coordination will likely be required • A written Incident Action Plan (IAP) is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities will be held

Table 1: Type 1 – Catastrophic Event

Type		Anticipated LUMA Energy Operating Conditions
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire territory. Type 2 events are usually forecast in advance. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in ERP. This type of event is coordinated through daily 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. All impacted Division, and Regional Emergency Operations Centers (EOCs) are activated. Communication protocols are activated and extended discussions with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity within a specific region or spread across the system is such that restoration activities are generally accomplished within a 7-day period once it is safe to begin restoration activities • Typically, 25% to 50% (350,000 to 700,000) customer interruptions at peak • Typically, >25,000 Outage Events at Peak • This type of event is anticipated to occur between 2 and 4 times in a five-year period
	Response Organization	• The system-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Divisional EOC level as directed by the Planning and Operations Section Chiefs and approved by the Incident Commander • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Community Liaisons are activated to EOCs to serve communities as directed by the Liaison Officer and approved by the Incident Commander • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written IAP is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities may be held

Table 2: Type 2 – Emergency Conditions Event

Type		Anticipated LUMA Energy Operating Conditions
Type 3 – High Alert Event (Moderate Regional Event)	Viewpoint	A Type 3 event represents the greatest range of uncertainty due to the severity of event being forecasted (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographical area that is threatened. This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for multiple regions to potentially be impacted by activating the ICS structure and the opening of one or more EOCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with less impact to areas that received greater damage. This type of event is coordinated through daily 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. Communication protocols are activated and extended discussions with local and state officials occurs prior to impact and through the restoration stage.
	Event Characteristics	• The damage severity within a specific district or region(s) is such that restoration activities are generally accomplished within a 48-72-hour period • Typically, 10% to 25% (70,000 to 350,000) customer interruptions at peak • Typically, >10,000 Outage Events at peak • This type of event generally occurs between 1 and 5 times per year
	Response Organization	• The Incident Command structure is activated at the System EOC level down to the local level • One or more of the EOCs may be activated to match the complexity of the event • Additional restoration support functions such as Decentralized Dispatching, Downed Wires and Damage Assessment may be established at a Divisional EOC as directed by the Planning and/or Operations Section Chiefs and approved by the Incident Commander • Community Liaisons are activated to operational EOCs as directed by Liaison Officer and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Staging Areas may be required in an area if it has been severely impacted and requires a concentrated number of crews and resources
	Resource Activation	• This response may require outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy may require a large increase in various staffing positions and teams • Additional restoration support functions may be staffed
	Communication/ Coordination	• A written IAP may be required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Life Support Customers, Municipalities, Elected Officials, and Regulators is conducted as necessary • Restoration Phase Reporting is required

Table 3: Type 3 – High Alert Event

Type		Anticipated LUMA Energy Operating Conditions
Type 4 – Non-Emergency Restoration Event (Heightened Alert)	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Centers depending on the damage. The Incident Command Staff is notified, and specific sections may be activated depending on the impact of the event.
	Event Characteristics	• The damage severity within a specific district is such that restoration activities are generall accomplished within a 12-24-hour period • The incident is usually 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
	Response Organization	• Incident Command Structure may be activated • Command and General Staff positions activated as needed • One or more EOCs may be operational depending on the geographical threat and complexity • Community Liaisons may be staffed at the activated EOCs as directed by the Liaison Officer and approved by the Incident Commander
	Resource Activation	• Internal restoration resources normally available • Restoration is generally accomplished with local assets possibly with assistance from other regional distribution line assets • Typically, 2-50 personnel may be deployed to EOCs that have been activated at the discretion of the Planning and/or Operations Section Chiefs and approved by the Incident Commander to perform other functions
	Communication / Coordination	• No written IAP is required • The operations and maintenance department may have briefings or regional conference calls to ensure the complexity of the event is fully communicated to management and that response staff receive the appropriate level of support required for the event

Table 4: Type 4 – Non-Emergency Restoration Event

Type		Anticipated LUMA Energy Operating Conditions
Type 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival it is determined that additional resources are needed, a supervisor is assigned and will secure additional line crews from the Field Operations organization.
	Event Characteristics	• System activity is normal • Incidents are contained within the first operational period and last for less than 12 hours after resources arriv on scene • Typically, <1 % (14,000) customer interruptions at peak • Typically, <2,500 Outage Events at peak • Normal daily internal crew assignments
	Response Organization	• Incident Command Structure is not activated • Emergency Operations Centers are not activated
	Resource Activation	• Outage response is coordinated with local on-call personnel
	Communication/ Coordination	• No written IAP is required

Table 5: Type 5 – Normal Operations

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.
- Expected percent of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed such as a low wire, tree limb on 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.

Attachment 3 – LEOC Event Classification and LEOC Activation Levels

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation not impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Attachment 4 – 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. As of July 2020, the Puerto Rico Seismic Network registered over 10,000 earthquakes in the Puerto Rico region. Earthquakes occurs 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 the following hazards should also be taken into consideration:

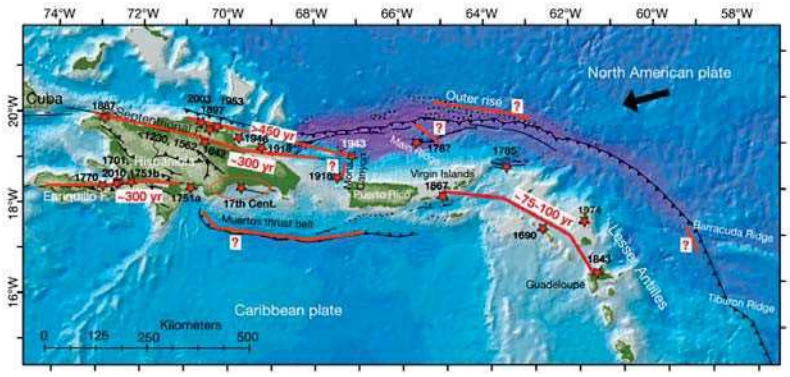

Figure 3- Puerto Rico Fault Lines (Source- U.S. Geological Survey)

Earthquake Aftershocks

Aftershocks are typically 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 cause 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 displacement that reaches the earth's surface during a slip along a fault. It commonly occurs with shallow earthquakes, those with an epicenter less than 20 km. Surface faulting can leave a visible line in the ground, noting the shift in the fault location, and can have a dramatic effect on the local infrastructure.

Landslides

A landslide is a movement of surface material down a slope. Earthquake-induced landslides are a result of the ground shaking and fault movement of an earthquake, which can potentially have a catastrophic impact on infrastructure. Landslides can include a large area of land, or surface movement that builds as it moves down the slope, both having the ability to cause significant destruction.

Tsunami

A tsunami is a sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes and have the potential to cause significant damage to the 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 Eco Electrica.

Exhibit 2
Redacted Public Version of Annexes A, B and C to LUMA's ERP that was filed on June 3, 2021

Emergency Response Plan

Annex A
Major Outage Restoration

LUMA ENERGY, LLC

CRISIS MANAGEMENT OFFICE

MaZ 10, 2021

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Crisis Management Office
LUMA Energy, LLC

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Approval and Implementation

LUMA Energy Emergency Response Plan

Annex A – Major Outage Restoration

[redacted]

May 23, 2021
Date

Director, Emergency Operational Response and Readiness

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Contents

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I. Purpose

The purpose of LUMA's Major Outage Restoration Annex (the "Annex" or "Annex A") is to establish an operational and tactical comprehensive framework for responding to major outage restoration events. This Annex will assist the Emergency Operations Team to carry 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 the guidance for how LUMA responses 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 Companywide.

A. NIMS and the Incident Command System

LUMA has adopted the National Incident Management System (NIMS), a consistent, nationwide framework and approach that enables government at all levels (federal, state, local, tribal), the private sector and non-governmental organizations to work together to prepare for, respond to, and recover from the effects of incidents, regardless of cause, size, or complexity.

LUMA incorporates the use of Incident Command System (ICS) principles which provides a consistent, all hazards incident management methodology that allows LUMA's organization to integrate seamlessly into a nationally standardized response and recovery structure.

II. Scope

This Emergency Response Plan (ERP) Restoration Annex applies to emergency events caused by any hazard or threat that results in, or could result in, a major potential impact to the integrity of LUMA's Transmission and Distribution (T&D) system and/or a disruption of electrical service to LUMA customers. Additionally, the ERP applies to LUMA personnel and to any staff of LUMA Energy, affiliate company employees, contractors and mutual aid resources, or any other personnel working at the direction or under the authority of LUMA Energy.

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

LUMA's Emergency Operational Boundaries (shown in Figure 1) are split geographically into the West Division and East Division. There are three Regions within each Division and twenty SERT Boundaries which are made up of 78 municipalities.

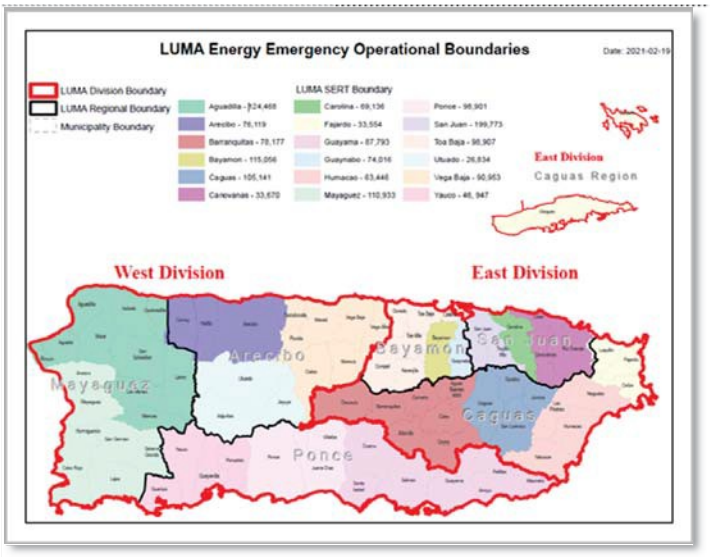


Figure 1: LUMA's Operational Boundaries

A. Guiding Principles

The guiding principles within this Annex are primary mechanisms to coordinate LUMAs preparedness, response and recovery actions when faced with any type of minor or major emergency event.

- LUMA will treat all customers, LUMA personnel and contract personnel with consideration and respect.
- LUMA will assess damage and relay information promptly. A high-level Company damage assessment will be provided within a reasonable timeline depending on the level of damage. Restoration estimates will be provided as each affected geographic area is assessed.
- LUMA follows all safety protocols creating the ability to respond to sites that pose a risk to public safety (such as downed energized conductors) with the highest priority.
- LUMA maintains environmental stewardship by complying with all environmental work practices and regulations.

III. Situation and Assumptions

A. 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, and is home to the capital, San Juan.

The effectiveness of this Annex is based on LUMA's commitment to prepare and implement procedures outlined within this Annex and the ERP – Base Plan. The development of an After-Action Report (AAR) will further enable ongoing improvement in LUMA's response and restoration processes. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected, and the magnitude of a major outage event vary, but the operational concept stays consistent. The level of recovery resources can be adjusted as needed.

LUMA will be taking an aggressive approach to harden the T&D electrical system across Puerto Rico, in order to withstand major weather events. Because of this, 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 to the location of the generation, LUMA will focus the hardening on key transmission lines to distribute energy to key load centers, critical system substation rebuilding will also be another area focus.

LUMA is committed to applying NME (Necessary Maintenance Expense) and FEMA funds to take the actions necessary to improve System Resilience through Storm Hardening, thus reducing the size and frequency of service interruptions even during Major Events. This involves a multi-faceted approach, including:

- Hardening key Transmission Lines that distribute energy to key load centers.

- Hardening the Feeder Backbone (alternatively referred to as the mainline or main gut, normally the three-phase part of the circuit that runs unfused from the substation to the normally open ties to other circuits or to 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 of Lightning Arrestors.
  - Performing physical inspections, identifying and categorizing deficiencies, and performing corrective maintenance on those deemed as requiring urgent or emergency action.
- Rebuilding of critical substations (particularly those susceptible to flooding), and
- Addressing the damaged or partially restored infrastructure caused by Hurricane Maria and recent seismic events.

This two-pronged approach will, over time, result in continued and sustainable improvement in restoration performance, while simultaneously reducing the number of customers experiencing outages during these major events.

B. Assumptions and Considerations

The ERP - Base Plan, Section III, identifies the overall assumptions and considerations. Identified within this Annex are in addition to, but not be 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, leaving the site safe until permanent repairs can be completed.
- Any delayed repairs are scheduled and completed in a timely manner.
- Assessments and the scheduling of needed repairs are conducted prior to discharging restoration crew resources.
- Mutual Aid Agreements or Memorandum of Agreements are maintained and activated when the scope of the incident will require additional resources beyond LUMA's capabilities.
- Facilitate coordinated response efforts and share information prior to and during the event to assist in establishing a common operating picture and efficient response.

IV. 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. LUMA has nine (9) EOCs; one LEOC, two Division EOCs, and six Regional EOCs. Organizational charts indicating lines of authority and the interrelation between organizational groups are included are included in Appendix A.

A. LUMA Leadership

Prior to, and during major storm events, LUMA's senior leadership will maintain an on-going and 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 and provides a platform to facilitate discussions regarding the potential sharing of personnel resources and other support functions between entities.

This coordinated approach is also important to the overall restoration response from a communications perspective, as it provides the mechanism for consistent messaging to employees, customers, and other external stakeholders. With the threat of a major storm or other system emergency, LUMA's leadership team and the Crisis Management Office (CMO) will activate all applicable functional areas (i.e., Operations, Planning, Communications, Logistics, etc.) to discuss and strategize a response to an event.

B. Emergency Response Organization

Figure 2 provides an overview of LUMA's Emergency Response Organization (ERO) and General Staff structure utilized during restoration activities. LUMA's organizational structure during outage restoration can be found in Appendix A to Annex A. Please refer to LUMA's ERP – Base Plan for a list of roles and responsibilities.

C. Employee Staffing Roster

LUMA maintains an employee contact sheet for all roles detailed within the Incident Command System (ICS) Restoration Roles and Responsibilities in Table 1. LUMA will continue to update the list annually or when required, due to personnel changes and/or updates. The full supplemental contact sheet can be found within Attachment 2 upon request.

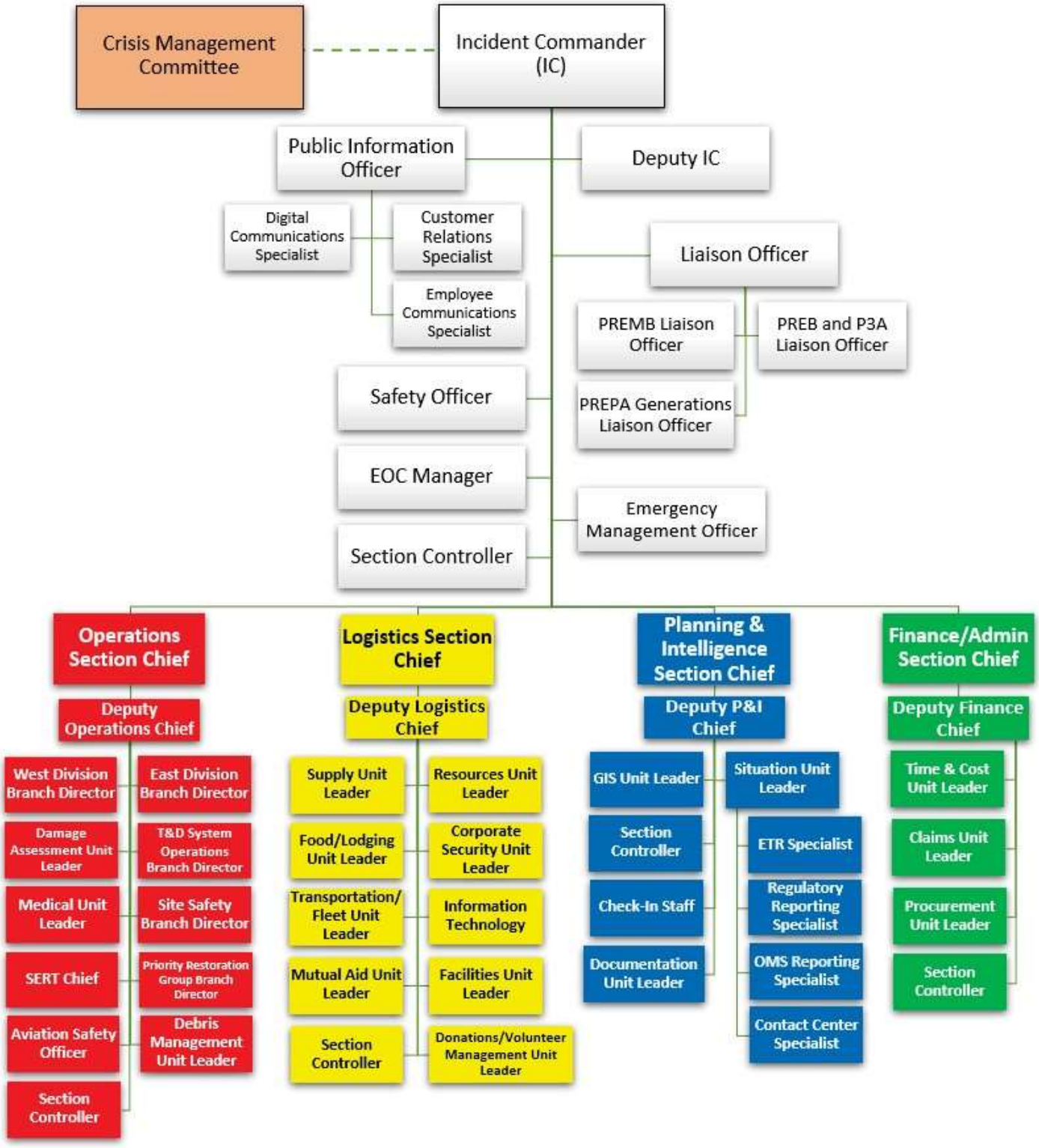


Figure 2: LUMA's Emergency Response Organization

V. Roles and Responsibilities

Table 1 details the key leadership roles during restoration operations and delineates significant corresponding function(s) that are coordinated in the respective areas

A. EOC Actions by Position

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Incident Commander (IC)	1. Once notified of a pending emergency event, begin an Activity Log to document actions and decisions throughout the event. 2. Review all related policies, procedures, forms and templates used during an event to ensure accuracy. 3. Initiate activities for appropriate resource acquisition and internal mobilization. 4. Initiate Pre-Event notifications and reports to regulatory, municipal and elected officials, when applicable (for Event Levels 1-3).	1. Ensure public safety maintains highest priority during restoration efforts and oversee restoration activities at the LEOC including resource acquirement and release, and demobilization. 2. Review and approve the IAP for the next operational period and continually reassess restoration response and objectives to ensure it addresses event escalation issues. 3. Establish a communication process and protocol to transfer restoration information to customers, regulators, and employees in a timely manner. 4. Using the information obtained from the different functions, determine if you need to alter response objectives/priorities and communicate any changes to the IC organization.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.
Operations Section Chief (OSC)	1. Ensure the staffing rosters for the Operations Section positions are up to date and ready to be used. 2. Following activation of the Incident Management Team, activate the appropriate Operations Section personnel, as needed. 3. Verify with the Branch Directors that all Operations positions are sufficiently staffed and that arrangements are made for 24-hour coverage.	1. Obtain a preliminary assessment of the number of customers affected and assist in development of restoration plans. 2. Oversees the conversion of the IAP's strategic goals into executable tactical plans that implement LUMA's restoration priorities. 3. Monitors the overall effectiveness of the field restoration activities to accomplish the stated IAP goals. 4. Ensure the Planning and Logistics Sections are aware of the operational resource requirements and are requesting and obtaining the necessary additional resources. 5. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
West Division Branch Director	1. Ensure the staffing rosters for the Branch Director's staff positions are up to date and ready to be used for their respective EOC. 2. Brief their respective EOC and staff on the impending threat and level of response. 3. Initiate activities for appropriate resource acquisition and internal mobilization.	1. Notify the Operations Section Chief if additional operational resources are needed. 2. Ensure safety procedures and protocols are being followed. 3. Ensure crew movements are communicated with Planning and Logistics Sections. 4. Maintain an awareness of the number of customers affected. 5. Notify the Operations Section Chief when it is known the restoration crews are being ready to be demobilized and redeployed, if necessary. 6. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.
East Division Branch Director	1. Ensure the staffing rosters for the Branch Director's staff positions are up to date and ready to be used. 2. Brief the EOC and SERT staff on the impending threat and level of response. 3. Initiate activities for appropriate resource acquisition and internal mobilization.	1. Notify the Operations Section Chief if additional operational resources are needed. 2. Ensure safety procedures and protocols are being followed. 3. Ensure crew movements are communicated with Planning and Logistics Sections. 4. Maintain an awareness of the number of customers affected. 5. Notify the Operations Section Chief when it is known the restoration crews are being ready to be demobilized and redeployed, if necessary. 6. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
T&D System Operations Branch Director	1. Assess generation status. 2. Asses T&D System status. 3. Evaluate Black Start Procedures 4. Ensure all T&D redundant systems are in functional operating condition. 5. Prepare staffing plan, schedules, and briefing for control centers as dictated for the event classification and LEOC activation level. 6. Ensure equipment is set up for the T&D System Operations ICS organization.	1. Control what comes on or off the system from a Generation, substation and line perspective. 2. Direct all operational requests and requirements to field personnel. 3. Isolate the grid as necessary during system constraints or lack of capacity 4. Provide field resourcing needs to planning and intelligence teams. 5. Provide IC and LEOC awareness of overall system capacity loading, issues and priorities for the planning periods. 6. Provide restoration priorities from a system perspective to the OSC. 7. Provide ETRs as system conditions and status changes.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.
Operations Regional Commander	1. As directed, notify SERTs and other personnel of the impending threat and level of response required. 2. Prepare staffing plan and schedules for respective Regional EOC as dictated for the duration level in the response matrix and approved by the Director. 3. Ensures equipment is set up in respective Regional EOC and operational, shift schedules for all SERT resources are developed and the process is operating efficiently.	1. Manages the overall readiness and operation of the assigned SERTs, including coordination. 2. Responsible for ensuring that all communications and restoration processes are being implemented as consistent with the ERP. 3. Ensures equipment is set up and operational, shift schedules for all SERT resources are developed and the process is operating efficiently. 4. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Priority Restoration Group (PRG) Branch Director	1. Schedule crews according to predetermined shifts. 2. Communicate with the OSC any staffing or restoration-related issues.	1. Disseminate dispatch instructions to crews. 2. Maintain communications with an assigned contact in the LEOC to address unique or emergency situations. 3. Conduct close-out of OMS tickets with crews to receive reports on the nature of the work completed regardless of manner of dispatch. 4. Conduct follow-up phone calls and/or emails when work is completed including notification to the Customer Experience Team as needed, Community Affairs, Regional and Municipal agencies. 5. Ensure adherence to the restoration priorities with all actions.	1. Participate in post-emergency reviews to identify lessons learned, as instructed. 2. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.
Area System Emergency Restoration Team (SERT) Chief	1. Ensure safety protocols and procedures are utilized. 2. Obtain briefing and assigned prioritized objectives from the Operations Regional Commander.	1. Ensure safety protocols and procedures are utilized. 2. Brief team on assigned incident objectives and communications expectations. 3. Communicate accomplishments, challenges, objective status and resourcing requirements. 4. Dispatch safety, damage assessment, priority restoration team and restoration crews. 5. Ensure adherence to the restoration priorities with all actions.	1. Ensure a proper demobilization of all restoration activities. 2. Initiate a post-emergency review to identify lessons learned. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event. 4. Ensure the development of an AAR when necessary and the implementation of resulting lessons learned.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Planning and Intelligence Section Chief (PSC)	1. Participate in System-wide coordination conference calls and present any planning-related issues. 2. Organize, assign and brief your Planning team. 3. Aid the IC in determining the necessary amounts and types of resources needed for the anticipated event (make formal resource requests to the LSC once approved by the IC). 4. Communicate with the IC any staffing or planning-related issues.	1. Begin maintaining a detailed PSC activity log. 2. Manage and administer the overall effort of collecting, processing, and reporting emergency service restoration information for the event. 3. Compile, analyze and evaluate damage assessment and all other available trouble data to project an estimated number of resources, skills, and equipment required (and alter initial plans if required). 4. Make additional requests for crew resources, materials, and other needs through the LSC.	1. Ensure a proper demobilization of all planning restoration activities once notified. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Logistics Section Chief (LSC)	1. Ensure outreach to contractors, local vendors, and property owners on availability for resources. 2. Acquire outside resources including line, tree, damage assessment and support prior to a known event, as instructed by the IC and ensure the information is sent to the Regional Logistics Team(s). 3. Ensure stockrooms and equipment are adequately stocked to respond and prepare and pre-stage critical materials including storm kits when necessary. 4. Validate material stock levels against the damage predictive model and event classification 5. Establish contact with the Regional Logistics groups to ensure logistical processes and protocols are clear and there is no redundancy of efforts. Ensure responsibilities and hand-off of information for each group are understood and schedule periodic conference calls.	1. Receive and fulfill resource requests as received by the PSC (once approved by the IC) and ensure all responding resources have adequate lodging, meals, materials, and transportation, as needed. 2. Review current IAP for proposed tactics and track incident expansion/contraction due to restoration progress and changes in conditions. 3. Ensure that all personnel and equipment time records are complete and submitted to the Finance unit under the Administration Section at the end of each operational period.	1. Upon notification by the IC ensure a proper demobilization of the Logistics unit and all logistical-related activities. 2. Consider demobilization early enough during the incident that an adequate demobilization plan is in place prior to the need to release resources (review resource list to ensure accuracy and timely release). 3. Participate in post-emergency reviews to identify lessons learned, as instructed. 4. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Finance/Admin Section Chief (FSC)	1. Participate in System-wide coordination conference calls and present any Admin/Finance-related issues. 2. Coordinate procurement card increases and purchase orders prior to a known event and ensure the release of financial policies and work order numbers for use. 3. Coordinate with the LEOC on any facility needs and ensure the delivery and setup of any special equipment or generators at the EOC's, as needed.	1. Ensure that all storm-assigned personnel available are mobilized, the Finance/Admin Section is staffed as appropriate. 2. Ensure that all personnel and equipment time records are complete and submitted to the Finance Section at the end of each operational period. 3. Oversee the receiving and coordination of all claims-related issues regarding the event. 4. Working closely with Logistics, oversee event costs and estimate the total cost of the event prior to completion of the restoration efforts.	1. When appropriate, ensure an orderly demobilization of the Admin/Finance Section and related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.
Public Information Officer (PIO)	1. As needed, oversee issuance of a Company statement concerning the activation of the LEOC and the necessity to release employees so that they can perform their emergency positions. 2. Oversee proactive communications.	1. Responsible for maintaining the unity of message before, during and after an emergency event to: employees, customers, and media outlets. 2. Responsible for overseeing the collection, development, and dissemination of employee, customer, and public messages and communications. 3. Coordinates with the EOCs to ensure consistent and accurate messaging for all emergency events. 4. Ensure all news releases are reviewed and approved by the IC. 5. Develop accurate and timely information for use during press/media briefings. 6. Develop daily messages and provide to the Planning Section Chief for inclusion in the IAP. 7. Monitor and forward media information that may be useful to the Planning Section.	1. When appropriate, ensure an orderly demobilization of the PIO support staff and related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Actions by Incident Command System Position			
Responsibility	**Pre-Event**	**During Event**	**Post-Event**
Liaison Officer (LNO)	1. Implement pre-event notifications to key stakeholders, including emergency planning officials, municipal officials, local government and non-government organizations, and others as required, in coordination with the PIO. 2. Disseminate information to the Liaison organization. 3. Ensure all required tools and technology are operating and available for use.	1. Notify and activate required Liaison support staff. 2. Ensure Liaisons are briefed on incident conditions and provide overall direction to regarding messaging for key stakeholders. 3. Inform the IC and General Staff of areas of concern and opportunities for coordination. 4. Deployment of LUMA liaison to serve in local municipal EOCs and ensure notifications are made to key stakeholders, including emergency management officials, municipal officials, local government and non-government organizations, and others as required, in coordination with the PIO.	1. When appropriate, ensure an orderly demobilization of the LNO support staff and related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.
Safety Officer (SOFR)	1. Ensure the staffing rosters for the Safety Officer's staff positions are up to date and ready to be used. 2. Participate in pre-event planning and operational conference calls and meetings. 3. Determine staffing needs based on the predicted or actual. 4. Event Classification Type or Event Level predictions. 5. Deploy Safety staff to various field locations as needed.	1. Provide regular reports and updates to IC. 2. Assign Safety staff as needed and ensure staffing level continues to be sufficient. 3. Ensure safety briefings are completed per the IAP for all personnel. 4. Notify IC about any safety related incidents. 5. Develop safety messages to be used during an event. 6. Facilitate Site Safety Inspections as appropriate. 7. Reiterate responsibility to all LUMA employees to stop unsafe acts if observed. 8. Ensure prompt investigation and documentation following a safety incident.	1. When appropriate, ensure an orderly demobilization of safety related activities. 2. Participate in post-emergency reviews to identify lessons learned, as instructed. 3. Ensure all documentation is submitted or stored appropriately and provide additional information as requested to aid in the development of the AAR for the event.

Table 1: EOC operations unit actions by role

VI. Restoration Strategy

A. Overview

The restoration strategy begins with the prioritized outages identified by the damage assessment teams and the outage management system (OMS). Restoration strategy takes into consideration outage information and identifies and compares that data to restoration protocols. System Emergency Restoration Teams (SERTs) must address emergency and life-threatening conditions such as public safety hazards or downed wires reported by first responders before any restorations begin.

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

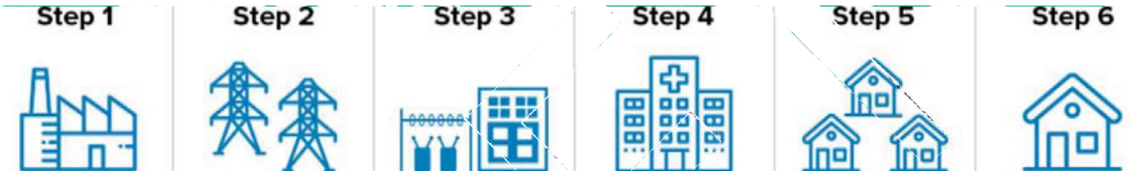


Figure 3: Prioritization of restoring power

1. Restore critical power assets – generation, micro grids and mini grids.
2. Repair key transmission lines – these lines transmit energy from generating stations to key substation.
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 (see Figure 4).
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.

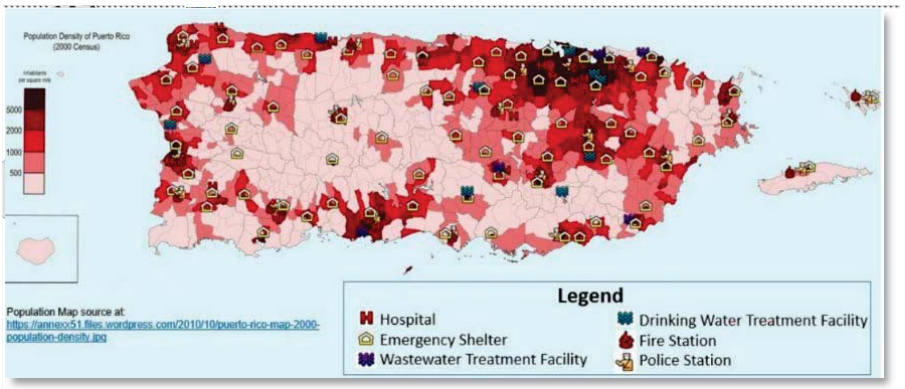


Figure 4: Map of Community Lifeline-related facilities

B. 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. These pre-storm actions assist LUMA to respond to outages more effectively, while ensuring that customers, employees, and key stakeholder groups are better informed and prepared when disasters strike.

1. 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 will strive 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.

2. First Responders

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

3. Governmental Organizations

Governments are defined as including government officials, local, city, and state emergency management organizations. LUMA will continue to strengthen relationships with these critical stakeholders through information sharing and collaboration throughout the year.

Members of LUMA's Crisis Management Committee will participate in PREMB and local municipality training programs centered on emergency planning and response protocols (i.e., ICS, NIMS, Homeland Security Exercise and Evaluation Program (HSEEP), etc.) throughout the year. These collaborative initiatives expand upon planning efforts and further promote information sharing between participating organizations.

LUMA will practice their 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 promotes 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.

VII. Concept of Operations

In the event of a major outage, LUMA will respond and rapidly assess the impacts to the Transmission & Distribution (T&D) infrastructure, and take the necessary actions to mitigate cascading effects from a long-term power outage and restore service, minimizing the impact to the citizens of Puerto Rico. To ensure response integration, the Puerto Rico Emergency Management Bureau's (PREMB) Incident Levels and LUMA's Event Classification Types are utilized and located in the LUMA ERP – Base Plan.

A. Restoration Operations

Restoration Operations conducted in response to an event impacting LUMA's electric system will be the responsibility of the Dispatch and Field Operations Section within the LUMA Emergency Operations Center (LEOC). The directives from the LEOC will follow the LUMA Restoration Strategy identified in Section VI.

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 East and West Division EOCs will report to the Operations Section Chief within in the LEOC.

The Incident Command System (ICS) is flexible depending on the level of decentralization for the event. Under the direction of the East or West Division Director the field teams will respond to the event as efficiently as possible.

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

The transition from response operations to restoration operations 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 start of the restoration period may 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 Electric System.
- Manpower available (along with timing of availability) to repair damage.

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

- Make Safe
  - When in a damage state LUMA's T&D infrastructure presents an extreme risk to the public, Safety Teams will rapidly response to protect and correct any identified situation.
- Damage Assessment (Rapid Survey and Detailed Assessment)
  - Damage predictions assist with estimations of time needed to assess and complete restorations.
- Prioritization of restoration
  - SERT priorities are identified and sorted by highest customer count. PRG priorities continue to be sorted by municipality identified Level 2 Critical Facilities (CF2) and Level 3 Critical Facilities (CF3) priorities within the Restoration Priority Matrix.
- Execution of tactical restoration operations
  - LUMA's continually supports the "Safety Always" objective, specific tactical objectives include fire/public-safety priority assistance, timely restoration, and providing useful, timely and accurate information to all stakeholders.
  - To facilitate expedient restoration and to maximize the optimal use of 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 and may include, but are 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 and/or number of customers affected by the repair, and the time necessary to complete each specific restoration.

2. Mobilization of Personnel

When an impending threat is known with reasonable certainty, precautionary deployment of personnel can facilitate a rapid response. The most critical component is the ability to be flexible in order to expand and retract to optimum levels as the threat becomes more certain. An anticipated and planned for 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 has overall responsibility for notifying the Command Staff, which includes the Safety Officer, the Liaison Officer, and the PIO in the activation of the LEOC. The Incident Commander may 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.

In accordance with the LUMA Performance Metrics for the Mobilization of Personnel, Table 2 identifies LUMA's mobilization timeline.

Mobilization of Personnel	
Time After Damage Prediction	**Percentage of Crews Deployed**
Within 24 hours	50%
Within 48 hours	80%

Table 2: Mobilization of personnel

a) LUMA Resources

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

Operational Managers are responsible for notifications to, and mobilization of, division personnel required for operational emergency response, proportionate with 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 will 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 Men Crews)
- Troubleman Underground Crews (Two Men Crews)
- Powerline Construction Crew
- Damage Assessment Teams
- Wire Watcher Teams

b) *On-Island Contingency Contract Crews*

The activation and assignment of crews is a vital part 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 may include any of the following:

- Troubleman Triage (One-Person Crews)
- Troubleman Overhead Line Crews (Two Men Crews)
- Troubleman Underground Crews (Two Men Crews)
- Underground Splicing Crews
- Powerline Construction Crew
- Tree Crews
- Damage Assessment Teams
- Wire Watcher Teams
- Substation Workers/Techs
- Telecom Workers
- Transmission Line Workers
- Equipment Operators

The T&D Electric Operations West and East Divisions are routinely engaged, on a continual basis, in the type of work necessary to restore electric service. Traditional lines of communication exist between these divisions that facilitate the coordination of the day-to-day contractor work forces in all conditions of readiness to the degree necessary.

c) *Mutual Aid and Off-island Support*

Mutual aid assistance is an essential part of the electric power industry's service restoration process and contingency planning on the island of Puerto Rico where utility qualified resources are limited. As an operating utility in Puerto Rico, LUMA will be an active member in mutual aid agreements and have contingency contracts in place which will enable LUMA to access mainland utility resources more efficiently.

LUMA also has the support of Quanta Services where they have staged pieces of heavy utility equipment on the island. When requested, Quanta will fly in skilled resources from the mainland that will be deployed to

respond with the on-island fleet. This combination of personnel and equipment will greatly decrease LUMA's restoration time.

d) National Guard Assistance

The National Guard Support Program provides for power restoration support from National Guard personnel when a catastrophic event occurs, and the customary sources of supplemental personnel, such as mutual assistance, contractors, or internal staff cannot provide adequate personnel to address needs. In order for the National Guard to be available for deployment, the Governor of the Puerto Rico must declare a "State of Emergency." As warranted and available, the Incident Commander may initiate actions to secure additional support available through the National Guard.

The National Guard is frequently called on to conduct disaster response and domestic emergency missions. These missions are a specific subset of the National Guard Civil Support (NGCS) mission area. Puerto Rico National Guard forces can provide surge logistics, transportation, communication assistance, and general-purpose capability to areas identified by the Puerto Rico Emergency Management Bureau to supplement LUMA emergency response expediting power restoration during the initial response to an incident. If National Guard Domestic Operations (NGDO) resources are deemed necessary, the following is a summary of roles that they could fulfill:

1. Public Safety
   a) Wire guarding for down wires
   b) Flagging for traffic control
2. Logistics Support
   a) Points of Distribution – including transportation and distribution of ice, or water to teams
   b) Fueling – delivery of fuel to vehicles and equipment engaged in power restoration work
   c) Lighting – delivery and operation of portable light towers to support restoration crews (they can operate, transport, and refuel any light towers provided to them by the company, Mutual Assistance Crews, contractors, or equipment rental companies)
3. Emergency Transportation
   a) Short-haul transport of cargo or materials from staging areas to point-of-repair locations
   b) High-axle transport of Damage Assessment Teams or Restoration Crews
   c) Aerial assessments (only as "lift of opportunity," when combined with an existing National Guard mission); should National Guard assets be utilized for aerial

patrols, National Guard pilots will be required to attend LUMA's training to ensure compliance with internal safety requirements

4. Heavy Equipment
   a) Supply dozers and backhoes for clearing right of ways of debris, building road access to powerlines in remote area
   b) Specialize equipment to access mountainous areas
5. Security
   a) Provide temporary security for job sites, critical substations and laydown yard
6. Communications Support
   b) Provide assistance with temporary communications in critical areas to assist with high priority restoration operations

Damage Assessment

A Damage Assessment (DA) is a key component of the restoration operations. The damage assessment process utilizes "two-person" teams, or additional support as needed, to physically inspect and report overhead primary and secondary damage locations associated with each locked out circuit. Assessment personnel are managed through the Regional SERT and provide their report to the Regional Commander. The order of evaluation is based on the restoration priority list.

Post-event, the T&D System Control Center will monitor and develop an initial system status report. This report is used to compare the current level of electric demand on the system to the forecasted demand.

The DA report is disseminated to the Operations Section in the LEOC where resources and equipment requirements to make the repairs and restore service are identified. Additional information on specific Damage Assessment protocols is in development.

a) Major Outage Event (MOE) Preliminary DA

LUMA will begin a preliminary DA of the affected area(s) and/or T&D facilities when it is safe to do so. The preliminary DA will be completed within a "reasonable time" at the beginning of the Operation Response phase. Reasonable times are identified in Table 3 and are in accordance with the MOE Performance Metric. The preliminary damage assessment will be performed primarily by the helicopter patrol with targeted land patrols when additional information is needed.

Preliminary DA Reasonable Time	
Event Categorization	**Response Time**
3 to 5 days	36 hours
5 to 10 days	72 hours
> 10 days	120 hours

Table 3: Reasonable time for preliminary damage assessments

Restoration

LUMA will utilize processes safely and efficiently to repair damage and restore electrical service. 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 damage assessments and repairs may commence when:

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

a) Prioritization

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

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

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

b) Situational Assessment

LUMA will complete 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 Classification Type has been determined, personnel will be assigned per the LUMA incident command structure.

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

- Eliminate Unsafe Conditions: the elimination of hazards to the public and takes precedence during emergencies. Safety Crew personnel are activated and required to:
  - Respond to reports of downed wires.
  - Cut, clear, and/or repair the primary and secondary hazards.
  - Clear wires so that service may be restored up to the location of the break.
  - Prioritize response to emergency calls based on the severity of risk for areas.
  - Additionally, at the initial stages of the restoration process, LUMA may be directly assigned to municipalities to “make safe” downed wires to remove trees and other debris from major roadways.
- Transmission Circuits and Substations: restoration is prioritized by the T&D System Operations Branch Director.
  - Determines the need for the bulk electrical system.
  - Damage assessment and repair of transmission lines and key substations.
  - Request personnel to support restoration of transmission service to substations.
  - Bulk distribution feeder circuits, not directly affecting substations, are assigned a priority, depending on the importance of the circuit and the effect of its loss on the bulk electrical system.
- Substation repairs are directed by the East or West Division Branch Director of the affected area in consultation with the T&D System Operations Branch Director.
- Primary Distribution Circuits and key feeder portions of ‘locked-out’ 3-Phase primary distribution circuits are restored by either cutting faulted sections clear or by opening sectionalizing devices (i.e. switches). Damages are repaired, restoring all 3-Phase primary distribution circuits.
- Secondary Distribution Lines and Services Areas where there is only damage to secondary distribution lines and services are restored simultaneously. Repair crews perform a final assessment of damage in the area and repair any additional damage found.
- Permanent Repairs - after all electric service has been restored, permanent repairs are made to any remaining temporary field

conditions. During restoration of service, if practical, permanent repairs are made to avoid hazardous conditions and eliminate duplication of effort.

B. LUMA Event Classification Type

All potential events, natural, man-made, and technological, with the potential to affect LUMA Operations are assigned a classification by the Incident Commander 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 will assist in identifying resource requirements and positions needed for an EOC activation at all levels of the ERO. This analysis typically 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 Classification Type. These classification types are directly tied to the establishment of EOC activation levels. As such, an event classification of Type 1 will also result in the establishment of an EOC Activation Level 1.

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

Five (5) event types have been established. Types Five (5) and Four (4) are considered Non-Emergency Events and are restoration events managed as normal operations and/or an isolated event that does not necessitate the activation of the EOC unless escalation occurs.

Types One (1), Two (2), and Three (3) are Emergency Events with Type Three (3) being the less severe and Type One (1) representing catastrophic emergency conditions. LUMA's Emergency Event Types (1-5) are described in detail in Tables 4-8.

Type	Anticipated LUMA Operating Conditions	
Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecast in advance of the event. This event calls for the full implementation of ICS and all employees are assigned shifts and are scheduled in relation to their role in the ERP. All Branch Division and Regional Emergency Operations Centers (EOCs) are activated. This type of event is coordinated through daily 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. Communication protocols are activated and discussion with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity impacts the entire system such that restoration activities may require ten (10) days or more once it is safe to begin restoration activities • Typically, > 50% (>700,000) customer interruptions at peak • Typically, > 50,000 Outage Event at Peak • This type of event is anticipated to occur between 1 and 4 times in a ten-year period
	Response Organization	• System-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Branch and/or Regional EOC level as directed by the PSC and OSC and approved by the IC • Remote Restoration Management Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • Liaisons are activated • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • LUMA will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written Incident Action Plan (IAP) is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities will be held

Table 4: Type 1 – Catastrophic Event

Type		Anticipated LUMA Energy Operating Conditions
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire territory. Type 2 events are usually forecast in advance. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in ERP. This type of event is coordinated through daily 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. All impacted Branch, Division, and Regional Emergency Operations Centers (EOCs) are activated. Communication protocols are activated and extended discussions with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity within a specific region or spread across the system is such that restoration activities are generally accomplished within a 7-day period once it is safe to begin restoration activities • Typically, 25% to 50% (350,000 to 700,000) customer interruptions at peak • Typically, >25,000 Outage Events at Peak • This type of event is anticipated to occur between 2 and 4 times in a five-year period
	Response Organization	• The system-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Branch and Divisional EOC level as directed by the Planning and Operations Section Chiefs and approved by the Incident Commander • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Community Liaisons are activated to EOCs to serve communities as directed by the Liaison Officer and approved by the Incident Commander • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written IAP is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities may be held

Table 5: Type 2 – Emergency Conditions Event

Type		Anticipated LUMA Energy Operating Conditions
Type 3 – High Alert Event (Moderate Regional Event)	Viewpoint	A Type 3 event represents the greatest range of uncertainty due to the severity of event being forecasted (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographical area that is threatened. This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for multiple regions to potentially be impacted by activating the ICS structure and the opening of one or more EOCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with less impact to areas that received greater damage. This type of event is coordinated through daily 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. Communication protocols are activated and extended discussions with local and state officials occurs prior to impact and through the restoration stage.
	Event Characteristics	• The damage severity within a specific district or region(s) is such that restoration activities are generally accomplished within a 48-72-hour period • Typically, 10% to 25% (70,000 to 350,000) customer interruptions at peak • Typically, >10,000 Outage Events at peak • This type of event generally occurs between 1 and 5 times per year
	Response Organization	• The Incident Command structure is activated at the System EOC level down to the local level • One or more of the EOCs may be activated to match the complexity of the event • Additional restoration support functions such as Decentralized Dispatching, Downed Wires and Damage Assessment may be established at a branch and/or divisional EOC as directed by the Planning and/or Operations Section Chiefs and approved by the Incident Commander • Community Liaisons are activated to operational EOCs as directed by Liaison Officer and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Staging Areas may be required in an area if it has been severely impacted and requires a concentrated number of crews and resources
	Resource Activation	• This response may require outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy may require a large increase in various staffing positions and teams • Additional restoration support functions may be staffed
	Communication/ Coordination	• A written IAP may be required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Life Support Customers, Municipalities, Elected Officials, and Regulators is conducted as necessary • Restoration Phase Reporting is required

Table 6: Type 3 – High Alert Event

Type		Anticipated LUMA Energy Operating Conditions
Type 4 – Non-Emergency Restoration Event (Heightened Alert)	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Centers depending on the damage. The Incident Command Staff is notified, and specific sections may be activated depending on the impact of the event.
	Event Characteristics	• The damage severity within a specific district is such that restoration activities are generally accomplished within a 12-24-hour period • The incident is usually 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
	Response Organization	• Incident Command Structure may be activated • Command and General Staff positions activated as needed • One or more EOCs may be operational depending on the geographical threat and complexity • Community Liaisons may be staffed at the activated EOCs as directed by the Liaison Officer and approved by the Incident Commander
	Resource Activation	• Internal restoration resources normally available • Restoration is generally accomplished with local assets possibly with assistance from other regional distribution line assets • Typically, 2-50 personnel may be deployed to EOCs that have been activated at the discretion of the Planning and/or Operations Section Chiefs and approved by the Incident Commander to perform other functions
	Communication / Coordination	• No written IAP is required • The operations and maintenance department may have briefings or regional conference calls to ensure the complexity of the event is fully communicated to management and that response staff receive the appropriate level of support required for the event

Type		Anticipated LUMA Energy Operating Conditions
Type 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival it is determined that additional resources are needed, a supervisor is assigned and will secure additional line crews from the Field Operations organization.
	Event Characteristics	• System activity is normal • Incidents are contained within the first operational period and last for less than 12 hours after resources arrive on scene • Typically, <1 % (14,000) customer interruptions at peak • Typically, <2,500 Outage Events at peak • Normal daily internal crew assignments
	Response Organization	• Incident Command Structure is not activated • Emergency Operations Centers are not activated
	Resource Activation	• Outage response is coordinated with local on-call personnel
	Communication/ Coordination	• No written IAP is required

Table 8: Type 5 – Normal Operations

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.
- Expected percent of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed such as a low wire, tree limb on conductor or damaged equipment.
- For all Event Classification 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.

C. Restoration Priority Matrix Guidelines

LUMA will strive to restore power to all customers in the safest timely manner possible. In support, LUMA Operations will utilize a Restoration Priority Matrix during both normal and emergency operations, which provides for the most efficient approach in 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

1. Downed Wires

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

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

- downed wires - pole-to-pole or downed wires - pole-to-building
- downed wires and burning
- sparking wires

Response to downed wires for performing the initial investigation and for clearing the hazard is under the direction of the Operations Section. The Planning & Intelligence (P&I) Section will assist Operations with the prioritization and identification of teams for assignment.

Dispatchers will determine the appropriate resources to be assigned to both evaluate and guard downed wires or make the incident safe and will 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.

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 has 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 primary conductor • Reported to be secondary conductor
4	Report of electric downed wire from other sources: • Primary conductor is indicated • Secondary conductor is indicated
5	Report of downed wire where type of wire is not indicated, and it appears the wire is not likely an electric conductor.
* Priority 3 includes reports from members of the 911 call center, police, fire, EOC personnel, and emergency managers.	

Table 9: Priority levels of downed wires

Damage assessment and/or repair personnel are then dispatched from the region or district area, through OMS, to assess and/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 will be determined. If necessary, the responder will either:

- Make the situation safe, so that wire is not a risk to the general public in the area.
- Standby 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 individuals are trapped by a downed wire, will result in the immediate dispatch of an Overhead Line Crew to the incident.

Remaining downed wire reports are then assigned to damage assessment and/or repair personnel, according to the downed wire priority, as referenced below (highest to lowest).

Damage assessment and/or repair personnel that are specifically dispatched to safeguard downed wire situations will respond to the location of the downed wire. After assessing the situation, the severity is determined based on the following guidelines (highest to lowest).

Severity Level	Description of Downed Wires
1	Downed wire conductor that *poses a high risk to public safety*, due to its location on a road or pedestrian-accessible area. These situations will require damage assessment and/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 will also require damage assessment and/or repair personnel to remain on-site until relieved by a Wire Watcher or the conductor can be verified deenergized by a qualified employee or contractor. Once the wire is known to be de-energized, the damage assessment and/or repair personnel will barricade or tape the area and then can move on to their next location.
3	Downed wire is a *secondary conductor*. Damage assessment and/or repair personnel will attempt to notify nearby customers and will barricade/tape off the area to clearly distinguish the hazardous area. If the wire is either open wire secondary or triplex service cable that has an exposed end (wire is broken), damage assessment and/or repair personnel will remain on-site until relieved by a Wire Watcher or a qualified employee or contractor has verified that the wire is not energized.
4	Downed wire is *not an electric conductor* and is *not in contact with an electrical conductor*, but is instead phone, cable, or other communications property. If the situation is safe, damage assessment and/or repair personnel will 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 to the responsible company.

Table 10: Severity of downed wires

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 in accordance with the Performance Metrics, (per the event categorization, see Table 11) while working in conjunction with local authorities after a Major Outage Event.

Downed Wires Reasonable Time	
Event Categorization	**Response Time**
3 to 5 days	18 hours
5 to 10 days	36 hours
> 10 days	60 hours

Table 11: Reasonable time for response to downed wires

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 and/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 will often deploy trained personnel comprised of trained high voltage line workers that have the proper skill sets to cut clear, and/or de-energize/ground downed wires. By completing this process transportation corridors become safely passible.

Where possible, a restoration crew will make the location safe. If required, a wire guard representative will be dispatched to the location to await SERTs. Restoration priorities are identified within the Restoration Priority Matrix, Table 12.

Priority Level	Description of Road Closures
1	Local and State roads and emergency service roads.
2	County 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 road closure from other sources where a downed wire may be the cause or ancillary to the primary cause of the road closure.
5	Report of road closure where the type of wire is not indicated, and it appears the wire is not likely an electric conductor.

Table 12: Road closures

3. Critical Facilities

Critical facilities identified as a Level 1 facility provide services that are critical to the health and safety of the public and are tied to at least one of the five 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).

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 and Cooling Centers and Rescue Facilities 3) Emergency Operations Centers (LUMA and Municipal) 4) Water pumping stations and Wastewater treatment plants 5) Fire, Police, 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 same type of facilities 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 type of facilities described in Level 2 depending on the event type but are considered to some extent less critical by government agencies: 1) Event Specific Concerns 2) High-Rise Residential Buildings 3) Customers providing key products and services (food warehouse) 4) Managed Accounts, Large Employers, and Other Key Customers 5) Other Government Buildings, Schools, and Colleges

4. Emergency Event Conditions

The Restoration Priority Matrix and Critical Facility Level protocols are consistent in both normal and emergency operations. If the event damage is so severe that all available resources are expended or damaged, LUMA's restoration efforts will focus on the major prioritization objectives listed below until additional operational crews and other mutual aid arrives:

1) Responding with appropriate resources to address emergency and life-threatening conditions.
2) Clearing of downed wires to facilitate prompt clearing of public safety hazards and opening critical transportation corridors.
3) Restoration of LUMA's Transmission Lines and Substation Facilities.
    a. Focusing on restoring crucial Transmission Lines that allows strategic dispatch of energy from key generation assets to load centers.
    b. Emphasis is placed on restoration of service to a LUMA's Transmission Lines feeding substations experiencing a "loss of supply".
4) Restoration of feeder breaker lockouts to restore large numbers of customers.
5) Restoration to Critical Community Lifelines.
    a. Service will be restored to critical facilities as quickly as possible. These circuits and locations are placed at the top of the restoration priority.
6) Communications with Customers and Stakeholders.
    a. It is vital that early and accurate communication of system conditions be made known, and that continuous updating occurs as storm restoration activities continue.
7) Minimum Restoration Time.
    a. Plans will be formulated to complete restoration efforts on all interrupted customers, following a severe storm, as quickly as possible. Restoration efforts will be prioritized in the following manner:
        i. larger area outages
        ii. smaller area outages
        iii. individual house service

5. Make Safe Protocols

LUMA recognizes the importance of clearing emergency evacuation routes and main thoroughfares after a major weather event or other emergency events that may affect transportation corridors. LUMA understands the significant role they play in assisting to provide safe areas by de-energizing and/or removing downed electrical wires that may be blocking roads or entangled in downed trees or roadway debris.

During large-scale weather events, the number of internal resources that are trained and readily available is limited, and the demand could greatly exceed those available. LUMA will anticipate the need for additional personnel to ensure "make safe" actions are taken and acknowledges that, depending on the impact of the emergency event, it

may be necessary to contract for additional qualified resources or reassign other available internal resources to support these activities.

VIII. Estimated Time of Restoration Guidelines

Providing accurate Estimated Time of Restoration (ETRs) is a top priority of LUMA's overall restoration process. LUMA aims to better serve its customers, municipal officials, and emergency support organizations by providing professional ETR administration and timely communication of essential information.

The timing, magnitude, and impact of an event factors into the ETR times, therefore LUMA will establish a baseline of projections to assist when determining operational goals and timelines. An ETR provides an estimate of when service will be restored to a customer, location, and/or work assignment based on the conditions seen on site, in conjunction with supporting historical data. Specific priorities and tactical objectives are guided by the application of available resources weighed against the foregoing priorities to optimize the overall response.

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

ETRs are segregated into three types: Global, Regional, and Local. 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. The classifications are naturally interconnected and follow a top-down input methodology based on anticipated operational actions, results, and damage assessments. The ETR information will ultimately become more precise as additional data and information is obtained, on a local level, and as restoration efforts progress.

- Global ETRs – Information is determined at a system-wide level.
- Regional ETRs – Information is determined at a regional level.
- Local ETRs – Information is determined at a municipal or a customer level basis.

Figure 4 provides a high-level overview of the typical ETR process during restoration efforts and includes a summary of targeted efforts and information availability during various stages of restoration.

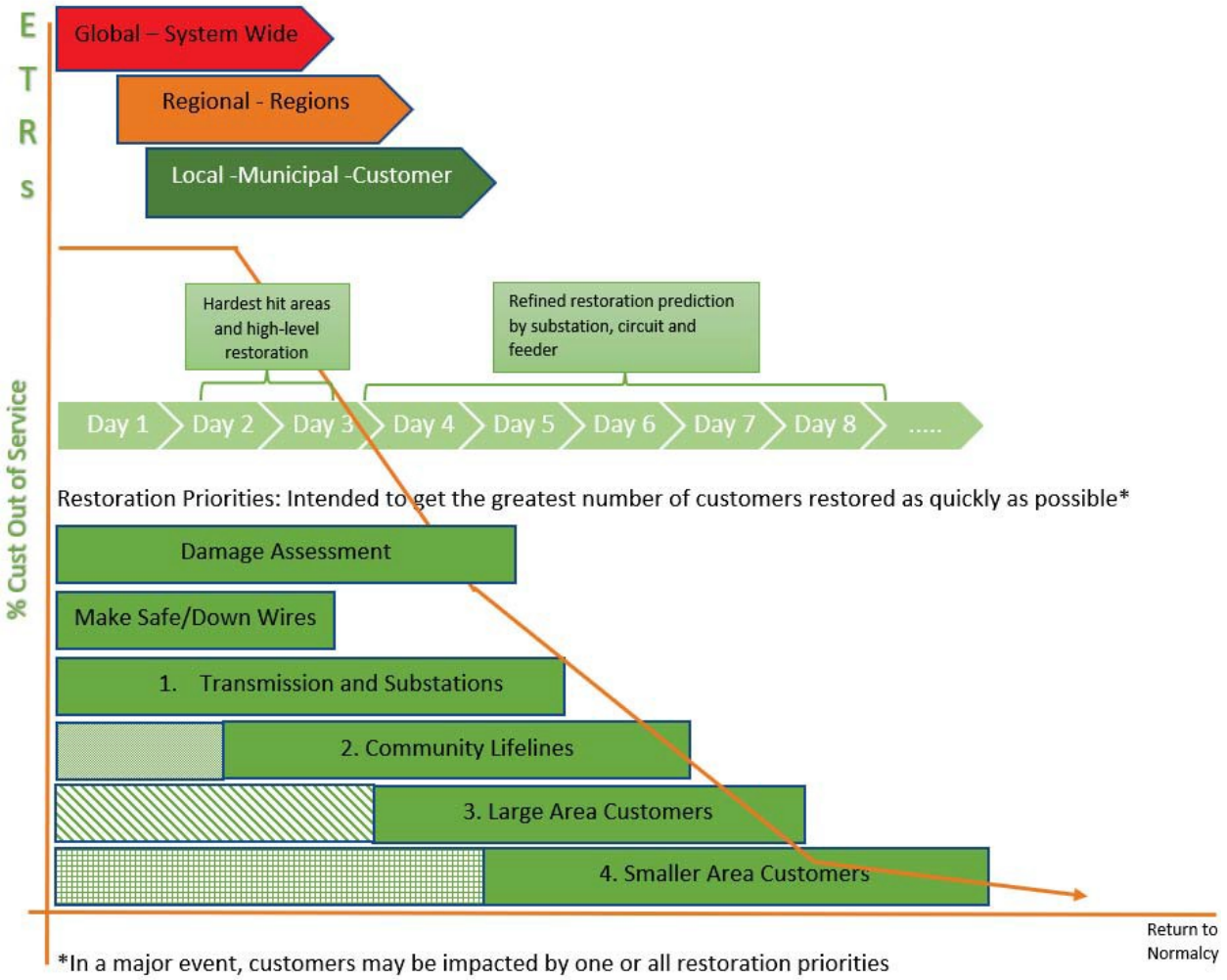


Figure 4: ETRs defined

The protocols are considered minimum requirements necessary to ensure all customers are adequately informed. During restoration, LUMA will continuously refine ETRs and update customer representatives, Interactive Voice Response (IVR) systems, and web sites in a timely manner as the situation changes. LUMA shall provide restoration information (customer outage counts, ETRs, etc.) to media outlets and public officials in affected areas during major outage events. Additionally, LUMA will issue at least one press release daily for all major outage events with an expected restoration period longer than 48 hours. Any additional information available now should be included in this notification even though notification may be required prior to the start of restoration. For widespread events, company-wide outage statistics should also be provided as part of the initial notification.

Estimated Time of Restoration	
Time After Damage Prediction	**Percentage of Service Restoration**
24 hours	90%
All ETRs should be updated every 24 hours	

Table 14: Estimated time of restoration for 90% of service outages

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 be available for account information. ETR information is readily available and disseminated to LUMA, stakeholders, and associated employees through multimedia platforms and the Interactive Voice Response (IVR). Internal personnel updates on ETRs will be made through the LUMA Dispatch Team. The anticipated actions related to the assessment and identification of ETRs are detailed in Tables 15 and 16.

Type 3 Events expected to last 48 hours or less:

Within the first 6 hours of the restoration period
• Notify regulatory authorities of expectation that the event will last less than 48 hours. The notification to regulatory authorities will state what LUMA has defined as the start of the restoration period. For events expected to last less than 24 hours, notification may be via IVR. • Provide available information to the public via customer representatives, IVR systems, and web sites. • In certain situations (e.g., nighttime event), only limited information may be available within the initial six-hour window. In these situations, the expectation is that the companies will inform Staff of the delay in determining the initial outage 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 restoration period will be less than 48 hours (or less) will be communicated as soon as possible, but no later than noon the following day. Any delay in establishing the initial storm expectations will not affect the time requirements below.
Within the first 12 hours of the restoration period
• Provide regulatory authorities with a global ETR and any available regional ETRs. • Prepare a statement for the press that includes known ETRs for the next upcoming news cycle and communicate with affected municipal and governmental officials (may or may not be by way of a municipal conference call).
Within the first 18 hours of the restoration period
• Establish ETRs for each locality affected and make them available to the public via customer representatives, IVR systems, and web sites.
Within the first 24 hours of the restoration period
• Consider issuing a press release for the upcoming news cycle based on conditions.
Reporting requirements during the event
• Provide restoration information updates four times daily to regulatory authorities (7AM, 11 AM, 3 PM and 7 PM). Updates should continue until otherwise directed by Staff. • Notify regulatory authorities when all storm related interruptions have been restored.

Table 15: Restoration activities for events 48 hours or less

Type 1 and 2 Events expected to last greater than 48 hours:

Within the first 6 hours of the restoration period
• The utility shall indicate that it will be a multi-day event (i.e., greater than 48 hours). Notification shall be made to regulatory authorities and will state what the Company has defined as the start of the restoration period. • 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 event), 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 outage 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 restoration period will be greater than 48 hours will be communicated as soon as possible, but no later than noon the following day. Any delay in establishing the initial storm expectations will not affect the time requirements below.
Within the first 12 hours of the restoration period
• Prepare a press release for issuance in time for the next upcoming news cycle and communicate with affected municipal and governmental officials (may or may not be by way of a municipal conferencecall).
Within the first 18 hours of the restoration period
• Schedule municipal conference call(s), unless an alternative municipal contact method is more appropriate. The first scheduled municipal conference call itself does not necessarily have to fall within the first 18 hours but shall be within the first 36 hours.
Within the first 24 hours of the restoration period
• Notify regulatory authorities of what areas sustained the most damage to the electric system and ETRs, where known, on a general geographic basis. • Issue a press release(s) for upcoming news cycles with the information described in previous bullet.
Within the first 36 hours of the restoration period
• For storms with expected restoration periods five days or less, provide regulatory authorities a global ETR. • Establish regional/county ETRs for areas expected to be restored in five days, even if the total restoration period 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. • The utilities must have completed the first scheduled municipal conference call. • Make ETR information available to the public via customer representatives, IVR systems, and web sites.

Within the first 48 hours of the restoration period
• For storms with expected restoration periods five days or less, provide regulatory authorities with ETRs by municipality. • Provide regulatory authorities with a global ETR (when outages are expected to less than five days, this is required within 36 hours). • Provide regional/county ETRs for heavily damaged areas where large numbers of customers are expected to remain without service for five or more days.
Beyond the first 48 hours of the restoration period
• For storms with expected restoration periods more than five days provide, estimated restoration times for each locality affected and make the information available via customer representatives, IVR systems, and web sites.
Reporting requirements during the event
• Provide restoration information updates four times daily to regulatory authorities (7AM, 11 AM, 3PM, and 7 PM), which shall continue until otherwise directed by Staff.

Table 16: Restoration activities for events greater than 48 hours

IX. Direction, Control, and Coordination

Whenever possible, emergency response procedures will 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 and 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.
- 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 VIII.

X. Communications

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

The Public Information Officer (PIO), through the LUMA Emergency Operations Center (LEOC), will communicate necessary and critical information. LUMA will communicate information through a variety of methods including:

- LUMA's website and Customer Outage Map
- Media Outlets
- Social Media (i.e. Twitter, Facebook, WhatsApp, etc.)
- Situational Reports to Local, Municipal and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)

A. Public Service Announcements (PSA)

When the PIO or other designee issues emergency PSAs for the purpose of updating customers, the general public, media, local elected officials, local municipal officials and employees, the Incident Commander (IC) must approve the final draft prior to its dissemination.

Public statements may include the following confirmed information:

- Number of customers affected
- Affected regions

- Numbers of crews
- Estimated time of restoration (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

PSAs are distributed to the following stakeholders:

- Customer Service Team
- Employees
- Media outlets
- Elected Officials
- Local Municipal Officials
- Regulatory and State Governmental Agencies

B. Media Communications

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

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

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

The goals are to:

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

C. Digital Communications

Prior to a known event, the PIO digital communications team member, will review and update the Company's website content. During the event, the designated member will

ensure that PSAs are posted on the website and that content is current. The website to be used is TBD at this time.

The Outage Map displays outage and restoration information in both geographically and in tabular format and will be provided by region or town including customers served and customers impacted on the tabular side.

Geographically, customers will also see outage information and an estimated outage location which a customer can view to access an estimated time of restoration (ETR) range. For example: ETR 5:15 PM to 7:15 PM.

D. Employee Communications

Internal communications are prepared and distributed before, during, and after an event, by the PIO team, through multimedia platforms, to ensure that all employees have the knowledge of the damages and impacts of the event. Information and updates, expectations for their support, the nature, scope, and status of LUMA's restoration response will be included. Messages include information consistent with that released to the general 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 will be sent by the PIO employee communications team. All information released will be 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
- Important employee information

E. Regulatory Officials

The PIO will prepare information for the Puerto Rico Energy Bureau (PREB) and the Puerto Rico Public Private Partnerships Authority Liaison Officer (P3LNO) who is responsible for maintaining contact with appropriate regulatory officials. Contacts are initiated at the earliest time feasible. The P3LNO will communicate with regulatory and elected officials prior to and during an emergency event using email, conference calls, and individual phone calls or other means, as necessary.

The East and West Division Branch Directors are responsible to liaise with emergency management agencies during non-emergencies and prior to a known major emergency. Once a predicted emergency event is forecasted, the Regulatory Reporting Specialist will prepare and submit Pre-Event Stage Reports, Event Stage Reports, and Post-event Stage Reports, as required by the MOE Performance Metric, and submit to the appropriate agencies as required until outages occur. For additional information on reporting, refer to the ERP – Base Plan, Section X.A. Government of Puerto Rico and Federal Emergency Management Agency (FEMA) officials will provide contact information for contacting the LNO during an MOE.

F. Municipal Officials

During events where the Division EOC is activated, the Customer Experience Team will provide staffing in the Division EOC to facilitate communications between the LEOC and municipal officials prior to an event and during the restoration effort.

Supporting municipalities severely affected by emergency events aides in prioritizing the restoration of electric facilities and may improve access to company facilities by attaining municipal support services.

A dedicated line of communication will be established in each Division EOC for responding to local municipal inquiries. The Division EOC staff shall prepare and maintain a list of cities, towns, and key contact information.

Each electric distribution division, during an emergency event, shall provide periodic reports to municipal officials including, emergency managers or their designees, that contain detailed information related to emergency conditions and restoration performance for each affected city and town.

The content and format of these periodic reports (Pre-Event Stage Reports and Service Restoration Stage Reports) as required by the PREB and P3A regulatory agencies can be found in Appendix D to the ERP-Base Plan.

The following communications are carried out by the Division EOCs to satisfy the regulatory reporting requirements:

- Scheduled conference calls with municipal officials, including emergency managers.
- Community Liaison communications (telephonic, electronic and/or in person) with municipal officials, including emergency managers.
- Communicate with key account customers. (See Table 2)
- Provision of emergency conditions and restoration information, including but not limited to:
    - outage and restoration information.
    - priority wires-down locations.
    - critical facilities impacted by the emergency event, through a community website portal that may be accessed by municipal emergency managers.

XI. Demobilization

Demobilization is the orderly, safe, and efficient return of an incident resource to its original location and/or status. The Incident Commander is responsible to initiate the De-escalation/De-mobilization process. Demobilization planning for de-escalation/de-mobilization is an on-going process that begins as soon as the response begins to facilitate accountability and ensure efficient resource management.

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

The Planning Section Chief will develop demobilization plans and ensure they are implemented as instructed by the IC.

The ERO may be fully demobilized when:

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

XII. Annex Development and Maintenance

This Annex is a living document. Development and maintenance to this Annex will be in conjunction with the LUMA ERP. Proposed changes should be sent to the CMO for approval and inclusion.

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

Attachment 1 – Explanation of Terms

Acronyms

CF	Critical Facilities
CLAL	Claims Unit Leader
CMO	Crisis Management Office
CSL	Corporate Security Unit Leader
DA	Damage Assessment
DOCL	Documentation Unit Leader
DSOC	Distribution System Control Center
DVML	Donations/Volunteer Management Unit Leader
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FAQ	Frequently Asked Questions
FEMA	Federal Emergency Management Agency
FLUL	Food/Lodging Unit Leader
FSC	Finance Section Chief
FUL	Facilities Unit Leader
HAZUS	Hazards U.S.
HES	Hurricane Evacuation Study
HSEEP	Homeland Security Exercise and Evaluation Program
HVX	Hurrevac
IAP	Incident Action Plan
IC	Incident Commander
ICC	Incident Command Center
ICS	Incident Command System
IMT	Incident Management Team
IT	Information Technology Unit Leader
IVR	Interactive Voice Response

JIC	Joint Information Center
LRS	Lifeline Residential Service
LSC	Logistics Section Chief
MAA	Mutual Aid Unit Leader
MMS	Materials Management System
MOU	Memorandum of Understanding
NHC	National Hurricane Center
NIMS	National Incident Management System
NWS	National Weather Service
OMS	Outage Management System
P&I	Planning and Intelligence
P3A	Puerto Rico Public Private Partnerships Authority
PIO	Public Information Officer
PREB	Puerto Rico Energy Bureau
PREMB	Puerto Rico Emergency Management Bureau
PRG	Priority Restoration Group
PROC	Procurement Unit Leader
PSA	Public Service Announcement
PSC	Planning and Intelligence Section Chief
QPF	Quantitative Precipitation Forecast
RC	Road Closure
RESL	Resources Unit Leader
RSR	Restoration Status Report
SCADA	Supervisory Control and Data Acquisition
SERT	System Emergency Restoration Team
SITL	Situation Unit Leader
SMS	Short Message Service
SOG	Standard Operating Guide
SUL	Supply Unit Leader
T&D	Transmission & Distribution
TCUL	Time & Cost Unit Leader

TRUL	Transportation/Fleet Unit Leader
TSOC	Chief Transmission System Control Operator
WFO	Weather Forecast Office
WPC	Weather Prediction Center

Terms

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 – Critical facilities identified as a Level 1,2, or 3 facility provide services that are critical to the health and safety of the public and are tied to at least one of the five critical community lifelines. Examples include hospitals, fire/police stations, restoration staging areas, and communications facilities.

Damage Assessment (DA) – A mechanism utilized to determine the magnitude of damage and impact of disasters.

Demobilization – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.

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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency – Any event, whether natural or manmade, that requires responsive action to protect life, property, and/ or operational capacity.

Emergency Event – An event where widespread outages or Service Interruptions have occurred in the service area of the Company due to storms or other causes beyond the control of the company. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

Emergency Response Plan (ERP) – A comprehensive plan that provides the concept of operations for response to emergency situations and other extraordinary events consistently and effectively.

Geographic Information Systems (GIS) – A framework that is used to map the distribution system with land base information.

Hurrevac (HVX) - National Hurricane Program's hurricane decision support tool used to assist in decision-making and responding to tropical cyclone threats and evacuations.

Joint Information Center (JIC) – A central point of contact for new media and interest parties to coordinate incident information activities.

Key Account Customers – Large industrial customers who may have their own electrical system that LUMA supplies power to.

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 (IC) – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Outage Management System (OMS) – System used to identify customer outages, assign trouble crews, and record outage event statistics.

Priority 1 Downed Wires: **Life Threatening/Imminent Danger** – An event in which utility equipment is preventing emergency response from performing rescue efforts and/or administering first-aid treatment to a person or persons who maybe injured or in danger of being injured.

Priority 2 Downed Wires: Hindering Emergency Operation – An event in which utility equipment is preventing emergency response personnel from responding to a situation which is not considered life threatening yet requires the attention of emergency response personnel.

Priority 3 Downed Wires: Non-Threatening Electrical Hazard – An event in which utility equipment creates the need for emergency response personnel and/or apparatus to remain on the scene in order to protect the public from the hazard created by the utility's equipment.

Supervisory Control and Data Acquisition (SCADA) – 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.

SMART Objectives – The establishment of all objectives should be created using the Specific, Measurable w/Measurement, Achievable, Relevant, Time-Oriented.

System Level ERO – Multi-regional Emergency Response Organization

Attachment 2 – Employee Staffing Roster

[Redacted]

Attachment 3 – Event Classification Types and LEOC Activation Levels

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Attachment 4 – Major Outage Metric

Table 17: Summary of Major Outage Event Performance Metrics

Description	Metrics	Comments	Location
1. Preparation Phase			
Completion of steps to provide timely and accurate emergency event preparation following an alert from U.S. National Weather Service or the company's private weather service, or the government of Puerto Rico has declared a state of emergency or when an event is known to be imminent or has occurred, in accordance with the Emergency Response Plan, for an event expected to affect the company's service territory.	Completion of each step counts separately: 1.1 Event-level categorization based on weather forecasts, system resiliency assessment and available resources. 1.2 Press releases issued/text messages/emails sent. 1.3 Municipal conference calls held. 1.4 Critical & essential customers alerted — based on established list with current information.[1] 1.5 Point of contact for critical facilities alerted — based on established list with current information. 1.6 Company compliance with training program as specified in the Emergency Response Plan. 1.7 Participation in all pre-event mutual assistance group calls. 1.8 Verify materials/stockpiles level based on forecast. If materials are not on hand, corrective steps taken in shortest reasonable time to correct the situation.		
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 through the Municipal Emergency Operations Center (EOC) through LUMA's Municipal Emergency Operations Center (MEOC) Liaison. **Reasonable Time** **Event Categorization** — **Response Time** 3 to 5 days — 18 hours 5 to 10 days — 36 hours > 10 days — 60 hours	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.	
3. Damage Assessment			
	After the beginning of the Major Outage Event and when it is safe to do so LUMA will begin a preliminary damage assessment of the affected area(s) or T&D facilities. The preliminary damage assessment will be completed within a "reasonable time" at the beginning of the Operation Response phase. The preliminary damage assessment will be		

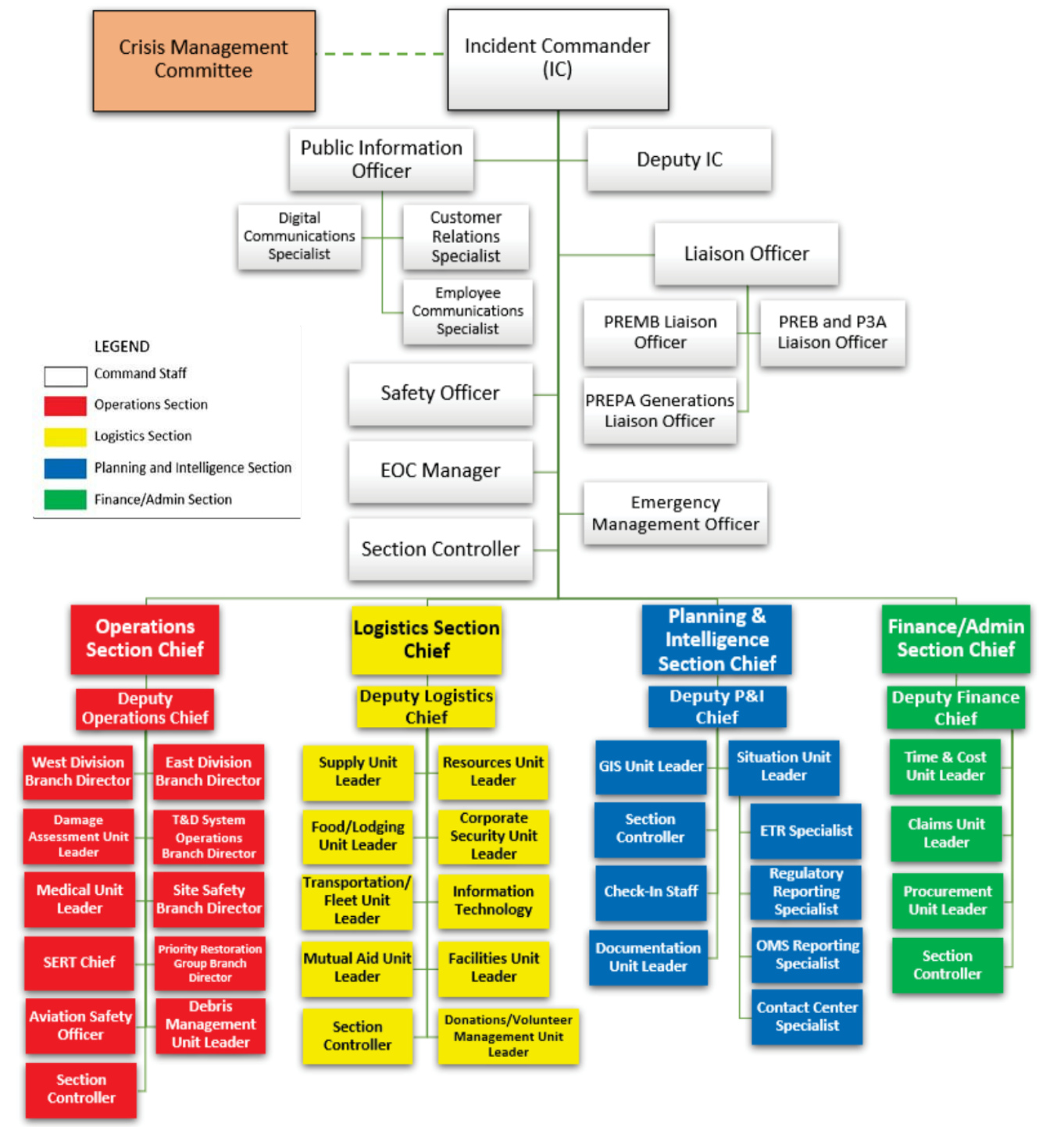
[1] This includes critical care customers (lifeline residential service customers).

	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. **Reasonable Time** **Event Categorization** — **Response Time** 3 to 5 days — 36 hours 5 to 10 days — 72 hours > 10 days — 120 hours		
4. Crewing			
50% of the forecast crewing [from mutual assistance] committed to the utility.	50% of the forecast crewing [from mutual assistance] committed to the utility. Three (3) days prior to a forecasted event occurring (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 stage materials, equipment and personnel at the required location prior to the weather event striking the area. Within 24 hours of the damage prediction, 50% of indicated internal crews and qualified contract crews will be deployed. Within 48 hours of the damage prediction, 80% of the indicated internal crews and qualified contract crews will be mobilized on island.		
5. Estimated Time of Restoration (ETR) for 90% of Service Outages			
Estimated Time of Restoration for 90% of service outages (made available by utility on web, IVR, to Customer Service Representatives (CSRs), etc.)	Publication of regional ETRs in accordance with guidelines.		
	Publication of municipal ETRs in accordance with guidelines.		
	A preliminary ETR for 90% service restoration will be made available on the Internet 24 hours after the preliminary damage assessment in pdf format.		
	ETRs on 90% service restoration to be made available on IVR and to CSRs by municipality or region.		
	All ETRs to be updated every 24 hours.		
6. ETR Accuracy for 90% Service Restoration			
Regional ETR accuracy Municipal ETR accuracy	Accuracy for 90% of service outage restoration and published in accordance with ETR requirement time. The ETRs used for this metric will be the ETRs posted after the thorough damage assessment is completed and not based on the preliminary damage assessment.		

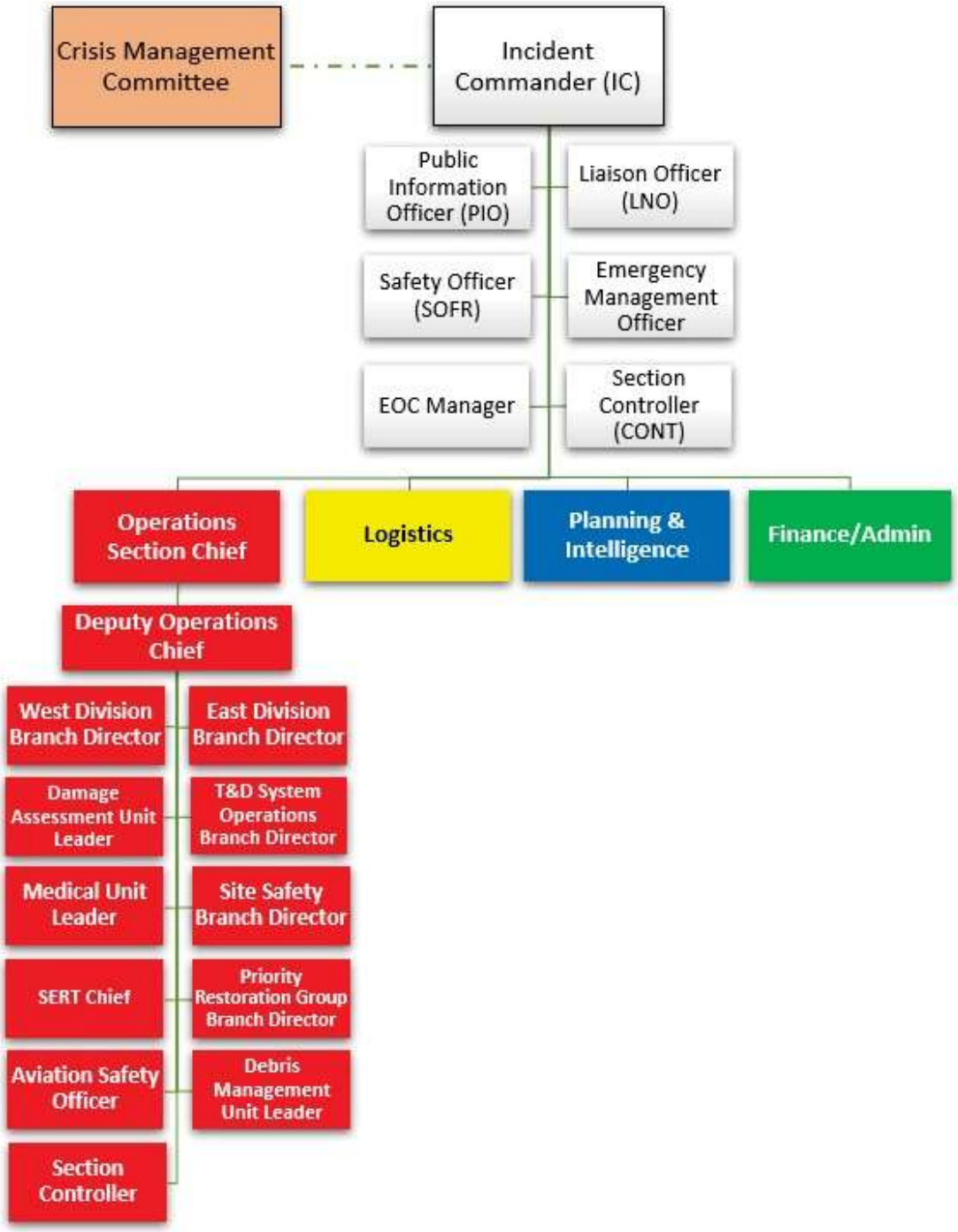
7. Municipality Coordination			
Coordination with municipalities regarding road clearing, downed wires, critical customers, etc.	Through the Municipal EOC the LUMA local Incident Command Center (ICC) Municipal Liaison will attend all scheduled Situation Report (SITREP) meetings. The Liaison will be the conduit for ICC information and requests. To track, the Municipal EOC must be activated so that all requests flow through it. LUMA's ICC Municipal Liaison will attend all scheduled SITREP meetings.		
8. Municipal EOC Coordination Puerto Rico Commonwealth/Federal EOC Coordination			
Coordination with municipal Puerto Rico Commonwealth and Federal EOCs.	Through the Commonwealth and Federal EOCs the LUMA Liaisons will attend all scheduled meetings. The Liaison will be the conduit for ICC information and requests. To track activity, the State and Federal EOCs must be activated and not a request from elected officials.		
9. Utility Coordination			
Coordination with other utilities (communications, water, etc.)	Establish contact points between utilities.		
10. Safety			
Measure of any employee or contractor injured doing hazard work during storm/outage and restoration.	Record safety incidents and include in safety report per LUMA Health Safety Environment & Quality (HSE&Q) standard.		
11. Mutual Assistance			
Crew requests made through all sources of mutual assistance or other pre negotiated contracts with utility service providers.	Three (3) days prior to a forecasted event occurring (when the event allows that much warning time), LUMA will complete a damage prediction to determine the requirements for on and off island mutual aid/pre-negotiated contracts with other utility service providers. LUMA will activate the required resources and place them on standby until the damage assessment is completed. After the initial damage assessment is completed, the requests for mutual assistance or other utility service provider crews will be made as follows: • Within 70 hours, 40% of crews • After 120 hours, 80% of committed mutual aid and other utility service provider crews will be requested		
12. Call Answer Rates			
Customer calls answered by properly staffed call centers (use of IVR and other technology is an acceptable solution).		TBD depending on size of major event.	
13. Web Availability			
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. In the event that no new information is available, the website must display the last time and date that information was			

updated. The website and/or section pertaining to outage impact and restoration may be taken offline for a short period during off-peak hours to perform system maintenance			
14. PREB and Administrator (P3A) Reporting			
Provide storm event information to PREB and Administrator in accordance with LUMA's Electric Outage Management System (OMS) guideline requirements to be established in the ERP for LUMA.	Information to be updated every 24 hrs.		
15. Customer Communications			
Availability of press releases, text messaging, email and social media.			
16. Outgoing message on telephone line			
Recorded message providing callers with outage information is updated within two hours of communication of press releases.		Available at Service Commencement Date. IVR will be managed in house	

Appendix A – LUMA ICS Structure

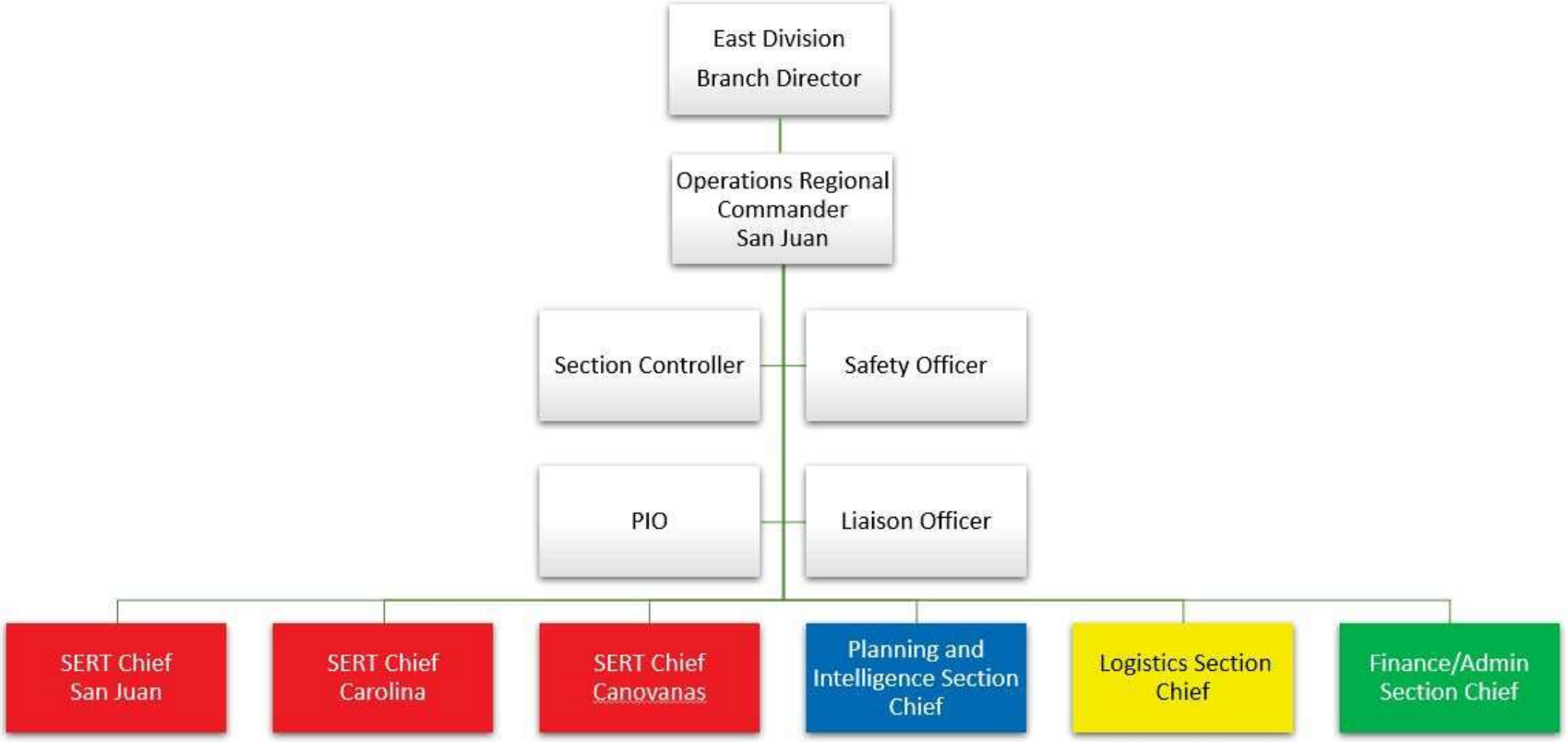


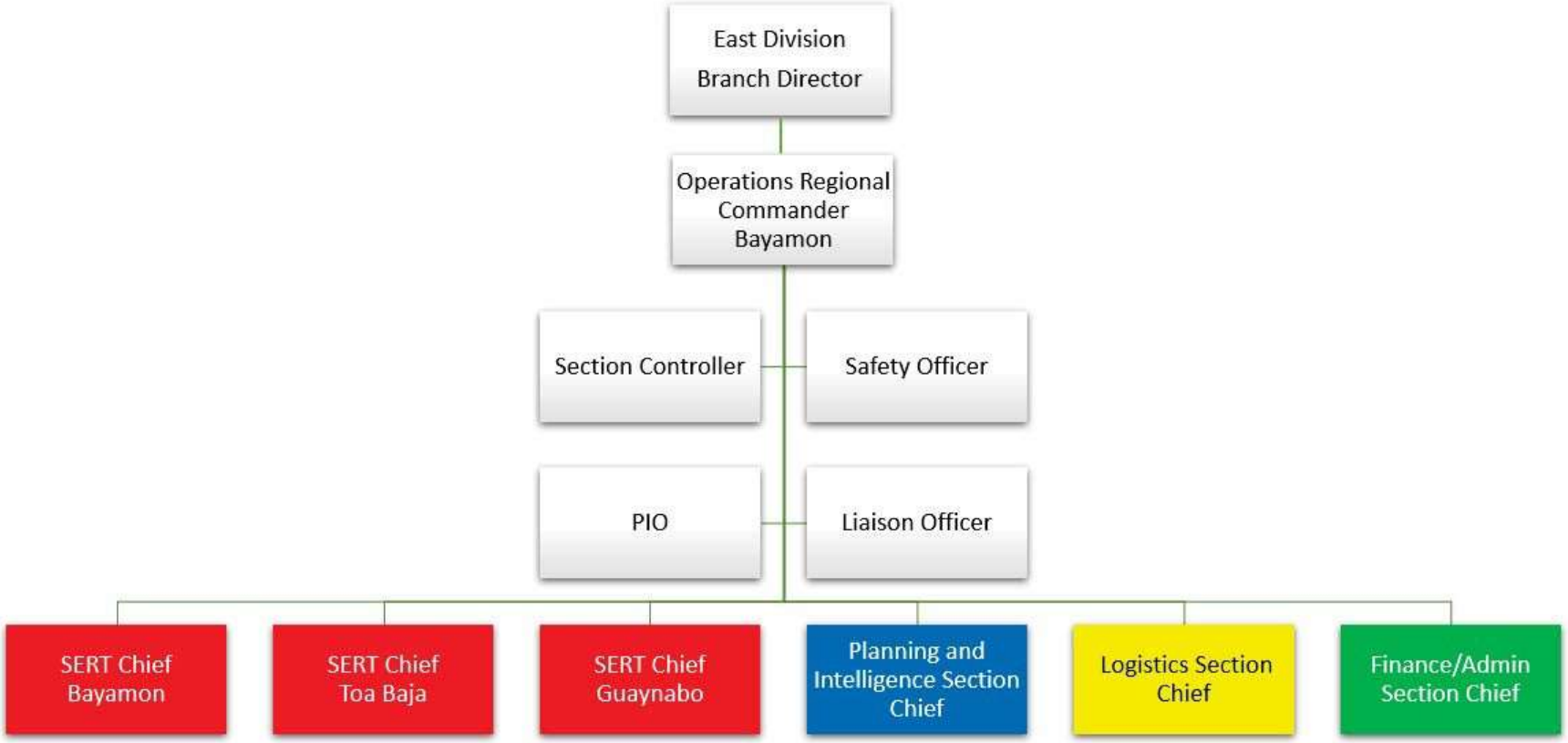
Operations Section

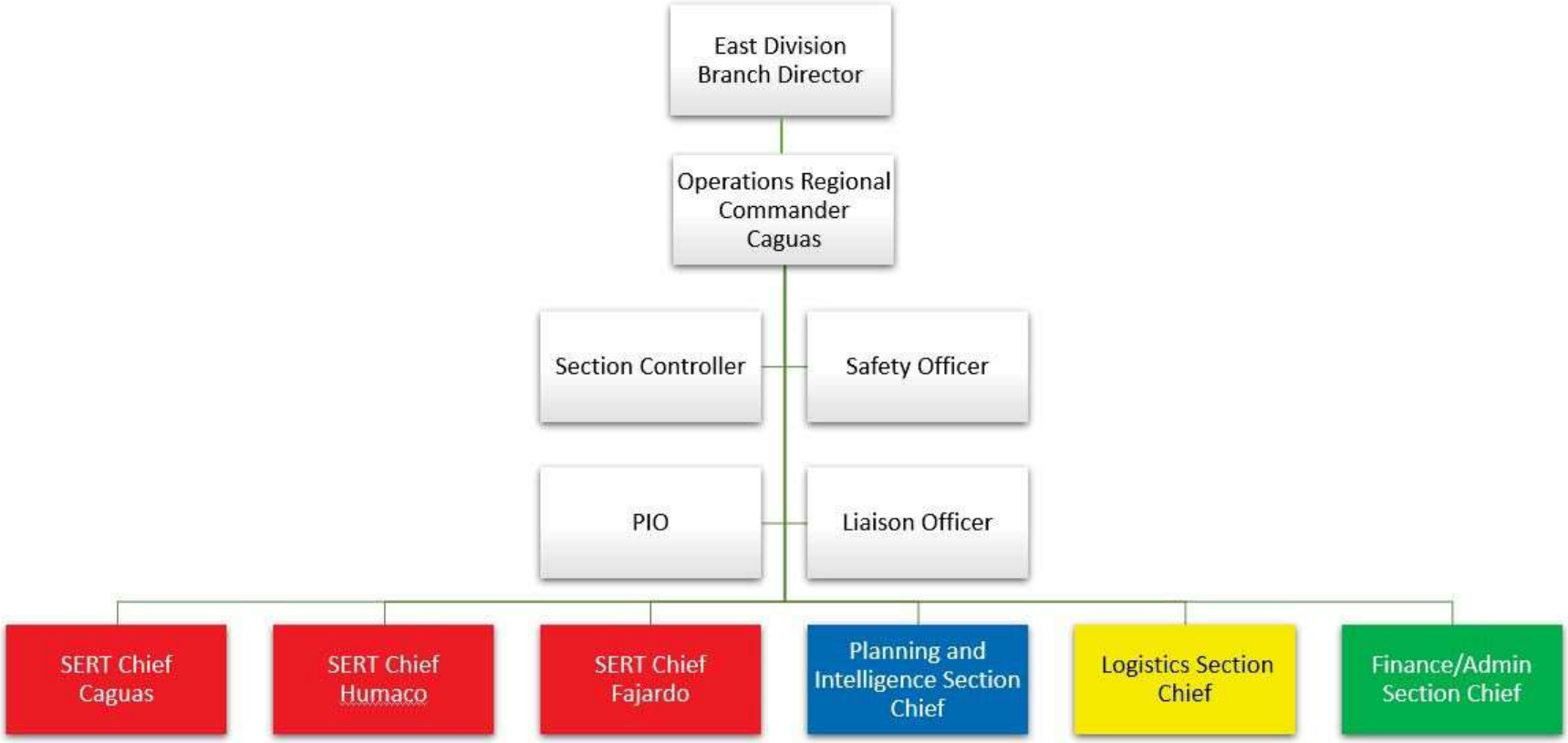


LUMA East Division Structure

East Division Regional Structures

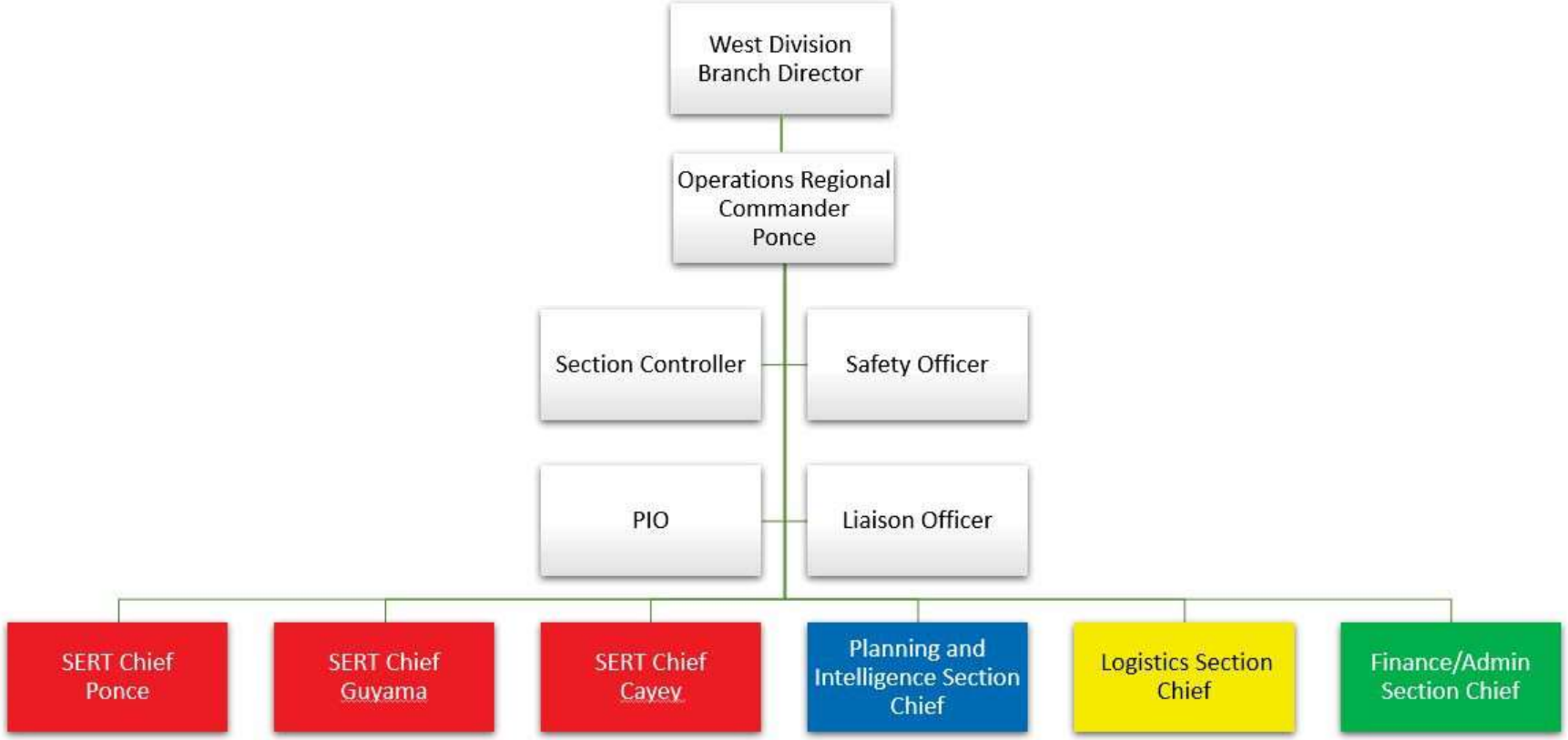



East Division
Branch Director
Operations Regional
Commander
Bayamon
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief
Bayamon
SERT Chief
Toa Baja
SERT Chief
Guaynabo
Planning and
Intelligence Section
Chief
Logistics Section
Chief
Finance/Admin
Section Chief

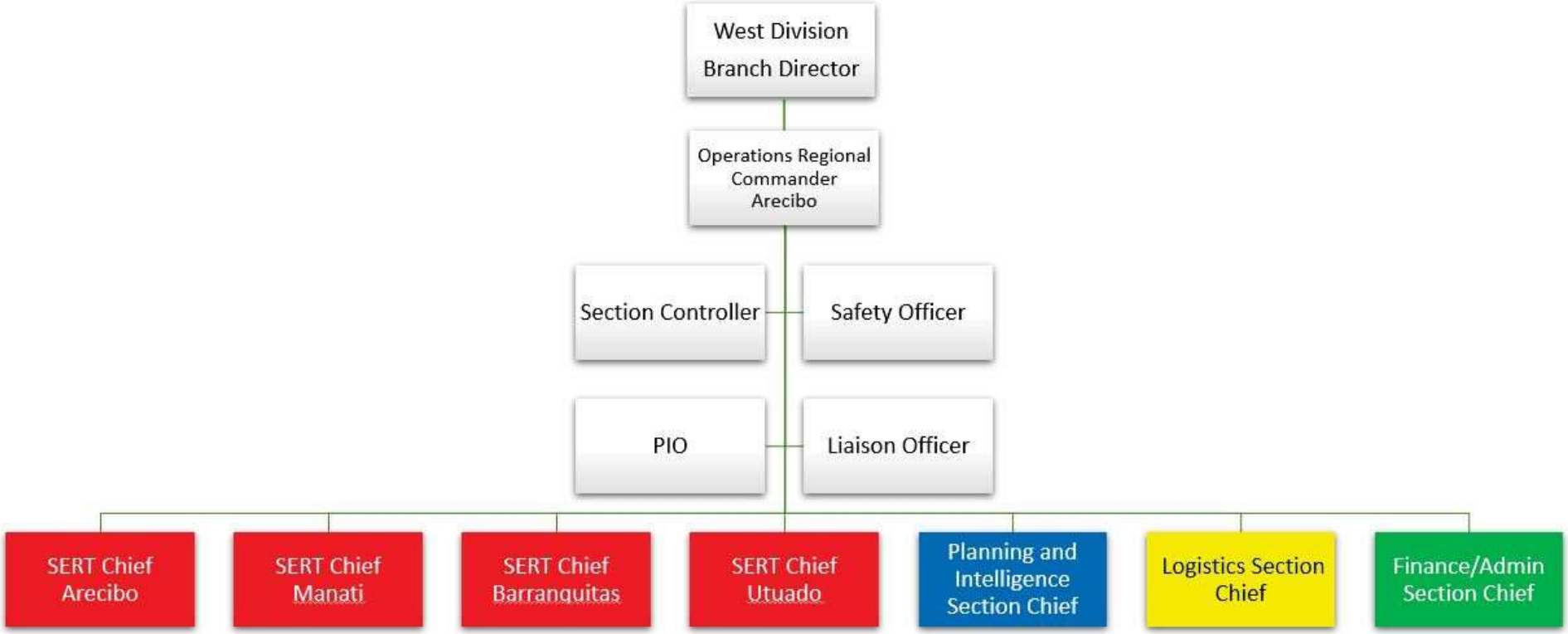

East Division Branch Director
Operations Regional Commander Caguas
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Caguas
SERT Chief Humacao
SERT Chief Fajardo
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

LUMA West Division Structure

West Division Regional Structures




West Division Branch Director
Operations Regional Commander Mayaguez
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Mayaguez
SERT Chief Aguadilla
SERT Chief Yauco
SERT Chief San Sebastion
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief


West Division Branch Director
Operations Regional Commander Arecibo
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Arecibo
SERT Chief Manati
SERT Chief Barranquitas
SERT Chief Utuado
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

Appendix B – Area Restoration Prioritization Lists

Arecibo Region

Arecibo District SERT Team

Customer	76,119
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Arecibo, Hatillo, Camuy
Hospitals	Polyclynic Factor, Pavia Víctor Rojas Metro Hospital, Dr. Sussoni Hospital, Pavia Hospital former Regional Hospital, Arecibo Medical Center, CDT Villa Los Santos, CDT Marcano, CDT Marrero

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

Line Number	Description	Customer
Redacted		

Critical Facilities Level 2

Line Number	Description	Customer
Redacted		

Critical Facilities Level 3

Line Number	Description	Customer
Redacted		

Redacted

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer
Redacted		

Redacted

Utuado District SERT Team

Customer	26,834		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Utuado, Adjuntas, Jayuya		
Hospitals	Metropolitan Mountain Hospital, CDT Caparros, Castañer Hospital of Adjuncts		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
	Redacted		
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	

Vega Baja District SERT Team

Customer	50,000		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Vega Baja, Vega Alta, Dorado		
Hospitals	Willma Vazquez, VEGA Baja CDT, Fresenius Diálisis Center, CDT Vega Alta, Vega Alta IPA Hospital, Diálisis Center, Golden CDT (Dorado)		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
	Redacted		
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			

Vega Baja (Manatí) District SERT Team

Customer	90,953		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Barceloneta, Manatí, Vega Baja, Vega Alta, Morovis, Florida, Ciales		
Hospitals	Willma Vázquez, VEGA Baja CDT, Fresenius Diálisis Center, CDT Vega Alta, Vega Alta IPA Hospital, Diálisis Center, Golden CDT (Dorado), Dr. Sussoni Hospital, Regional Hospital,		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer

Critical Facilities Level 2			
	Line Number	Description	Customer
	Redacted		
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	

Caguas Region

Cayey/Barranquitas District SERT Team

Customer	13,500
Substation	
Key Transmission Feeders	Redacted
Municipalities:	Barranquitas, Orocovis, Aibonito, Comerío, Coamo, Naranjito
Hospitals	Menonita Hospital Aibonito, Comerio, Baqtas and Orocovis Hospitals

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 2			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 3			
	Line Number	Description	Customer
Redacted			
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			

Redacted

Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Cayey/Barrenquitas District SERT Team

Customer	46,329
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Cayey, Cidra, Aguas Buenas
Hospitals	Menonita Hospital, Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Cidra's Municipal Hospital, Panamerican First Hospital, Aguas Buenas Municipal Hospital

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
		Redacted	
Critical Facilities Level 2			
	Line Number	Description	Customer

Caguas District SERT Team

Critical Facilities Level 3			
	Line Number	Description	Customer
		Redacted	
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			
Customer	105,141		
Substation			
Key Transmission Feeders			
Municipalities:	Caguas, Gurabo, Juncos, San Lorenzo		
Hospitals			
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			

	Line Number	Description	Customer
Redacted			
Critical Facilities Level 2			
	Line Number	Description	Customer
Redacted			
Critical Facilities Level 3			
	Line Number	Description	Customer
Redacted			
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			

Redacted

[redacted]

Critical Facilities Level 2			
Substation	Feeder	Customer	
[redacted]			
Critical Facilities Level 3			
Substation	Feeder	Customer	
[redacted]			

Humacao District SERT Team

Customer	63,446		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Yabucoa, Humacao, Naguabo, Las Piedras		
Hospitals	Ryder, HIMA, CDT Humacao, CDT Naguabo, CDT Yabucoa, Menonita		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
	Redacted		
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted		
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
2601	Redacted		
2602			
2603			

[redacted]

Critical Facilities Level 2			
Substation	Feeder	Customer	

Critical Facilities Level 3		
Substation	Feeder	Customer

[redacted]

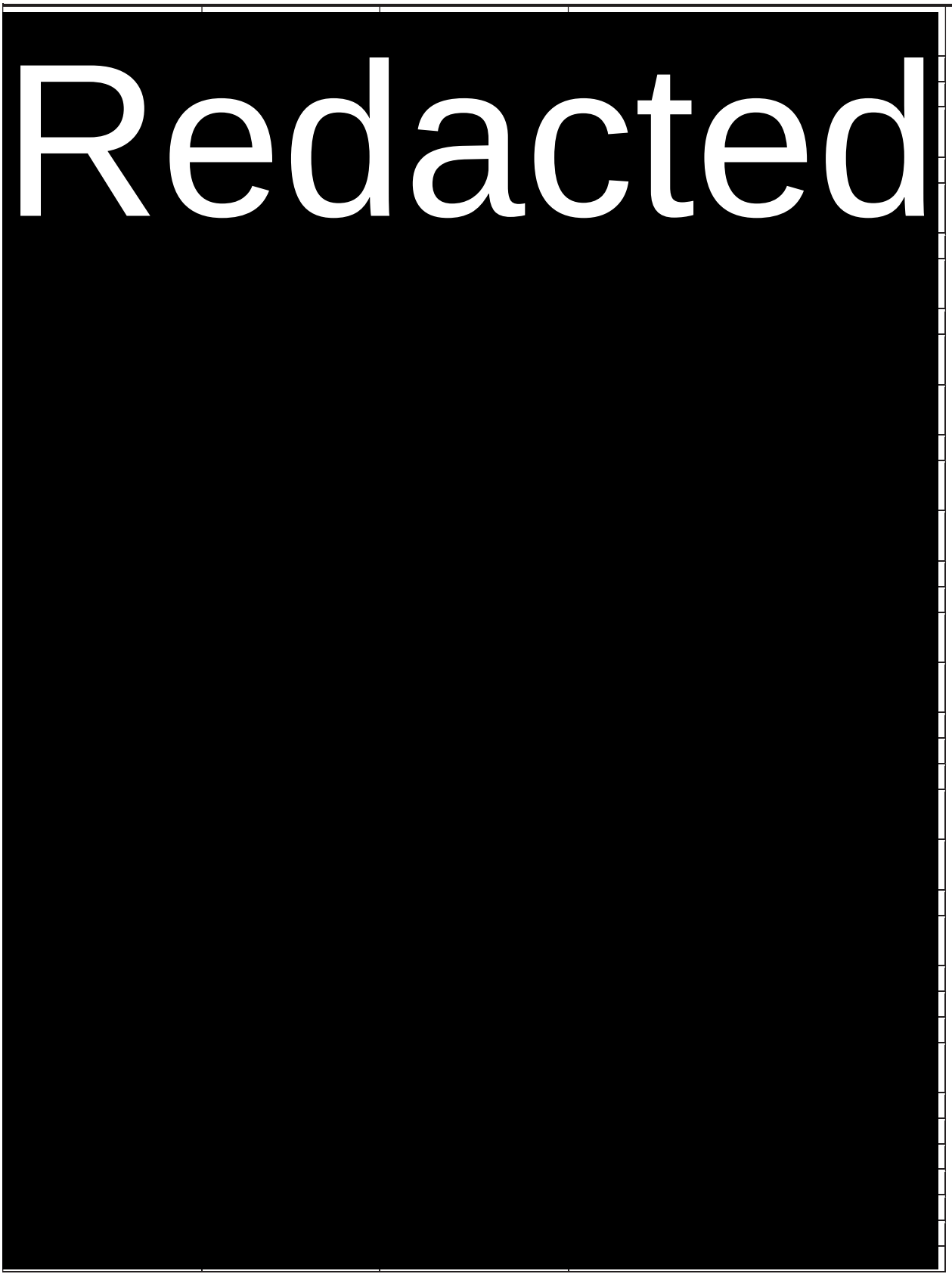
Fajardo District SERT Team

Customer	37,585
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Luquillo, Fajardo, Ceiba, Vieques, Culebra
Hospitals	Hospital HIMA San Pablo Fajardo, Caribbean Medical Center Fajardo,

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer

[redacted]

Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted		
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			


Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer
Redacted		

Redacted			

Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	

Mayaguez Region

Mayaguez District SERT Team

Customer	110, 933
Substation	Redacted
Key Transmission Feeders	
Municipalities:	**Añasco, Mayagüez, Hormigueros, San Germán, Sabana Grande, Lajas, Cabo Rojo**
Hospitals	Hospital Perea Mayagüez, Clínica Yagüez, Centro Médico Mayagüez, Hospital San Antonio, Hospital Bella Vista

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Critical Facilities Level 2

Substation	Feeder	Customer

Redacted

Critical Facilities Level 3

Substation	Feeder	Customer

Redacted

Redacted

Aguadilla District SERT Team

Customer	124,468
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Aguadilla, Isabela, Quebradillas, Moca, Aguada, Rincón, San Sebastián, Las Marías, Lares
Hospitals	Hospital Municipal de Las Marías, Hospital General de Castañer-Lares Hospital de Lares, Hospital San Carlos de Moca, Hospital Buen Samaritano de Aguadilla, Quebradillas Medical Center, Shalom Medical Care, Centros Integrados de Servicios de Salud, Hospital CIMA

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 3

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Redacted

Ponce Region

Ponce District SERT Team

Customer	98,901
Substation	
Key Transmission Feeders	
Municipalities:	Ponce, Villalba, Juan Diaz
Hospitals	
Transmission and Sub-Transmission Critical Facilities	
Critical Facilities Level 1	

	Line Number	Description	Customer

Redacted

Critical Facilities Level 2	

	Line Number	Description	Customer

Redacted

Critical Facilities Level 3	

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer
Redacted		

Critical Facilities Level 3		
Substation	Feeder	Customer
Redacted		

Redacted

Redacted

Yauco District SERT Team

Customer	46,947		
Substation			
Key Transmission Feeders	Redacted		
Municipalities:	Guánica, Yauco, Guayanilla, Peñuelas		
Hospitals			
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Guayama District SERT Team

Customer	87,793		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	Santa Isabel, Coamo, Salinas, Guayama, Arroyo, Patillas, Maunabo		
Hospitals	Hospital Menonita Guayama, Hospital de Emergencias Santa Isabel, Hospital Menonita Coamo, Centro de Emergencias Salinas, Centro de Emergencias Patilla, Centro de Emergencias Arroyo, Centro de Emergencias Maunabo		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Redacted			

Redacted

Critical Facilities Level 2			
	Line Number	Description	Customer

Redacted

Redacted

Critical Facilities Level 3			
	Line Number	Description	Customer

Redacted

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer

Redacted

Redacted

Critical Facilities Level 2			
Substation	Feeder	Customer	Comments
Redacted			

Critical Facilities Level 3			
Substation	Feeder	Customers	
Redacted			

Redacted

Redacted


Redacted

San Juan Region

San Juan (Monacillo & Río Piedras) Districts SERT Team

Customer	268,909		
Substation	Redacted		
Key Transmission Feeders			
Municipalities:	San Juan, Trujillo Alto		
Hospitals	Hospital Capestrano, CDT Trujillo Alto, Hospital Pavía, Hospital San Gerardo, Hospital Pavía Santurce, Hospital Pavía Hato Rey, CDT El Belavar, Hospital San Jorge, CDT Parcelas Falú, Clínica Las Américas , Torre Médica Auxilio Mutuo, Centro de diálisis, Centro para Tratamiento del Cáncer, Unidad Transplante de Riñón, CDT San José		
Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer
Redacted		
Critical Facilities Level 3		
Substation	Feeder	Customer
Redacted		

San Juan (Carolina) District SERT Team

Customer	52,736
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Carolina
Hospitals	Hospital UPR Dr. Federico Trilla, Doctors Center Hospital, Metro Pavía Clinic

Transmission and Sub-Transmission Critical Facilities			
Critical Facilities Level 1			
	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer

Redacted

Distribution Critical Facilities

Critical Facilities Level 1		
Substation	Feeder	Customer

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Canóvanas District SERT Team

Customer	56,855
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Canóvanas, Loiza, Rio Grande
Hospitals	CDT Rio Grande - Community Health Center, Concilio de Salud Integral Loíza, Canóvanas CDT – Hospital Municipal Canóvanas

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer	
Redacted			

Redacted

Redacted

Redacted			
Critical Facilities Level 2			
Substation	Feeder	Customer	
Redacted			
Critical Facilities Level 3			
Substation	Feeder	Customer	
Redacted			

Bayamon Region

Bayamon(Guaynabo)District SERT Team

Customer	189,072
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Guaynabo, San Juan
Hospitals	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, Hospital Metropolitano, CDT Guaynabo, Doctor's Center Hospital, San Juan Health Center, Hospital Pavía, Hospital PRESBY, Centro Médico de Puerto Rico, Hospital del Niño, Oficinas Médicas Hospital Metropolitano, Clínica Ciencias Médicas, Hospital Professional

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer
Redacted			

	Redacted		
Critical Facilities Level 3			
	Line Number	Description	Customer
	Redacted		
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	

Redacted

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Redacted

Bayamon (urban)District SERT Team

Customer	189,072
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Bayamon , Toa Alta, Guaynabo
Hospitals	Hospital San Pablo, Regional de Bayamon, Hermanos Melendez, Doctor Center, Bayamon Health Center, Mepsi Center y la Torre Medica San Pablo

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
Redacted			

Critical Facilities Level 2

	Line Number	Description	Customer

Critical Facilities Level 3

	Line Number	Description	Customer
Redacted			

Distribution Critical Facilities

Critical Facilities Level 1

Substation	Feeder	Customer

Redacted

Critical Facilities Level 2		
Substation	Feeder	Customer

Redacted

Redacted

Critical Facilities Level 3		
Substation	Feeder	Customer

Redacted

Bayamon (lower density) Toa Baja (Palo Seco) District SERT Team

Customer	98,907
Substation	Redacted
Key Transmission Feeders	
Municipalities:	Dorado, Toa Baja (Palo Seco), Cataño, Toa Alta, Naranjito, Corozal
Hospitals	Centro Médico Correcional, CDT Pájaros, Centro Emergencia MOHICA, CDT Toa Baja

Transmission and Sub-Transmission Critical Facilities

Critical Facilities Level 1

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 2

	Line Number	Description	Customer
	Redacted		

Critical Facilities Level 3

	Line Number	Description	Customer
	Redacted		

Redacted

Distribution Critical Facilities		
Critical Facilities Level 1		
Substation	Feeder	Customer

Redacted

Redacted

Redacted

Critical Facilities Level 2

Substation	Feeder	Customer
		iz
		s
		e

Redacted

Critical Facilities Level 3

Substation	Feeder	Customer

Redacted

Redacted			

Appendix C – Supplies

The vendors listed in this appendix are identified by region and the type of service they may provide to LUMA during response and restoration efforts.

Arecibo Region

Name	Number	Municipality	Mark the Type of Service			
Panchos Catering (Food)	(787) 646-2616	Arecibo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Quality Sea Food (Food)	(787) 638-5897		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
La Unión Cafeteria (Food)	(787) 881-6911		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
David Coffee Shop (Food)	(787) 639-9331		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Ice Plant Casellas	(787) 878-3135		Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Ice Plant Faria	(787) 881-6253		Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Riviera (Food)	(787)884-5366	Manatee	Materials	Equipment	Services	Tents
					X	
La Picadera (Food)	(939)238-9278	Manatee	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Name	Number	Municipality	Mark the Type of Service			
FERRETIA RIVERAS	787-869-3260	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
FERRETERIA LA MONTANA	787-869-3135	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
QUALITY CONCRETE	787-869-1387	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
ASTRO INDUSTRIAL	787-721-4041	SAN JUAN	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
MELOLAIKA Rest. Balalaika THE GREAT COFFEE	787-961-8282 787-859-6277 787-802-1703	gold Corozal Corozal	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
TOA ALTA (Total) COROZAL (Total)	787-246-4175 787-870-4216	QBD CRUZ Palmarejo Outline	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Econo Vega Baja II Supermarket Bakery Gardens	787-858-0958 787-855-1959	Vega Baja Vega Baja	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Econo Mendez Class Supermarket	787-883-2340	Vega Alta	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Golden Ice & Water Plant	787-278-2279	Vega Alta	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		
St. James Security Services, LLC	787-754-8448	St. John's	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
						X
Total, Golden Total, Vega Alta Total Vega Baja	787-270-0903 787-883-0999 787-855-1069	gold Vega Alta Vega Baja	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Grainger Caribe Inc. Astro Industrial	787-275-3555 787-721-4041	Cataño St. John's	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
3C Woods Hardware Store	787-474-3333	St. John's	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Grainger Roger Electric Grekory Equip.	787-275-3500 787-786-3361 787-272-4333	Caguas Bayamón St. John's	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms

Island Center	787-869-0877	Naranjito				
Santos Bakery	787-857-1916	Orocovis	Materials	Equipment	Services	Tents
Orocovis Ice Plant	787-298-4955					
Hannibal Rios	787-377-7847		Ice	Water	Gasoline	Bathrooms
			X			
Carlos Rodriguez	787-857-7625	Barranquitas	Food	Equipment	Services	Tents
Juan Bonilla	787-991-2964	Aibonito			X	
Carlos I. Pacheco	787-385-1858	Naranjito	Ice	Water	Gasoline	Bathrooms
Junir Gulf		Barranquitas	Materials	Equipment	Services	Tents
Tavín Tire Center		Barranquitas				
		(Barrancas)	Ice	Water	Gasoline	Bathrooms
					X	
Carlos J. Bonilla Esparra		Aibonito	Food	Equipment	Services	Tents
Javielo BBQ			X			
			Ice	Water	Gasoline	Bathrooms
Jacqueline Ríos González	787-735-7200	Aibonito	Food	Equipment	Services	Tents
Chino Criollo			X			
			Ice	Water	Gasoline	Bathrooms
Miguel A. Torres Rivera	787-857-2960	Barranquitas	Food	Equipment	Services	Tents
Kikis Pizza			X			
			Ice	Water	Gasoline	Bathrooms
Luis Collazo	787-867-2248	Orocovis	Food	Equipment	Services	Tents

La Cobacha Restaurant			X			
			Ice	Water	Gasoline	Bathrooms
David Crespo Crespo BBQ Coffee Shop	787-939-325-3267	Comerío	Food	Equipment	Services	Tents
			X			

Mayaguez Region

Name	Number	Municipality	Mark the Type of Service			
Select Supermarket (food)	787-830-7800 787-519-7086	Isabela	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Bakery El Cafetal (food)	787-544-6025 787-370-1454	Camuy, Quebradillas and Hatillo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Creole Sandwich (food)	787-830-1385	Isabela	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Bakery El Trigal (food)	787-830-3488	Isabela	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Naturagua, Inc.	787-262-8168	Hatillo	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
Agua Lemarie, Inc.	787-307-2342	The Marys	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
Popeyes Ice Factory	787-307-2342	The Marys	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Ice Factory	787-896-8914	San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Bakery and Pastry La Pepiniana	787-833-1648	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Ricomini Bakery and Pastry	787-832-0565	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Franco Pastries	787-0070	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Don Quixote Pizzeria and Restaurant	787-265-1045	Mayagüez	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Nadal Ice	787-834-7400	Mayagüez	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
HIELERA NAZARIO	787-382-3207	Aguada	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
SANTOS COMMERCIAL	787-891-1270	Aguadilla	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
ALL CONTRACTOR	787-378-4406	Ponce	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
						X
EFRAIN SANTIAGO ELECTRICAL CONTRACTOR	787-877-1817	Moca	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

ICE FACTORY	787-896-8914	SAN SEBASTIAN	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
MOCA CONCRETE POLE	787-818-0720	Moca	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Toro Commercial	787-851-1570 787-851-1510	Cape Red	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Roger Electric	787-265-7575	Mayagüez	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
			Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Lechonera Figueroa	787-873-1080	Sabana Grande	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Mr. Special	787-851-1334	Cape Red	Materials	Equipment	Services	Tents
					X	

			Ice	Water	Gasoline	Bathrooms
			Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Rest. The Mariachi	787-280-4187	San Sebastian	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Cucumber Ice		San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Docho Garage		San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Garage		San Sebastian	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	

Bayamon Region

Name	Number	Municipality	Mark the Type of Service			
Golden Ice & Water Plant	787-605-3256	gold	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		
Bakery La Borinqueña	787-779-0707	Bayamón	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
OUTEK	787-644-9085	St. John's	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
Grainger	787-692-6347	St. John's	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
MENACO	787-463-2125	St. John's	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
The Ice Maker	787-795-2665	Levittown	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			

Roger Electric Hardware Store	787-786-3360	Bayamón	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
El Cable Hardware Store	787-795-7025	Toa Baja	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
QUALITY CONCRETE	787-869-1387	Naranjito	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
ASTRO INDUSTRIAL	787-721-4041	SAN JUAN	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
Grainger	(787) 275-3500	Cataño	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
3C Woods	(787) 783-8260	St. John's	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
By Diego Rental	(787) 781-3320	Guaynabo	Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
BBQ sources	(787) 783-4582	Guaynabo	Materials	Equipment	Services	Tents

					X	
			Ice	Water	Gasoline	Bathrooms
Guiken	(787) 961-9292	Guaynabo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Manchego	(939) 338-3226	Guaynabo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
All Contractors & Serv.	(787) 378-4406		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
			X	X		
Econo Rial Supermarkets	(787) 707-0112	Guaynabo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Caguas Region

Name	Number	Municipality	Mark the Type of Service			
Rest. The Two Mangoes	787-73-98619	Citron	Food	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Victor Barreto	787-642-7094	Cayey	Materials	Equipment	Services	Tents
			X	X	X	
			Ice	Water	Gasoline	Bathrooms
Freddy Ice Planet	787-739-3133	Citron	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		
Roger Electric Grainger Electrical Island Commercial Berríos	787-746-7272 787-275-3500 787-761-7355 787-739-2831	Caguas Cataño St. John's Citron	Materials	Equipment	Services	Tents
			X	X	X	
			Ice	Water	Gasoline	Bathrooms
Hacienda el Josco Vic-Mar	787-737-2737 787-743-9124	Gurabo Caguas	Food	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Lord Electric Bermúdez and Longo	787-758-4040 787-999-3030	St. John's St. John's	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
José A. Baranda Ismael Rosa	787-746-2699 787-743-6958	Caguas	Materials	Equipment	Services	Tents

José A. Cruz Rafael Beltran	787-746-0282 787-734-2877		Ice	Water	Gasoline	Bathrooms
					X	
My Berjouri	787-243-0940	Humacao	Food	Equipment	Services	Tents
The Ikokal	787-640-9654	Humacao	X			
Delicias Cafe	787-285-3190	Humacao	Ice	Water	Gasoline	Bathrooms
Doredmar's Rest. Cafetería Revival Café	787-893-5189 787-216-2976	Yabucoa Naguabo				
Punta Santiago Recreation Center		Humacao	Lodging	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Plamas del Mar Resort Hotel Playa Lucia and Costa del Mar	787-893-4423					
C Prince	787-640-9524		Materials	Equipment	Services	Tents
Best Work	787-597-3566			X		
Esmo	787-764-4687		Ice	Water	Gasoline	Bathrooms
Electrical Comm.	787-733-0230					
DH Products	787-889-5118	Luquillo	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
The Ice Plant Flowers	787-887-2450	Rio Grande	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Econo Rial II	787-801-8030	Fajardo	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Misc.

						X
Caribbean Point	787-860-3845	Fajardo	Materials	Equipment	Services	Tents
Pan Rico	787-863-0774	Fajardo	Ice	Water	Gasoline	Bathrooms
Pascual Commercial	787 863-1538		Materials	Equipment	Services	Tents
			X			
Grainger	(787) 275-3500		Ice	Water	Gasoline	Bathrooms
Hilti Caribe	787-963-7060		Materials	Equipment	Services	Tents
			X			
Maderera Don Esteves	787-750-2000		Ice	Water	Gasoline	Bathrooms
Rober Electric	787-888-8950		Materials	Equipment	Services	Tents
			X			
Tecno-Lite	787-750-4344		Ice	Water	Gasoline	Bathrooms
National Lumber	787-863-2424		Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms

San Juan Region

Name	Number	Municipality	Mark the Type of Service			
DH Products	787-889-5118	Luquillo	Materials	Equipment	Services	Tents
Water The Mountain	787-760-5146	Trujillo Alto	Ice	Water	Gasoline	Bathrooms
				X		
The Ice Plant Flowers	787-887-2450		Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Econo Rial II	787-701-8030	Canóvanas	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Misc.
						X
The Bakery Family	787-876-9497	Loíza	Materials	Equipment	Services	Tents
Kike Cash & Carry	787-876-3295	Loíza	Ice	Water	Gasoline	Food
						X
Pascual Commercial	787-863-1538		Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Grainger	787-275-3500		Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms
Hilti Caribe	787-936-7060		Materials	Equipment	Services	Tents
				X		
			Ice	Water	Gasoline	Bathrooms

Lord Electric Bermúdez and Longo	787-758-4040 787-999-3030	Rio Piedras	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Candelaria Electric Services	787-502-4597		Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Castellanas Restaurant Cafeteria	787-257-7795	Carolina	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
Chinese Paradise Restaurant	787-257-7950	Carolina	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
ECONO Supermarket	787-768-8379	Carolina	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
Roger Electric Grainger	787-776-0202 787-275-3500	Carolina Carolina	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms

Supplies Island Lord Electric	787-761-7355 787-758-4040	Trujillo Alto	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
Bermúdez and Longo Raul Dominguez	787-999-3030 787-505-6434	Trujillo Alto	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Ricardo Zapata	787-240-5054	Trujillo Alto	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
All Contractors	787-407-1620 787-378-4406	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		
Eddie's Water Supply	787-783-6073 787-597-1399	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		
Cristalia	787-680-8888	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		

Blue Fountain, Inc	787-163-3070 787-759-8210	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				20th		
El Señorial Bakery	787-701-4040	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
May Flower Bakery	787-768-3995	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
The House of Taste	787-624-6061	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
Borincatering Services	787-697-6110	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Meals	
			Ice	Water	Gasoline	Bathrooms
Micky & Sweet Catering	787-753-1182	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Meals	
			Ice	Water	Gasoline	Bathrooms
Fior Cafe	787-528-2806	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms

Faccio Pizza	787-755-5415	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
The Criollo Banana	787-768-8072	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
Angelito's Café	787-725-6766	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
				20th		
Raíces Restaurant	787-705-9333	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Food	
			Ice	Water	Gasoline	Bathrooms
Morales Supermarket	787-720-2990	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Purchase	
			Ice	Water	Gasoline	Bathrooms
Econo Rial Supermarket, Altamira	787-707-0112	SAN JUAN/RP	Materials	Equipment	Services	Tents
					Purchase	
			Ice	Water	Gasoline	Bathrooms
Cupey Alto Ice Plant	787-292-6862 787293-1085	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			20th			

San Juan Ice Plant Inc.	787-728-4045 787-726-5171	SAN JUAN/RP	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			20th			

Ponce Region

Name	Number	Municipality	Mark the Type of Service			
Ponce ICE		Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Rene BBQ La Barquita De Fiesta	787-612-2792 787-866-8115	Guayama Salinas Guayama	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Septic		Juana Díaz	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
						X
Puma American Petroleum		Guayama	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Electric Service	787-864-5035	Guayama	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Coke		Cayey	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
				X		
Environics	787-781-7891	Caguas	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
La Hielera	787-938-7528	Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X			
Tropical City	787-842-4251	Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
			X	X		

JQ Maintenance	787-238-7959	San Germán	Materials	Equipment	Services	Tents
					X	X
			Ice	Water	Gasoline	Bathrooms
Grainger	787-275-3500	Cataño	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
Outek	787-644-9085	Guaynabo	Materials	Equipment	Services	Tents
			X	X		
			Ice	Water	Gasoline	Bathrooms
Creole Delights	787-214-7994	Ponce	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Pizza Heaven	787-412-8253	Ponce	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
Puma Garage	787-259-1569	Ponce	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
Septix	787-840-9090	Ponce	Materials	Equipment	Services	Tents

			Ice	Water	Gasoline	Bathrooms
						X
Rentals M. Barrio	787-840-4740	Ponce	Materials	Equipment	Services	Tents
						X
			Ice	Water	Gasoline	Bathrooms
Gulf Garage	787-260-0289	Bo. Jacaguas	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
General Gases	787-843-0425	Ponce	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Environics	787-281-7891	St. John's	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
Santos Olivieri Hardware Store	787-845-3940	St. Elizabeth	Materials	Equipment	Services	Tents
			X			
			Ice	Water	Gasoline	Bathrooms
Electric Cowboy	787-825-1792	Coamo	Materials	Equipment	Services	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
La Barquita	787-612-2792	Salinas	Materials	Equipment	Services	Tents

					X	
			Ice	Water	Gasoline	Bathrooms
Pichi's Hotel	787-835-7070	Guayanilla	Materials	Equipment	Meals	Tents
					X	
			Ice	Water	Gasoline	Bathrooms
				X		
AEE Mechanics Workshop	787-521-8540	Yauco	Materials	Equipment	Services	Tents
			Ice	Water	Gasoline	Bathrooms
					X	
AEE Monacillo	787-521-5966	Coordination of the Chief Technical Operations	Materials	Equipment	Services	Tents
						X
			Ice	Water	Gasoline	Bathrooms
						X
Café Bakery	787-856-8269	Yauco	Materials	Equipment	Meals	Tents
					X	
			Ice	Water	Gasoline	Bathrooms

Emergency Response Plan

Annex B
Fire Response

LUMA ENERGY

CRISIS MANAGEMENT OFFICE

May 10, 2021

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Handling Instructions

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Crisis Management Office
LUMA Energy

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Approval and Implementation

LUMA Energy Emergency Response Plan

Fire Response Annex

[redacted] _____ May 23, 2021
Date

Director, Emergency Operational Response and Readiness

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Contents

List of Tables

I. Purpose

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

This Annex 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 this Annex 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.

A.NIMS and the Incident Command System

LUMA has adopted the National Incident Management System (NIMS), a consistent, nationwide framework and approach that enables government at all levels (federal, state, local, tribal), the private sector and non-governmental organizations to work together to prepare for, respond to, and recover from the effects of incidents, regardless of cause, size, or complexity.

By ensuring the key elements of the Incident Command System (ICS) are implemented at each level within the organization, LUMA can accommodate municipal, regional, and system level emergencies. These key elements are easily replicated utilizing common roles and responsibilities.

II. Scope

This Annex applies to emergency events caused by a fire event or fire related hazards that result in, or could result in, a major impact to the integrity of LUMA's Transmission and Distribution (T&D) system and/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.

A.Guiding Principles

LUMA's Guiding Principles are primary mechanisms to coordinate LUMA's preparedness, response and recovery actions when faced with any type of minor or major emergency event. In accordance with the Guiding Principles, LUMA will:

- Treat all LUMA personnel, customers, and contract personnel with consideration and respect.
- Assess damage and relay information promptly. A high-level Company damage assessment will be provided within a reasonable timeline depending on the level of damage.
- Provide estimated times of restoration as the affected geographic area is assessed.
- Follow all safety protocols creating the ability to respond to sites that pose a risk to public safety (such as downed energized conductors) with the highest priority.
- Maintain environmental stewardship by complying with all environmental work practices and regulations.

- Maintain a focus on critical community lifelines throughout the response and restoration operations as defined in the LUMA ERP – Base Plan.

III. Situation and Assumptions

A. Situation

LUMAs ability to respond to an emergency fire event or fire-related hazards to lessen the effects of power outages to customers depends upon a combination of coordinated decisions internally and externally with regards to 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 for LUMA to provide continuous electric service to its customers.

The effectiveness of this Annex is based on LUMA's commitment to prepare and implement guidance and best practices outlined within this Annex and the ERP – Base Plan. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected and the magnitude of a major outage event 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 of this Annex. There are five (5) Event Types described in the Event Classification and LUMA Emergency Operations Center (LEOC) Activation Table, located in this Annex, Attachment 3.

B. Assumptions and Considerations

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

- Damage assessment(s) determines the impact and magnitude of damages and should be conducted within a reasonable timeline.
- Damage assessment reports identify affected geographic area(s) which contribute to the estimated time of restoration baseline projection.
- Normal resources and processes for support to impacted areas for power restoration may not be enough due to the severity and duration of the outage and 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 are maintained and activated when the scope of the incident requires additional resources beyond LUMA's capabilities.
- Potential weather conditions may affect the response and restoration actions.
- Assessment, prioritizing and scheduling of repairs are conducted throughout the response and restoration process.

IV. Concept of Operations

In the event of a major outage due to an emergency event that results in, or may result in damages to facilities or power outages, LUMA will respond and rapidly assess the impacts to the Transmission & Distribution (T&D) infrastructure and take 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 Classification Types are utilized and identified in the LUMA ERP – Base Plan.

A. Restoration Operations Strategy

The Dispatch and Field Operations Section within the LUMA Emergency Operations Center (LEOC) is responsible for the restoration operation strategies implemented by LUMA. In response to an event that affects the electric system's ability to provide power throughout Puerto Rico, directives from the LEOC will follow the LUMA Restoration Strategy identified in the LUMA ERP – Annex A, Major Outage Restoration ("Annex A"), Section VI.

1. Approach

Under the direction of the East or West Division Branch Director, the field teams will respond to the event as safely and efficiently as possible. The Incident Command System (ICS) is flexible and adaptable to the Event Type and EOC activation level identified in Attachment 2 of this Annex.

The ICS establishes:

- Lines of supervisory authority.
- Formal reporting relationships.
- Maintains reasonable spans of control at each level.
  - At a minimum, all Command Staff, General Staff, and Director ICS positions are responsible for primary and secondary staffing requirements within the incident command structure.

The transition from response operations to restoration operations will be considered when the following are addressed.

- Mobilizing/demobilizing their organization and resources as directed by the IC.
- Overseeing the deployment and direction of their staff in the performance of the specific tasks associated with their respective function.
- Making available a well-trained workforce to staff their respective function.
- Adhering to all applicable environment, health and safety rules, regulations and procedures.

2. Mobilization of Personnel

Most fires typically occur with little to no warning, therefore LUMA may be required to institute a rapid deployment of resources in the safest manner possible depending on the Event Type.

The most critical component to mobilizing personnel is the ability to be flexible in order to adapt to optimum levels 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 LUMA ERP-Annex A.

3. Damage Assessment

A Damage Assessment (DA) is a key component of the restoration operations. Assessment personnel are managed through the System Emergency Restoration Teams (SERT) and will provide their report to the Regional Commander. The order of evaluation is based on the Restoration Priority Matrix Guidelines which is identified within the Annex A., Section VII.E.

- The T&D System Control Center will monitor and develop an initial system status report. This report is used to compare the current level of electric demand on the system to the forecasted demand.
- The DA report is disseminated to the Operations Section in the LEOC where resources and equipment requirements are identified.
- Regional SERT teams execute restoration operations as identified by the LEOC and Regional Commanders.

4. Restoration

In accordance with the safety protocols and priorities established for emergency events identified within the LUMA ERP, response and restoration crews will be dispatched to pre-identified staging areas.

a) Prioritization

Outages are prioritized by:

- Considerations of safety conditions.
- Amount of damages to LUMA facilities and/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 LUMA ERP, Annex A.

b) Assessment

LUMA will complete an assessment of the electrical system by dispatching SERTs to determine and conduct emergency repairs.

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 minor or event. Municipal emergency response resources, such as law enforcement and/or fire departments, that respond to the incident should provide LUMA with the status of the area/facility before a damage assessment can be conducted.

Impacts to LUMA's facilities and infrastructure will be evaluated by conducting a thorough damage assessment. LUMA's restoration efforts will focus on the prioritization objectives listed below which include but are not limited to:

- 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.

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 will ensure "make safe" actions are taken and acknowledges it may be necessary to contract for additional resources to support "make safe" and restoration activities.

B. LUMA Event Classification Type

All potential fire incidents, either natural or man-made, have the potential to affect LUMA operations outside of the daily operational boundaries. If the incident triggers the activation of the LEOC, the IC is responsible for analyzing the severity and complexity of the incident with the collaboration and input of the Command and General Staff and determines the Restoration Event Type.

These classification types are directly tied to the establishment of LEOC activation levels. The IC may also deem it necessary to escalate or de-escalate the Event Type and LEOC Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions.

- Event Types 4 and 5 are Non-Emergency Events.
- Event Types 1, 2, and 3 are Emergency Events.
    - Type 1 is the most severe.
- Event Type 1 represent catastrophic emergency conditions.

- LUMA's Emergency Event Types are described in this Annex in Attachment 2.

V. Estimated Time of Restoration

Damages that cause electric system failure due to fire, and considerations regarding fire-related hazards(s) which may impede restoration operations, must be investigated upon notification of an impending or immediate emergency event.

Subsequently, timely and accurate Estimated Times of Restoration (ETR) must be 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 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 VIII, Tables 15 and 16.

VI. Direction, Control, and Coordination

This Annex provides the framework for the systematic response when emergencies due to fire arise and emergency restoration operations are required. Determination of an appropriate response is based on multiple factors which include:

- Damage Assessments
- Determination of the Event Type
- Coordinated response utilizing the Incident Command System (ICS)

The LUMA Emergency Response Plan (ERP) and its Annexes and Appendices identify the framework to respond and recover from natural or man-made events. For additional information related to direction, control, and coordination, refer to the ERP – Base Plan, Section VIII.

VII. Communications

LUMA will strive to provide timely, accurate and consistent communications prior to and during an incident. During a fire related event that requires the activation of the LUMA Emergency Operations Center (LEOC), the Public Information Officer (PIO), through the LEOC, will communicate necessary and critical information through a variety of methods that may include, but are not limited to the following:

- LUMA's website and Customer Outage
- Media Outlets
- Social Media (i.e. Twitter, Facebook, WhatsApp, etc.)
- Situational Reports to Local, Municipal and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)
  - LUMA is responsible for establishing a JIC and/or provide a liaison to the PREMB pre-established JIC.

LUMA has established a consistent messaging platform that is flexible to allow for expansion internally or externally, depending on the Event Classification Type which is identified within Attachment 2 of this Annex.

VIII. Demobilization

The Incident Commander (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 its pre-incident status. Demobilization planning is an on-going process that facilitates accountability and ensures efficient resource management.

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

The Planning and Intelligence Section Chief (PSC) will develop demobilization plans and ensure 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.

IX. Annex Development and Maintenance

This Annex is a living document. Development and maintenance to this Annex will be in conjunction with the LUMA ERP – Base Plan. Proposed changes should be sent to the Crisis Management Office (CMO) for approval and inclusion.

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

Attachment 1 – Explanation of Terms

Acronyms

CMO	Crisis Management Office
DA	Damage Assessment
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
MAA	Mutual Aid Agreement
NIMS	National Incident Management System
P&I	Planning and Intelligence
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau
PSC	Planning and Intelligence Section Chief
SERT	System Emergency Restoration Team
T&D	Transmission & Distribution

Terms

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 (DA) – A mechanism utilized to determine the magnitude of damage and impact of disasters.

Demobilization – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.

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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency Event – An event where widespread outages or Service Interruptions have occurred in the service area of the Company due to storms or other causes beyond the control of the company. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

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 (IC) – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Joint Information Center (JIC) – A central point of contact for new media and interest parties to coordinate incident information activities.

System Level ERO – Multi-regional Emergency Response Organization.

Attachment 2 – Event Classification Type

Type		Anticipated LUMA Operating Conditions
Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecast in advance of the event. This event calls for the full implementation of ICS and all employees are assigned shifts and are scheduled in relation to their role in the ERP. All Division and Regional Emergency Operations Centers (EOCs) are activated. This type of event is coordinated through daily 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. Communication protocols are activated and discussion with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity impacts the entire system such that restoration activities may require ten (10) days or more once it is safe to begin restoration activities • Typically, > 50% (>700,000) customer interruptions at peak • Typically, > 50,000 Outage Event at Peak • This type of event is anticipated to occur between 1 and 4 times in a ten-year period
	Response Organization	• System-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Division and/or Regional EOC level as directed by the PSC and OSC and approved by the IC • Remote Restoration Management Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • Liaisons are activated • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • LUMA will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication/ Coordination	• Federal resource coordination will likely be required • A written Incident Action Plan (IAP) is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities will be held

Table 1: Type 1 - Catastrophic Event

Type	Anticipated LUMA Energy Operating Conditions	
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire territory. Type 2 events are usually forecast in advance. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in ERP. This type of event is coordinated through daily 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. All impacted Division, and Regional Emergency Operations Centers (EOCs) are activated. Communication protocols are activated and extended discussions with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity within a specific region or spread across the system is such that restoration activities are generally accomplished within a 7-day period once it is safe to begin restoration activities • Typically, 25% to 50% (350,000 to 700,000) customer interruptions at peak • Typically, >25,000 Outage Events at Peak • This type of event is anticipated to occur between 2 and 4 times in a five-year period
	Response Organization	• The system-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Divisional EOC level as directed by the Planning and Operations Section Chiefs and approved by the Incident Commander • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Community Liaisons are activated to EOCs to serve communities as directed by the Liaison Officer and approved by the Incident Commander • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written IAP is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities may be held

Table 2: Type 2 - Emergency Conditions Event

Type	Anticipated LUMA Energy Operating Conditions	
Type 3 – High Alert Event (Moderate Regional Event)	Viewpoint	A Type 3 event represents the greatest range of uncertainty due to the severity of event being forecasted (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographical area that is threatened. This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for multiple regions to potentially be impacted by activating the ICS structure and the opening of one or more EOCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with less impact to areas that received greater damage. This type of event is coordinated through daily 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. Communication protocols are activated and extended discussions with local and state officials occurs prior to impact and through the restoration stage.
	Event Characteristics	• The damage severity within a specific district or region(s) is such that restoration activities are generally accomplished within a 48-72-hour period • Typically, 10% to 25% (70,000 to 350,000) customer interruptions at peak
	Response Organization	• The Incident Command structure is activated at the System EOC level down to the local level • One or more of the EOCs may be activated to match the complexity of the event • Additional restoration support functions such as Decentralized Dispatching, Downed Wires and Damage Assessment may be established at a Divisional EOC as directed by the Planning and/or Operations Section Chiefs and approved by the Incident Commander • Community Liaisons are activated to operational EOCs as directed by Liaison Officer and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Staging Areas may be required in an area if it has been severely impacted and requires a concentrated number of crews and resources
	Resource Activation	• This response may require outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy may require a large increase in various staffing positions and teams • Additional restoration support functions may be staffed
	Communication/ Coordination	• A written IAP may be required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Life Support Customers, Municipalities, Elected Officials, and Regulators is conducted as necessary • Restoration Phase Reporting is required

Table 3: Type 3 - High Alert Event

Type		Anticipated LUMA Energy Operating Conditions
Type 4 – Non-Emergency Restoration Event (Heightened Alert)	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Centers depending on the damage. The Incident Command Staff is notified, and specific sections may be activated depending on the impact of the event.
	Event Characteristics	• The damage severity within a specific district is such that restoration activities are generall accomplished within a 12-24-hour period • The incident is usually 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
	Response Organization	• Incident Command Structure may be activated • Command and General Staff positions activated as needed • One or more EOCs may be operational depending on the geographical threat and complexity • Community Liaisons may be staffed at the activated EOCs as directed by the Liaison Officer and approved by the Incident Commander
	Resource Activation	• Internal restoration resources normally available • Restoration is generally accomplished with local assets possibly with assistance from other regional distribution line assets • Typically, 2-50 personnel may be deployed to EOCs that have been activated at the discretion of the Planning and/or Operations Section Chiefs and approved by the Incident Commander to perform other functions
	Communication / Coordination	• No written IAP is required • The operations and maintenance department may have briefings or regional conference calls to ensure the complexity of the event is fully communicated to management and that response staff receive the appropriate level of support required for the event

Table 4: Type 4 - Non-Emergency Restoration Event

Type		Anticipated LUMA Energy Operating Conditions
Type 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival it is determined that additional resources are needed, a supervisor is assigned and will secure additional line crews from the Field Operations organization.
	Event Characteristics	• System activity is normal • Incidents are contained within the first operational period and last for less than 12 hours after resources arriv on scene • Typically, <1 % (14,000) customer interruptions at peak • Typically, <2,500 Outage Events at peak • Normal daily internal crew assignments
	Response Organization	• Incident Command Structure is not activated • Emergency Operations Centers are not activated
	Resource Activation	• Outage response is coordinated with local on-call personnel
	Communication/ Coordination	• No written IAP is required

Table 5: Type 5 - Normal Operations

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.
- Expected percent of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed such as a low wire, tree limb on 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.

Attachment 3 – Event Classification and LEOC Activation Levels

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation not impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Emergency Response Plan

Annex C
Earthquake Response

LUMA ENERGY

CRISIS MANAGEMENT OFFICE

May 10, 2021

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Handling Instructions

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Crisis Management Office
LUMA Energy

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Approval and Implementation

LUMA Energy Emergency Response Plan

Earthquake Response Annex

[redacted]

May 23, 2021
Date

Director, Emergency Operational Response and Readiness

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I. Purpose

The purpose of LUMA's Earthquake Response Annex ("Annex") is to describe the key functions that LUMA will implement in response to an earthquake or earthquake-related hazard that affects facilities and infrastructure that provide electric service throughout Puerto Rico.

This Annex 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 earthquake or earthquake-related incident or event. A vital feature of this Annex 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.

A. NIMS and the Incident Command System

LUMA has adopted the National Incident Management System (NIMS), a consistent nationwide framework and approach that enables government at all levels (federal, state, and local), the private sector and non-governmental organizations to work together to prepare for, respond to, and recover from the effects of incidents, regardless of cause, size, or complexity.

By ensuring the key elements of the Incident Command System (ICS) are implemented at each level within the organization, LUMA can accommodate municipal, regional, and system level emergencies. These key elements are easily replicated utilizing common roles and responsibilities.

II. Scope

This Annex applies to emergency events caused by earthquakes and earthquake-related hazards that result in, or could result in, a major potential impact to the integrity of LUMA's Transmission and Distribution (T&D) system and/or a disruption of electrical service to LUMA customers. Execution of coordinated decisions, appropriate responses, and actions to activate resources contributes to a rapid and safe recovery and depends upon the scalability of this Annex.

A. Guiding Principles

LUMA's Guiding Principles are primary mechanisms to coordinate LUMA's preparedness, response and recovery actions when faced with any type of minor or major emergency event. In accordance with the Guiding Principles, LUMA will:

- Treat all LUMA personnel, customers, and contract personnel with consideration and respect.
- Assess damage and relay information promptly. A high-level Company damage assessment will be provided within a reasonable timeline depending on the level of damage.
- Provide estimated times of restoration be as the affected geographic area is assessed.

- Follow all safety protocols associated with responding to sites that pose a risk to public safety (such as downed energized conductors) with the highest priority.
- Maintain environmental stewardship by complying with all environmental work practices and regulations.
- Maintain a focus on Critical Community Lifelines throughout the response and restoration operations as defined in the LUMA ERP – Base Plan.

III. Situation and Assumptions

A.Situation

Puerto Rico experiences hundreds of earthquakes of varying magnitude every year. The island is located above two congruent tectonic plates: the Northern American and Caribbean Tectonic plates. Pressure buildup between the plates results in a release of energy causing frequent earthquakes. Between December 2019 and January 2020, a string of earthquakes with magnitudes of five (5) or higher impacted the island (Figure 1) and severely damaged electrical infrastructure and the island's largest power plant, Costa Sur. Power outages impacted nearly the entire island and took over a week to restore.

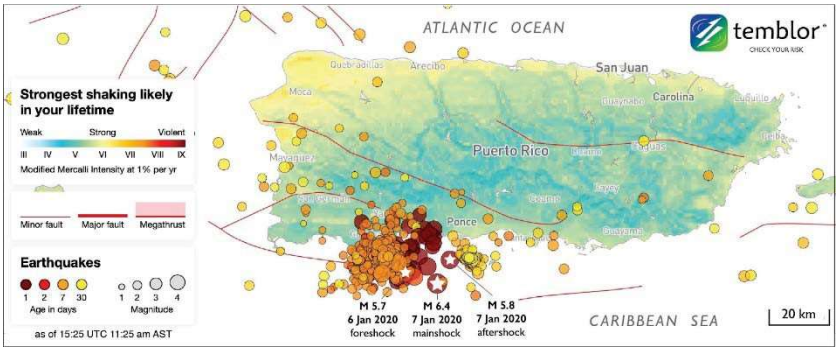

Figure 1- Puerto Rico Earthquakes. Dec. 2019- Jan. 2020 (Source: Temblor)

Earthquakes have the potential to expand into a major emergency and can affect the lives, property, and the ability of LUMA to provide continuous electric service to its customers. Puerto Rico's power generating facilities are at risk of damage as a result of earthquakes; Figure 2 illustrates the location of fault lines in relation to Puerto Rico's power generating facilities. LUMA's ability to respond to an earthquake and/or earthquake-related hazards to lessen the effects of power outages to customers depends upon a combination of coordinated decisions internally and externally regarding local emergency services personnel and resources.

Figure 2- Major Geographical Faults Overlapping the Power Generation Layout of Puerto Rico (Source: LUMA ERP- Base Plan)

The effectiveness of this Annex is based on LUMA's commitment to prepare and implement guidance and best practices outlined within this Annex and the ERP – Base Plan. Execution of the appropriate responses to affect rapid and safe recovery is dependent upon the scalability of this Annex. The number of customers affected, and the magnitude of a major outage event 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 of this Annex. There are five (5) Event Types described in the Event Classification and LUMA Emergency Operations Center (LEOC) Activation Table, located in this Annex, Attachment 3.

B. Assumptions and Considerations

LUMA's ability to respond to and recover from any type of minor or major event that may affect the electric service to its customers and related actions are outlined within the LUMA ERP – Base Plan and Major Outage Restoration Annex A. Identified below are additional assumptions and considerations regarding response to earthquakes which should include, but are not limited to the following:

- Earthquakes of high magnitude can inflict serious structural damage on electrical infrastructure and facilities. Cascading effects of earthquakes may include additional damages, large quantities of debris and simultaneous fires.
- Earthquakes can trigger earthquake-related hazards, such as aftershock earthquakes, tsunamis, surface faulting liquefaction, and/or landslides. For more information on these hazards, refer to the Hazards Assessment, Attachment 4.
- Damage assessment(s) determines the impact and magnitude of damages and should be conducted within a reasonable timeline.
- Damage assessment reports identify affected geographic area(s) which contribute to the estimated time of restoration baseline projection.
- Normal resources and processes for support to impacted areas for power restoration may not be enough due to the severity and duration of the outage.
- 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.
- 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 are maintained and activated when the scope of the incident requires additional resources beyond LUMA's capabilities.
- Potential weather conditions may affect the response and restoration actions.

- Assessment, prioritizing and scheduling of repairs are conducted throughout the response and restoration process.

IV. Concept of Operations

In the event of a major outage due to an earthquake or earthquake-related hazard that results in, or may result in damages of facilities or power outages, LUMA will respond and rapidly assess the impacts to the Transmission & Distribution (T&D) infrastructure and take 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 Classification Types are utilized and identified in the LUMA ERP – Base Plan.

A. Restoration Operations Strategy

The Dispatch and Field Operations Section within the LUMA Emergency Operations Center (LEOC) is responsible for the restoration operation strategies implemented by LUMA. In response to an event that affects the electric systems ability to provide power throughout Puerto Rico, directives from the LEOC will follow the LUMA Restoration Strategy identified in the LUMA ERP-Major Outage Restoration Annex A ("Annex A"), Section VI.

1. Approach

Under the direction of the East or West Division Branch Director the field teams will respond to the event as safely and efficiently as possible. The Incident Command System (ICS) is flexible with adaptability depending on the Event Type identified in Attachment 2 of this Annex.

The ICS establishes:

- Lines of supervisory authority.
- Formal reporting relationships.
- Maintains reasonable spans of control at each level.
  - At a minimum, all Command Staff, General Staff, and Branch Director ICS positions are responsible for primary and secondary staffing requirements within the incident command structure.

The transition from response operations to restoration operations will be considered when the following are addressed.

- Mobilizing/demobilizing their organization and resources as directed by the IC.
- Overseeing the deployment and direction of their staff in the performance of the specific tasks associated with their respective function.
- Making available a well-trained workforce to staff their respective function.
- Adhering to all applicable environment, health and safety rules, regulations and procedures.

2. Mobilization of Personnel

Most earthquakes typically occur with little to no warning, therefore LUMA may be required to institute a rapid deployment of resources in the safest manner possible depending on the Event Type.

The most critical component to mobilizing personnel is the ability to be flexible in order to adapt to optimum levels as the threat and/or extent of damages 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 LUMA ERP, Annex A.

3. Damage Assessment

A Damage Assessment (DA) is a key component of the restoration operations. Assessment personnel are managed through the Regional System Emergency Restoration Teams (SERT) and provide their report to the Regional Commander. The order of evaluation is based on the Restoration Priority Matrix Guidelines which is identified within the LUMA ERP, Annex A., Section VII.E.

- Assessment personnel should maintain safety and security protocols when conducting DA's after an earthquake in case of secondary earthquake-related hazards. Aftershocks may occur without warning up to days after the initial earthquake.
- The T&D System Control Center will monitor and develop an initial system status report. This report is used to compare the current level of electric demand on the system to the forecasted demand.
- The DA report is disseminated to the Operations Section in the LEOC where resources and equipment requirements are identified.
- Regional SERT teams execute restoration operations as identified by the LEOC and Regional Commanders.

4. Restoration

In accordance with the safety protocols and priorities established for emergency events identified within the LUMA ERP, Base Plan, response and restoration crews will be dispatched to pre-identified staging areas.

a) *Prioritization*

Outages are prioritized by:

- Considerations of safety conditions.
- Amount of damages to LUMA facilities and/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 LUMA ERP, Annex A.

b) *Assessment*

LUMA will complete an assessment of the electrical system by dispatching the SERT to determine and conduct emergency repairs.

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 and/or fire departments, that respond to the incident should provide LUMA with the status of the area/facility before a damage assessment can be conducted.

LUMA's facilities and infrastructure damages will be assessed by conducting a damage assessment. LUMA's restoration efforts will focus on the prioritization objectives listed below to include, 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.

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 will ensure "make safe" actions are taken and acknowledges it may be necessary to contract additional resources to support make safe and restoration activities.

B. LUMA Event Classification Type

All earthquake events have the potential to affect LUMA operations outside their daily operational boundaries. If the event triggers the activation of the LEOC, the IC is responsible for analyzing the severity, complexity, and size of the incident with the collaboration and input of the Command and General Staff and determines the Event Type.

These classification types are directly tied to the establishment of EOC activation levels. The IC may also deem it necessary to escalate or de-escalate the Event Type and EOC Activation Level depending on changes in circumstances or where actual conditions differ from expected conditions.

- Event Types 4 and 5 are Non-Emergency Events.
- Events Types 1, 2, and 3 are Emergency Events.
  - Type 1 is the most severe.
- Event Type 1 represents catastrophic emergency conditions.
  - LUMA's Emergency Event Types are described in this Annex in Attachment 2.

V. Estimated Times of Restoration

Earthquake damages that cause the electric system to fail and considerations regarding earthquake-related hazards(s) which may impede restoration operations must be investigated upon notification of an impending or immediate emergency event. The timespan of an earthquake may prolong the Estimated Times of Restoration (ETR), given aftershocks and other earthquake-related hazards can occur after the initial event.

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 VIII, Tables 15 and 16.

VI. Direction, Control, and Coordination

This Annex 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:

- Damage Assessments
- Determination of the Event Type
- Coordinated response utilizing the Incident Command System (ICS)

The LUMA Emergency Response Plan (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 VIII.

VII. Communications

LUMA will strive to provide timely, accurate and consistent communications prior to and during an incident. During an earthquake related event that requires the activation of the LUMA Emergency Operations Center (LEOC), the Public Information Officer (PIO), through the LEOC, will communicate necessary and critical information through a variety of methods that may include, but not be limited to the following:

- LUMA's website and Customer Outage Map
- Media Outlets
- Social Media (i.e. Twitter, Facebook, WhatsApp, etc.)
- Situational Reports to Local, Municipal and Government of Puerto Rico agencies
- Incorporation of Amateur Radio Operators (as needed)
- Joint Information Center (JIC)

- LUMA is responsible for establishing a JIC and/or provide a liaison to the PREMB pre-established JIC.

LUMA has established a consistent messaging platform that is flexible to allow for expansion internally or externally, depending on the Event Type which is identified within the Event Classification Type- Attachment 2 of this Annex.

VIII. Demobilization

The Incident Commander (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 its pre-incident status. Demobilization planning is an on-going process that facilitates accountability and ensure efficient resource management.

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

The Planning and Intelligence Section Chief (PSC) will develop demobilization plans and ensure 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 event.
- All non-regional crews are released.

IX. Annex Development and Maintenance

This Annex is a living document. Development and maintenance to this Annex will be in conjunction with the LUMA ERP – Base Plan. Proposed changes should be sent to the Crisis Management Office (CMO) for approval and inclusion.

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

Attachment 1 – Explanation of Terms

Acronyms

CMO	Crisis Management Office
DA	Damage Assessment
EOC	Emergency Operations Center
ERO	Emergency Response Organization
ERP	Emergency Response Plan
ETR	Estimated Time of Restoration
FEMA	Federal Emergency Management Agency
IAP	Incident Action Plan
IC	Incident Commander
ICS	Incident Command System
JIC	Joint Information Center
LEOC	LUMA Emergency Operations Center
MAA	Mutual Aid Agreement
NIMS	National Incident Management System
P&I	Planning and Intelligence
PIO	Public Information Officer
PREMB	Puerto Rico Emergency Management Bureau
PSC	Planning and Intelligence Section Chief
SERT	System Emergency Restoration Team
T&D	Transmission & Distribution

Terms

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 (DA) – A mechanism utilized to determine the magnitude of damage and impact of disasters.

Demobilization – The ongoing process of disengaging response resources as incident objectives are met and returning them to their normal function.

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 Government of Puerto Rico, and potentially Federal, involvement.

Emergency – Any event, whether natural or manmade, that requires responsive action to protect life, property, and/ or operational capacity.

Earthquake – A term used to describe both sudden slip on a fault, and the resulting ground shaking and radiated seismic energy caused by the slip or other sudden stress changes in the earth.

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.

Emergency Event – An event where widespread outages or Service Interruptions have occurred in the service area of the Company due to storms or other causes beyond the control of the company. An Emergency Event is an event classified at a Type I, II, or III event as described in this ERP.

Emergency Operations Center (EOC) – The physical locations at which coordination of information and resources to support incident management activities occurs.

Emergency Response Organization (ERO) – A structured organization with overall identified responsibilities for initial and ongoing emergency response and mitigation.

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 (IC) – The individual appointed by the Company's executive management to have overall responsibility for LUMA's response during an Emergency Event.

Incident Command System (ICS) - 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").

Joint Information Center (JIC) – A central point of contact for new media and interest parties to coordinate incident information activities.

Landslides – The movement of surface material down a slope that may be triggered by weather or earthquakes.

Liquefaction – The act of loosely packed, water-logged sediments at or near the ground surface losing their strength in response to strong ground shaking.

Surface Faulting – An offset of the ground surface when fault rupture extends to the Earth's surface.

System Level ERO – Multi-regional Emergency Response Organization.

Tsunami – A series of waves in a water body caused by the displacement of a large volume of water.

Attachment 2 – Event Classification Type

Type		Anticipated LUMA Operating Conditions
Type 1 – Catastrophic Emergency	Viewpoint	A Type 1 event is a catastrophic event, historically resulting in significant damage to the electrical transmission and distribution system. Type 1 events are rare but are usually forecast in advance of the event. This event calls for the full implementation of ICS and all employees are assigned shifts and are scheduled in relation to their role in the ERP. All Division and Regional Emergency Operations Centers (EOCs) are activated. This type of event is coordinated through daily 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. Communication protocols are activated and discussion with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity impacts the entire system such that restoration activities may require ten (10) days or more once it is safe to begin restoration activities • Typically, > 50% (>700,000) customer interruptions at peak • Typically, > 50,000 Outage Event at Peak • This type of event is anticipated to occur between 1 and 4 times in a ten-year period
	Response Organization	• System-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Division and/or Regional EOC level as directed by the PSC and OSC and approved by the IC • Remote Restoration Management Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • Liaisons are activated • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • LUMA will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication/ Coordination	• Federal resource coordination will likely be required • A written Incident Action Plan (IAP) is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities will be held

Table 1: Type 1 – Catastrophic Event

Type		Anticipated LUMA Energy Operating Conditions
Type 2 – Emergency Conditions Event	Viewpoint	A Type 2 event is a severe event, which has historically resulted in significant damage to the electrical transmission and distribution system in a region(s) or could be moderate damage across the entire territory. Type 2 events are usually forecast in advance. This is a full implementation of ICS and most employees are assigned shifts and scheduled related to their role in ERP. This type of event is coordinated through daily 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. All impacted Division, and Regional Emergency Operations Centers (EOCs) are activated. Communication protocols are activated and extended discussions with local and Government of Puerto Rico officials occurs prior to impact and through the restoration stage.
	Characteristics	• The damage severity within a specific region or spread across the system is such that restoration activities are generally accomplished within a 7-day period once it is safe to begin restoration activities • Typically, 25% to 50% (350,000 to 700,000) customer interruptions at peak • Typically, >25,000 Outage Events at Peak • This type of event is anticipated to occur between 2 and 4 times in a five-year period
	Response Organization	• The system-wide Incident Command structure is activated • All Command and General Staff positions are activated • All EOCs are operational • Additional restoration support functions will be established at a Divisional EOC level as directed by the Planning and Operations Section Chiefs and approved by the Incident Commander • System Emergency Restoration Teams are activated in the most severely impacted areas at the discretion of the Operations and Planning Section Chief and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Community Liaisons are activated to EOCs to serve communities as directed by the Liaison Officer and approved by the Incident Commander • Staging Areas may be required to support external crews and resources
	Resource Activation	• This response requires outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy will likely require a large increase in various staffing positions and teams • Additional restoration support functions will be staffed
	Communication / Coordination	• Federal resource coordination will likely be required • A written IAP is required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Municipalities, Elected Officials, and Regulators is performed • Restoration Phase Reporting is required • An After-Action Review is required • Post event meetings with the most severely affected communities may be held

Table 2: Type 2 – Emergency Conditions Event

Type		Anticipated LUMA Energy Operating Conditions
Type 3 – High Alert Event (Moderate Regional Event)	Viewpoint	A Type 3 event represents the greatest range of uncertainty due to the severity of event being forecasted (Tropical Depression/Storm) but with low to medium confidence levels for the degree of impact and geographical area that is threatened. This type of event historically resulted in significant damage to district(s) or moderate damage to region(s). The approach is to prepare for multiple regions to potentially be impacted by activating the ICS structure and the opening of one or more EOCs. Employees will be assigned shifts and scheduled according to the threat, then moved to the areas with less impact to areas that received greater damage. This type of event is coordinated through daily 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. Communication protocols are activated and extended discussions with local and state officials occurs prior to impact and through the restoration stage.
	Event Characteristics	• The damage severity within a specific district or region(s) is such that restoration activities are generally accomplished within a 48-72-hour period • Typically, 10% to 25% (70,000 to 350,000) customer interruptions at peak • Typically, >10,000 Outage Events at peak • This type of event generally occurs between 1 and 5 times per year
	Response Organization	• The Incident Command structure is activated at the System EOC level down to the local level • One or more of the EOCs may be activated to match the complexity of the event • Additional restoration support functions such as Decentralized Dispatching, Downed Wires and Damage Assessment may be established at a Divisional EOC as directed by the Planning and/or Operations Section Chiefs and approved by the Incident Commander • Community Liaisons are activated to operational EOCs as directed by Liaison Officer and approved by the Incident Commander • The Liaison Officer in the PREMB EOC may be activated dependent upon the level of State coordination required • Staging Areas may be required in an area if it has been severely impacted and requires a concentrated number of crews and resources
	Resource Activation	• This response may require outside assistance from contractors and/or mutual assistance from other utilities outside of the region • LUMA Energy may require a large increase in various staffing positions and teams • Additional restoration support functions may be staffed
	Communication/ Coordination	• A written IAP may be required for each operational period • Pre-Event Reporting is required • Pre-Event outreach to Life Support Customers, Municipalities, Elected Officials, and Regulators is conducted as necessary • Restoration Phase Reporting is required

Table 3: Type 3 – High Alert Event

Type		Anticipated LUMA Energy Operating Conditions
Type 4 – Non-Emergency Restoration Event (Heightened Alert)	Viewpoint	Type 4 events include (but are not limited to): system events that impact one or more district. Type 4 events may be due to thunderstorms, high winds, frequent and/or severe lightning, small to moderate winter storms or unanticipated events. Typically, these events are managed by System Operations with assistance from Field Operations. Control and management of the event typically remains centralized but may decentralize to one or more Emergency Operations Centers depending on the damage. The Incident Command Staff is notified, and specific sections may be activated depending on the impact of the event.
	Event Characteristics	• The damage severity within a specific district is such that restoration activities are generall accomplished within a 12-24-hour period • The incident is usually 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
	Response Organization	• Incident Command Structure may be activated • Command and General Staff positions activated as needed • One or more EOCs may be operational depending on the geographical threat and complexity • Community Liaisons may be staffed at the activated EOCs as directed by the Liaison Officer and approved by the Incident Commander
	Resource Activation	• Internal restoration resources normally available • Restoration is generally accomplished with local assets possibly with assistance from other regional distribution line assets • Typically, 2-50 personnel may be deployed to EOCs that have been activated at the discretion of the Planning and/or Operations Section Chiefs and approved by the Incident Commander to perform other functions
	Communication / Coordination	• No written IAP is required • The operations and maintenance department may have briefings or regional conference calls to ensure the complexity of the event is fully communicated to management and that response staff receive the appropriate level of support required for the event

Table 4: Type 4 – Non-Emergency Restoration Event

Type		Anticipated LUMA Energy Operating Conditions
Type 5 – Normal Operations	Viewpoint	Type 5 events represent normal operations and are managed by the System Operations Dispatch Organization which is staffed 24/7/365. For small outages, system Operations will dispatch designated trouble resources to repair the outage. If upon arrival it is determined that additional resources are needed, a supervisor is assigned and will secure additional line crews from the Field Operations organization.
	Event Characteristics	• System activity is normal • Incidents are contained within the first operational period and last for less than 12 hours after resources arriv on scene • Typically, <1 % (14,000) customer interruptions at peak • Typically, <2,500 Outage Events at peak • Normal daily internal crew assignments
	Response Organization	• Incident Command Structure is not activated • Emergency Operations Centers are not activated
	Resource Activation	• Outage response is coordinated with local on-call personnel
	Communication/ Coordination	• No written IAP is required

Table 5: Type 5 – Normal Operations

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.
- Expected percent of customers without service is based on the peak during the event period.
- “Outage Events” equates to outage events tracked and entered in the OMS. Some reported damage to the electrical infrastructure that requires repair may not cause an outage but may need to be addressed such as a low wire, tree limb on 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.

Attachment 3 – LEOC Event Classification and LEOC Activation Levels

LEOC Activation	Characteristics	LUMA Event Classification	Restoration Defined
Level 5 – Normal Operations	**Normal Day to Day Operations**	**Type 5 – *Non-emergency event**	***Non-Emergency Restoration Event –*** • **Response and Restoration efforts last for less than 12 hours**
Level 4 – Heightened Alert	• No worker injuries • No or low media interest • Corporate reputation not impacted • Spills and releases confined to site/lease • Public / employee health & safety not threatened • Pre-storm preparation activities also occur	Type 4 – *Non-emergency event (LUMA resources and localized Mutual Aid as needed)	*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
Level 3 – High Alert	After an event occurs, 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 • Corporate reputation not impacted • Pre-storm preparation activities also occur	Type 3 – *Emergency Event (All LUMA resources and multiple Mutual Aid Resources)	• Response and Restoration efforts last for approx. 24-48 hours • 70k to 350k customer interruptions at peak (represents between 10-25 percent of all LUMA customers) • 10k or more outages at peak • May require activation of ICS
Level 2 – Emergency Conditions	**After an event occurs, 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 environment could be jeopardized** • **Local and/or corporate reputation or company impacted**	**Type 2 – *Emergency (All LUMA resources and extensive Mutual Aid Resources)**	• **Response and Restoration efforts are accomplished in a 7-day period or less** • **350k to 700k customer interruptions at peak (represents between 25-50 percent of all LUMA customers)** • **Causes 25k or more outages at peak** • **Restoration is expected to take up to 7 days**
Level 1 – Catastrophic Emergency	**After an event occurs, at least 3 of the following are present:** • **Mass Fatality Incident** • **National & international media interest** • **Spill or release off site / not contained** • **Public / employee health & safety or environment jeopardized** • **Corporate reputation impacted**	**Type 1 – *Emergency (All company and contractor resources; extensive mutual assistance, federal Assistance)**	• **Response and Restoration efforts may require ten (10) days or more** • **700k or more customer interruptions at peak (represents at least half of all LUMA customers)** • **50k or more outages at peak** • **Restoration may take 10 days or longer** • **Will require mutual aid assistance**

Attachment 4 – 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. As of July 2020, the Puerto Rico Seismic Network registered over 10,000 earthquakes in the Puerto Rico region. Earthquakes occurs 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 the following hazards should also be taken into consideration:

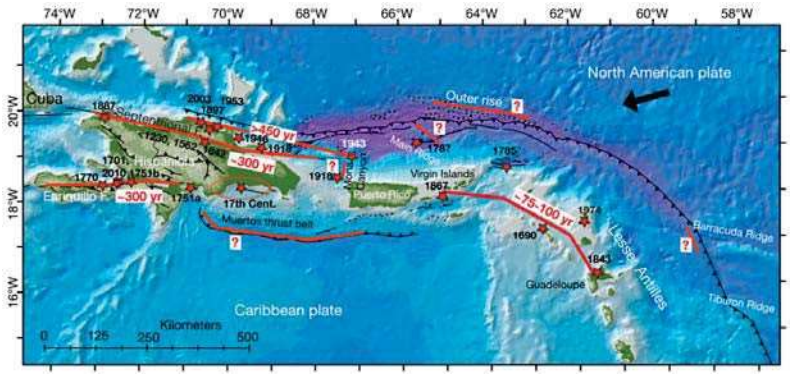

Figure 3- Puerto Rico Fault Lines (Source- U.S. Geological Survey)

Earthquake Aftershocks

Aftershocks are typically 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 cause 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 displacement that reaches the earth's surface during a slip along a fault. It commonly occurs with shallow earthquakes, those with an epicenter less than 20 km. Surface faulting can leave a visible line in the ground, noting the shift in the fault location, and can have a dramatic effect on the local infrastructure.

Landslides

A landslide is a movement of surface material down a slope. Earthquake-induced landslides are a result of the ground shaking and fault movement of an earthquake, which can potentially have a catastrophic impact on infrastructure. Landslides can include a large area of land, or surface movement that builds as it moves down the slope, both having the ability to cause significant destruction.

Tsunami

A tsunami is a sea wave of local or distant origin that results from large-scale seafloor displacements associated with large earthquakes and have the potential to cause significant damage to the 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 Eco Electrica.