Exhibit 1

Pre-Filed Testimonies and Exhibits

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mr. Kalen Kostyk
Manager of Accounting, LUMA Energy ServCo LLC
August 17, 2011

Q. Please state your name.

A. My name is Kalen Kostyk.

Q. Please state your business address, title, and employer.

My business address is PO Box 363508 San Juan, Puerto Rico 00936-3508. I am the Manager of Accounting, in the Finance Department for LUMA Energy LLC.

Q. **On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").**

A. My testimony is on behalf of the LUMA as part of the Commonwealth of Puerto Rico Public Service Regulatory Aboard Puerto Rico Energy Bureau (Energy Bureau) proceeding NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. Are there any exhibits attached to your testimony?

A. Yes, there are 5 exhibits attached to my testimony all included in LUMA's Performance Metrics Targets Revised Filing to be submitted on August 18, 2021:

a. Exhibit A - Table 2-18: Operating Budget
b. Exhibit B - Table 2-19: Capital Budget – Federally Funded
c. Exhibit C - Table 2-20: Capital Budget – Non-Federally Funded
d. Exhibit D - Table 2-23: Overtime
e. Exhibit E - Appendix D: Financial Performance Workpapers

Q. What is your educational background?

A. I received a Bachelor of Commerce in Accounting and Finance from the University of Alberta (Edmonton, Alberta, Canada).

Q. What is your professional experience?

A. I have approximately 9.5 years of professional experience in Utility work. In 2012, I joined ATCO Electric, an ATCO Company, which is a regulated electrical transmission and distribution company in the province of Alberta, Canada. My work at ATCO has included financial accounting, regulatory accounting, project accounting, business planning and forecasting, and contract administration and procurement oversight on a large transmission project. I have further supported General Tariff Applications and Deferral Account Reconciliation Applications through our provincial Utilities Commission. My work on regulatory filings included preparing the initial applications for filing, preparing responses to information requests, and providing support to expert witnesses in advance of evidentiary hearings. In supporting LUMA, my work efforts through front-end transition have been to lead the financial preparation and consolidation of the financial aspect of the LUMA Initial Budgets filing.

Prior to joining ATCO, I articled, or apprenticed at a public accounting firm, where I obtained my Canada Professional Accounting designation. In public practice I participated in audit, reviews, compilations, tax, and other engagements on behalf of clients.

Q. Do you hold any professional licenses, if so, which?

A. Yes, I am a Chartered Professional Accountant (Canada).

Q. Have you previously testified or made presentations before the Energy Bureau?

A. Yes - I have testified before the Energy Bureau in the Technical Conferences in two proceeding as follows:

a. Case No. NEPR-MI-2021-0004, LUMA Initial Budgets and Related Terms of Service
b. Case No. NEPR-MI-2021-0007, Review of LUMA's Terms of Service (Liability Waiver)

Q. Which documents did you consider for your testimony?

A. I considered the following 4 documents for my testimony:

a. Motion Filed in Case No. NEPR-MI-2019-0007 February 5, 2021 - Motion Resubmitting LUMA's Comments on Performance Baselines and Metrics Based on Data Presented on January 19th, 2021 by the Energy Bureau and Resubmitting Proposed Performance Metrics and Baselines – Section 2.4

b. PREPA's Certified Fiscal Plan 2021

c. LUMA's Performance Metrics Targets filing of February 25, 2021 in this proceeding, filed in Case No. NEPR-AP-2020-0025

d. LUMA's Performance Metrics Targets revised filing of August 18, 2021 in this proceeding, filed in Case No. NEPR-AP-2020-0025

Q. What is the subject and purpose of your Direct Testimony?

A. My testimony is in support of LUMA's performance metrics related to Financial Performance. I will be speaking on the following Financial Performance metrics to request the Energy Bureau's approval:

a. Operating Budget

b. Capital Budget: Federally Funded

c. Capital Budget: Non-Federally Funded

d. Overtime

Q. Please describe the methodology for measuring the performance metrics as outlined in answer 9 above.

A. The following describes the approach to measure the performance metrics.

Operating Budget

Performance Objective: To incentivize effective cost management.

Description: Measures ability to stay within budget.

Calculation: This metric will be evaluated as actual operating expenses for a given Fiscal Year divided by the approved T&D operating budget for the same Fiscal Year as incurred. As defined in Section 7.3(b) of the OMA the Budgets include 2% Excess Expenditures. Budget amendments, as defined in (i) through (iv) in Section 7.4 and 14.5(e) of the OMA, shall be deemed to be included in the initially approved Budgets (denominator) for purposes of this calculation. Further, any funds drawn from the Outage Event Reserve Account and the Contingency Reserve Account, as they have specific requirements, do not contribute to this metric.

LUMA proposes that any approved budget amendment for items outside LUMA's control also adjusts the budget metric denominator by the same amount. It is also proposed that any financial adjustments or corrections made to PREPA's pre-fiscal year 2022 historical books and records be excluded from the calculation.

Please see Exhibit A, LUMA's Performance Metrics Targets filing of August 18, 2021, NEPR-AP-2020-0025 Section 2, Table 2-18

Capital Budget: Federally Funded

Performance Objective: To incentivize effective cost management of federally funded projects.

Description: Measures ability to stay within budget.

Calculation: This metric will be evaluated as actual Federally Funded Capital expenses for a Fiscal Year, as incurred, divided by approved Capital

Budget: Federally Funded for the same Fiscal Year. As defined in Section 7.3(b) of the OMA the Budgets include 2% Excess Expenditures. Budget amendments, as defined in (i) through (iv) in Section 7.4 and 14.5(e) of the OMA, shall be deemed to be included in the initially approved Budgets (denominator) for purposes of this calculation. Further, any funds drawn from the Outage Event Reserve Account and the Contingency Reserve Account, as they have specific requirements, do not contribute to this metric.

Please see Exhibit B, NEPR-AP-2020-0025 Section 2, Table 2-19

Capital Budget: Non-Federally Funded

Performance Objective: To incentivize effective cost management of Non-Federally Funded Capital.

Description: Measures ability to stay within budget.

Calculation: This metric will be evaluated as actual Federally Non-Funded Capital expenses for a Fiscal Year, as incurred, divided by approved Capital Budget: Non-Federally Funded for the same Fiscal Year. As defined in Section 7.3(b) of the OMA the Budgets include 2% Excess Expenditures. Budget amendments, as defined in (i) through (iv) in Section 7.4 and 14.5(e) of the OMA, shall be deemed to be included in the initially approved Budgets (denominator) for purposes of this calculation. Further, any funds drawn from the Outage Event Reserve Account and the Contingency Reserve Account, as they have specific requirements, do not contribute to this metric.

Please see Exhibit C, LUMA's Performance Metrics Targets filing of August 18, 2021, NEPR-AP-2020-0025 Section 2, Table 2-20

Overtime

Performance Objective: To incentivize efficient payroll expense.

Description: This metric measures the utility's ability to manage labor expenses.

Calculation: The amount of overtime expenses divided by the amount of total non-exempt base compensation expenses, expressed as a percentage.

Please see Exhibit D, NEPR-AP-2020-0025 Section 2, Table 2-23

Q. What data analysis, if any, did you examine to develop the financial performance metrics?

A. The Operating Budget, the Capital Budget Federally Funded, and the Capital Budget Non-Federally Funded performance metrics and measurement were established in the OMA. The performance metrics measure LUMA's ability to stay within budget. LUMA is proposing to stay consistent with the OMA language, except for the added language to exclude outage events, which are outside of LUMA's control, from the calculation.

The Overtime performance metric was calculated by using PREPA's FY21 Certified Budget to determine a baseline overtime amount. LUMA requested data to be provided by PREPA on historical overtime, but no information was provided. As such, LUMA proposes to use the most recent FOMB Certified Budget to establish the baseline amount as detailed in our filing.

Q. How was the data used to calculate the baseline for Overtime?

A. As PREPA did not provide information on historical overtime as requested by LUMA, LUMA utilized the FY2021 Certified Budget as the best proxy of current overtime expectations. LUMA utilized this publicly available data to derive an overtime percentage and used this data to establish a baseline percentage as recommended within this

application.

Q. What considerations were made upon analyzing the baseline data to determine the target?

A. Operating Budget: PREPA provided PREB with data that supported a baseline of 80.4% in Case No. NEPR-MI-2019-0007. LUMA reviewed the baseline and understands that PREPA's historical underrunning of the approved budgets was not due to efficient efforts or betterment of the system. LUMA considers that there was an inability by PREPA to deliver on the annual plans to properly manage and operate the system. LUMA's budgets were bottom-up buildups by functional groups to deliver on plans for the approved fiscal year and LUMA is requesting to be measured to deliver on services in alignment with the PREB approved budget.

Capital Budget – Non-Federally Funded: PREPA provided PREB with data that stated a baseline of 6.6% in Case No. NEPR-MI-2019-0007. LUMA reviewed the baseline and considers that PREPA's historical underrunning of the approved budgets was not due to efficient efforts or betterment of the system. LUMA considers that there was an inability by PREPA to deliver on the annual plans to properly manage and operate the system. LUMA's budgets were bottom-up buildups by functional groups to deliver on plans for the approved fiscal year and LUMA is requesting to be measured to deliver on our services in alignment with the PREB approved budget.

Capital Budget – Federally Funded: PREPA provided no baseline data. However, in alignment with the previous points, LUMA is requesting to be measured to deliver on services in alignment with the PREB approved budget.

Overtime: PREPA provided no baseline data. LUMA is proposing to baseline on PREPA's

FY21 Certified Budget request, which was 23%, which will establish a baseline for the Performance Metric's measurement.

Q. Please comment on how LUMA's target were set according to the Exhibits provided.

A. LUMA's targets for the Operating Budget, Capital Budget – Non-Federally Funded and Capital Budget- Federally Funded were set with the intention to effectively manage and strength the resiliency of the T&D system. LUMA intends to spend all of its budgeted amount to assist in stabilization efforts and allowing for approved amendment changes if and when the budget is adjusted due to efficient operations or extenuating circumstances. Per Section 3 of the revised Performance Metric filing, LUMA is planning to achieve these targets by establishing strong processes based on set strategic priorities, implementing tools for teams to be able to forecast and profile spend.

LUMA's Overtime metric targets were set with the intention to recognize root causes in labor and wage expectations and improve performance over time. Each year, LUMA plans to strengthen their ability to forecast overtime by implementing a timekeeping system and enable processes that allow for more timely and accurate labor data by project.

The targets for the Financial Metrics are outlines in Tables 2-18, 2-19 and 2-20 of LUMA's Performance Metrics Targets Revised Filing, Exhibits A through C, and the Targets for LUMA's Overtime metric is found in Table 2-23 of LUMA's Performance Metrics Targets Revised Filing, Exhibit D.

Q. In brief, what are your recommendations?

A. I recommend that LUMA Financial Performance Metrics be approved as requested.

Q. Does this complete your testimony?

184 A. Yes.

ATTESTATION

Affiant, Mr. Kalen Kostyk, being first duly sworn, states the following:
The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that he would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is his direct testimony and to the best of his knowledge are true and correct.

Kalen Kostyk

Kalen Kostyk

Affidavit No. _____

Acknowledged and subscribed before me by Mr. Kalen Kostyk, in his capacity as Manager, Accounting of LUMA Energy, whose full name is as expressed herein, of legal age, single, accountant, and resident of Canada who is personally known to me or whom I have identified by means of his driver's license.

In Canada, this 18th day of August 2021.

Public Notary

Hailian Wang
Ontario Paralegal and Notary Public
Law Society of Ontario Licensee P16391

Signed electronically before me in Stouffville, Ontario
while the Affiant was located in Alberta
in accordance with Reg. 431/20 and the Ontario Electronic Commerce Act and securely online via video.

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Direct Testimony

Exhibit A

Table 2-18: Operating Budget

Table 2-18. Operating Budget[1]

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	80.4%						
Baseline	100% of Operating Budget						
Year 1	100% of T&D Approved Operating Budget	100% of T&D Approved Operating Budget	N/A	N/A	Less than or Equal to 100%	N/A	N/A
Year 2	100% of T&D Approved Operating Budget	100% of T&D Approved Operating Budget	N/A	N/A	Less than or Equal to 100%	N/A	N/A
Year 3	100% of T&D Approved Operating Budget	100% of T&D Approved Operating Budget	N/A	N/A	Less than or Equal to 100%	N/A	N/A

[1] In accordance with OMA Section 7.3(b), each Budget includes Excess Expenditures, defined as expenditures for undefined costs in an amount equal to up to two percent (2%) of the total amount of the Budget. Excess Expenditures must otherwise comply with the applicable Rate Order. Any Excess Expenditures incurred by LUMA are treated as T&D Pass-Through Expenditures and as if initially budgeted. Each reference in the OMA to a Budget or Default Budget includes Excess Expenditures to the extent these are incurred.

Direct Testimony

Exhibit B

Table 2-19: Capital Budget – Federally Funded

Table 2-19. Capital Budget: Federally Funded[1]

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	N/A						
Baseline	N/A						
Year 1	100% of FY22 Approved Capital Spend	100% of FY22 Approved Capital Spend	N/A	N/A	Less than or Equal to 100%	N/A	N/A
Year 2	100% of FY23 Approved Capital Spend	100% of FY23 Approved Capital Spend	N/A	N/A	Less than or Equal to 100%	N/A	N/A
Year 3	100% of FY24 Approved Capital Spend	100% of FY24 Approved Capital Spend	N/A	N/A	Less than or Equal to 100%	N/A	N/A

[1] In accordance with OMA Section 7.3(b), each Budget includes Excess Expenditures, defined as expenditures for undefined costs in an amount equal to up to two percent (2%) of the total amount of the Budget. Excess Expenditures must otherwise comply with the applicable Rate Order. Any Excess Expenditures incurred by LUMA are treated as T&D Pass-Through Expenditures and as if initially budgeted. Each reference in the OMA to a Budget or Default Budget includes Excess Expenditures to the extent these are incurred.

Direct Testimony

Exhibit C

Table 2-20: Capital Budget – Non-Federally Funded

Table 2-20. Capital Budget: Non-Federally Funded[1]

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	6.6%						
Baseline	100% of Capital Budget: Non-Federally Funded Approved for Fiscal 2022						
Year 1	<100% of FY22 Approved Capital Spend	100% of FY22 Approved Capital Spend	N/A	N/A	Less than or Equal to 100%	N/A	N/A
Year 2	<100% of FY23 Approved Capital Spend	100% of FY23 Approved Capital Spend	N/A	N/A	Less than or Equal to 100%	N/A	N/A
Year 3	<100% of FY24 Approved Capital Spend	100% of FY24 Approved Capital Spend	N/A	N/A	Less than or Equal to 100%	N/A	N/A

[1] In accordance with OMA Section 7.3(b), each Budget includes Excess Expenditures, defined as expenditures for undefined costs in an amount equal to up to two percent (2%) of the total amount of the Budget. Excess Expenditures must otherwise comply with the applicable Rate Order. Any Excess Expenditures incurred by LUMA are treated as T&D Pass-Through Expenditures and as if initially budgeted. Each reference in the OMA to a Budget or Default Budget includes Excess Expenditures to the extent these are incurred.

Direct Testimony

Exhibit D

Table 2-23: Overtime

Table 2-23. Overtime

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	N/A						
Baseline	23% of Total Non-Exempt Base Compensation						
Year 1	20% of Total Non-Exempt Base Compensation	23% of Total Non-Exempt Base Compensation	Less than or Equal to 18%	19%	20%	21%	22%
Year 2	19% of Total Non-Exempt Base Compensation	22% of Total Non-Exempt Base Compensation	Less than or Equal to 17%	18%	19%	20%	21%
Year 3	18% of Total Non-Exempt Base Compensation	21% of Total Non-Exempt Base Compensation	Less than or Equal to 16%	17%	18%	19%	20%

Direct Testimony

Exhibit E

Financial Performance Workpapers

See attached Excel Workbook

NotaryPro

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Document History

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All dates expressed in MM/DD/YYYY (US)

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mrs. Esther C. Gonzalez
Vice President of Health, Safety, Environmental & Quality, LUMA Energy LLC
August 18, 2021

Q. Please state your name.

A. My name is Esther C. Gonzalez.

Q. Please state your business mailing address, title, and employer.

A. My business mailing address PO Box 363508 San Juan, Puerto Rico 00936-3508. I am the Vice President of Health, Safety, Environmental & Quality at LUMA Energy LLC.

Q. Please state your educational background.

A. I have a Masters Degree in Management of Business Administration (MBA) from the University of Phoenix, Puerto Rico Campus, and a Bachelor's Degree in Industrial Engineering at the University of Puerto Rico, CAAM.

Q. Please state your professional experience.

A. I have over 25 years of experience leading engineering services, new products introduction, facilities management, product compliance and for approximately the last 10 years my career has focused on environmental health and safety in manufacturing and installation services companies.

Q. Please describe your work experience prior to joining LUMA.

A. Over my 25 years of experience I have held several senior management positions including global roles for international industries such as Tyco International, Johnson Controls and Prince International.

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").

A. My testimony is on behalf of LUMA as part of the Puerto Rico Energy Bureau ("Energy Bureau"), Commonwealth of Puerto Rico Public Service Regulatory Board proceeding Case No. NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo,

LLC.

Q. Are there any exhibits attached to your testimony?

A. Yes, there is one exhibit attached to my testimony:

a. Exhibit A: KPI Metrics - Safety

Q. Do you hold any professional licenses, if so, which?

A. I have an OSHA General Industry Health and Safety Certification & am a member of the American Society of Safety Professionals.

Q. Have you previously testified or made presentations before the Energy Bureau?

A. Yes.

- The Performance of Puerto Rico Electric Power Authority NEPR-MI-2019-0007
- Emergency Response Plan NEPR-MI-2019-0006

Q. Which documents did you consider for your testimony?

A. I considered the following documents:

a. LUMA's Performance Metrics Targets Revised filing to be submitted on August 18, 2021, in this proceeding, Case No. NEPR-AP-2020-0025,

b. The Resolutions and Order issued by the Puerto Rico Energy Bureau on April 8, 2021, May 21, 2021, July 2, 2021 in Case NEPR-MI-2019-0007.

c. Motion resubmitting LUMA's comments on Performance Baselines and Metrics in Case No. NEPR-MI-2019-0007 submitted February 5, 2021 as revised on February 8, 2021

d. PREPA OSHA 300 and 301 log,

e. PREPA Casi Casi report, and

f. PREPA incident's log spreadsheet.

Q. What is the purpose of your direct testimony?

A. My testimony is in support of LUMA's Performance Metrics Targets Revised filing to be filed in this proceeding on August 18, 2021 ("LUMA's Performance Metrics Targets") on performance metrics related to safety, specifically:

a. OSHA Recordable Incident Rate – which is a calculation using total number of OSHA recordable incidents. An OSHA recordable incident is an injury or illness that results in one or more of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, a significant injury or illness diagnosed by a physician or other licensed health care professional,

b. OSHA Fatalities – which as per OSHA requires, considers all work-related fatalities be reported to OSHA within eight (8) hours. The industry standard target is 0 fatalities, which has determined the Baseline and Target Performance Levels.

c. OSHA Severity Rate– which is used to measure the severity of workplace injuries and is commonly used to measure safety performance across the utility industry. Its calculation considers the total number of restricted and lost time days incurred as a result of a work-related injury, and

d. OSHA Days Away, Restricted and Transfer Rate ("OSHA DART Rate") – which is a calculation that considers the total number of injury cases that resulted in either lost time, restricted time, or a transfer from the employee's regular job.

Q. Please describe the methodology for the Safety Performance Metrics.

A. The methodology is aligned with OSHA requirements. As part of the OSHA requirements, every year employers must report to OSHA critical metrics that evidence their health and safety performance. Some of those metrics and their associated calculations are:

The reporting of these metrics is closely monitored by OSHA and the industries are subject to scrutiny based on their performance. These metrics are managed, tracked, and reported to ensure a safe & healthy workplace. Therefore, the primary value of these metrics is to evaluate and quantify the company's safety performance.

The description for each of the metrics is as follows:

a. OSHA Recordable Incident Rate: is the number of work-related OSHA recordable injury cases. The formula = (number of injuries and illnesses X 200,000) / Employee hours worked]

b. OSHA Fatalities: is the number of work-related fatalities, and

c. OSHA Severity Rate is calculated on the basis of the OSHA Severe Injuries number of total work-related industry cases with severity days. The formula = (Total number of lost workdays or restricted x 200,000)/ actual hours worked by all employees, and

d. DART Rate is the number of work-related injuries- The formula = (# of work-loss or restricted cases x 200,000) /# of hours worked.

Q. What data, if any, was analyzed for the Safety Performance Metrics?

A. Health and Safety Performance Metrics were established taking into consideration the PREPA OSHA 300 and 301 Logs and the PREPA Injury and Illness Data Reports including a Casi Casi report that PREPA began recording at the end of 2019. The data provided includes records from GENCO, Administration, and Transmission & Distribution ("T&D"). The first step during the analysis was to segregate the data to reflect T&D and Administration only and exclude generation.

Q. How was the available data analyzed to calculate the baseline for these Safety Performance Metrics?

A. The segregated data for the time period proposed in the Energy Bureau's Resolution and Order of May 21, 2021, was evaluated (2020 FY). Also, the cases or reportable injuries were reviewed and recordable injury reports were validated. In LUMA's review process the following evidence was found that raises questions on the reliability of the data that PREPA provided for Safety Metrics and that LUMA understands the Energy Bureau considered in its Resolution and Order of May 21, 2021:

1. New incident log for 2020 (Casi Casi) – A number of incidents and near misses included on a new report entitled 'Casi Casi.' These incidents were not classified as OSHA recordable injuries in the calculation of PREPA's original safety metrics submission. However, based on the information on the Casi Casi report, most of the incidents should have been recorded on the OSHA logs because they were injuries with medical treatment that included time out of work and/or medication. This information was crucial on our decision to include the relevant Casi Casi incidents that had evidence of OSHA recordability in the calculations on the baseline numbers instead of the numbers provided in the Energy Bureau based on PREPA's reported data, which exclude all Casi Casi incidents. I include two examples of incidents included on the Casi Casi report here for demonstration:

- Example 1 – on 1/03/2020 employee was involved in an official vehicle accident resulting on **10 days out of work**
- Example 2 – on 5/6/2020 an employee was struck by an insulated stick resulting on laceration on the right ear. Employee received **5 stitches**.

Based on a review of the data, the following information was included in the Casi Casi report but not included in the metrics data prepared by PREPA that LUMA understands

was available to the Energy Bureau in issuing the Resolution and Order of May 21, 2021:

- 58 recordable injuries (for a revised total of 300 recordable injuries),
- 57 recordable injuries that resulted in lost workdays (for a revised total of 235 recordable injuries that resulted in lost workdays),
- A total of 510 lost workdays (for a revised total of 1990 lost workdays) - See Exhibit A, Worksheet Casi Casi 2019 2020 – N, and
- The total number of hours worked was based on half of the total number of hours worked in 2019 (LUMA did not have monthly hours worked for the 2019 calendar year) plus the monthly hours worked from January 1 to June 30, 2021 - See Exhibit A, Worksheet Casi Casi 2019 2020 – N

Q. What is your assessment of the data provided by PREPA to the Energy Bureau in connection with Safety Metrics?

Evidence gathered during the front-end transition indicates that historical safety data compiled by PREPA contains inaccuracies. Although historical data for PREPA is available dating back to 2002, the detailed records to support that data are not available. In addition, interviews with individuals from the PREPA Occupational Health and Safety responsibility suggested that the supplied info contained inaccuracies. We also identified differences in the raw data that PREPA provided and OSHA records. Most of all the Health & Safety data is collected and manually entered an excel spreadsheet, which may result in data transcription errors when manipulating data.

Also, PREPA was historically using an erroneous formula for Severity Rate. PREPA was using: Lost days/Total Incidents. The correct formula is: (Total Lost days and

restricted/Total actual worked hours) X 200,000. Lastly, the aggregated data also includes Generation which should not me considered for LUMA.

Finally, LUMA requested from PREPA but did not receive, the reports of with the Corporación del Fondo del Seguro del Estado to determine if the recordable injury details match. The data that was used in the Resolution and Order of the Energy Bureau on May 21, 2021 in Case No. NEPR-MI-2019-0007, has not been compared to the reports of the Corporación del Fondo del Seguro del Estado. There is a significant risk with the variable of "Lost Days". The determination for Lost Days comes from the Fondo del Seguro del Estado. The Fondo de Seguro del Estado is a government owned and operated organization. In Puerto Rico, the Fondo de Seguro del Estado must be used. However, there is little to no challenging of the outcomes of Fondo de Seguro del Estado and little to no modified work or restricted work.

Q. Why did LUMA propose different baselines for the Safety Performance Metrics?

A. As previously stated, LUMA understands that the Energy Bureau's baselines were calculated using a different Fiscal Year period and safety data that was inaccurate based on OSHA standards. The baseline proposed by LUMA is calculated using the health and safety data that is compliant with OSHA standards.

Q. In brief, what are your recommendations for the baselines applicable to LUMA's Safety Metrics?

A. LUMA believes that PREPA understated Safety Performance Metrics beginning in January 2020 with the creation of the Casi Casi report. Inclusion of appropriate data from the Casi Casi report increases PREPA's Safety Performance Metrics to levels consistent with prior

periods and more accurately represents PREPA's historical performance. As a result, LUMA requests that PREB approves LUMA's adjustment to the Safety Performance Metrics baselines inclusive of relevant incidents from the Casi Casi report.

The transparency and accuracy in the metrics reported is critical to avoid scrutiny from federal and local agencies. Reporting mistaken health and safety metrics creates a misconception on how the business is performing related to critical aspects such as the well-being of our employees, along with the opportunity to implement performance improvement plans based on the trending data.

Q. How were LUMA's targets set for the Safety Performance Metrics?

A. LUMA removed the GENCO incidents and added the relevant incidents in the Casi-Casi report to the data on the PREPA OSHA recordable injury log for the FY2019 and 2020. The proposed targets are laid out in Tables 2-9, 2-10, 2-11 and 2-12.

OSHA Recordable Incident Rate target improvements were first compared to EEI industry standards then by assessing feasibility from PREPA's current state related to health and safety matters. A strategy was developed to lead LUMA to an Incident Reduction near 50% from the baseline in Year 3. Similar approaches were taken for OSHA Fatalities and OSHA DART Rate in terms of setting targets based on the goal to improve safety systems and processes.

OSHA Severity targets rely significantly on external factors outside of LUMA's control. For that reason, targets were set with the goal to improve performance, but providing flexibility to the extenuating circumstances that exist on a case-by-case basis.

Q. How will the improvements be achieved for the Safety Performance Metrics?

A. As explained in Section 3 of LUMA's Performance Metrics Targets Revised Filing, there are several opportunities for improvements from the creation and application of a safety plan involving a safety culture, training, assessing training needs, development of a safety training plan, analysis of metrics trends and causes and identification of prevention strategies, and design an incident reporting system and process for analysis and follow up. All of these opportunities will boost the health and safety program.

LUMA has prioritized objectives and initiatives to increase the level of safety for employees. The initiatives are supported by the programs in the Initial Budgets approved by the Energy Bureau, including establishing a software system for incident management, no-harm culture training and enhanced HSE&Q training programs and will also be supported by operational federally funded programs of the approved System Remediation Plan.

Q. What is your request to the Energy Bureau?

A. I request that the LUMA Safety Performance Metrics baselines and targets as detailed in LUMA's Revised Performance Metrics Targets Filing be approved as requested.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mrs. Esther Cristina Gonzalez, being first duly sworn, states the following: The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that she would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is her direct testimony and to the best of her knowledge are true and correct.

Esther Cristina Gonzalez

Affidavit No. - 8,437 -

Acknowledged and subscribed before me by Mrs. Esther Cristina Gonzalez, whose full name is as expressed herein, of legal age, married, business executive, and resident of San Juan, Puerto Rico, in her capacity as Vice President of Health, Safety, Environmental & Quality of LUMA Energy, LLC, who is personally known to me. By Esther Cristina Gonzalez Roman.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

Direct Testimony

Exhibit A

KPI Metrics - Safety

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mr. Abner Gómez Cortés
Crisis Management Leader, LUMA Energy
August 17, 2021

Q. Please state your name

A. My name is Abner Gómez Cortés.

Q. **Please state your business address, title, and employer.**

A. My business mailing address is PO Box 363508 San Juan, Puerto Rico 00936-3508. I am the Crisis Management Leader, in the Health, Safety, Environment & Quality ("HSEQ")/ Crisis Management for LUMA Energy LLC and LUMA Energy ServCo LLC (hereinafter referred to as "LUMA" or "The Company").

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau?

A. My testimony is on behalf of the LUMA as part of the Puerto Rico Energy Bureau, Commonwealth of Puerto Rico Public Service Regulatory Board ("Energy Bureau") proceeding NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. Are there any exhibits attached to your testimony?

A. Yes, there is one exhibit attached to my testimony:

1. Exhibit A: LUMA Emergency Response Plan as filed in Docket NEPR-MI-2019-0006

Q. What is your educational background?

A. I received a Bachelor's in Biology from the Inter-American University of Puerto Rico, a Master's degree in Business Administration from the Metropolitan University of Puerto Rico and am a PhD Candidate in Project Management from the Ibero-American International University.

Q. What is your professional experience?

A. I have approximately twenty years of professional experience in Emergency Management and Disaster Recovery. In 2021, I joined LUMA's HSEQ Department as a Crisis Management Leader in the Office Crisis Management.

Q. Please describe your work experience prior to joining LUMA?

A. I have worked for several agencies of the Government of Puerto Rico and private universities, including as a professor for Ana G. Méndez University. I also worked as the Executive Director of Puerto Rico Emergencies Management, State Emergencies Medical Services.

Q. Do you hold any professional licenses, if so, which?

A. I am a licensed paramedic certified by the National Registry of Emergency Medical Technicians.

Q. Have you previously testified or made presentations before the Energy Bureau?

A. No.

Q. Which documents did you consider for your testimony?

A. I considered the following documents:

1. LUMA's Performance Metrics Targets filing of February 25, 2021 in this proceeding, filed in Case No. NEPR-AP-2020-0025
2. LUMA's Performance Metrics Targets revised filing of August 18, 2021 in this proceeding, Case No. NEPR-AP-2020-0025
3. LUMA Emergency Response Plan as filed in Case No. NEPR-MI-2019-0006.

Q. What is the subject and purpose of your direct testimony?

A. My testimony is in support of LUMA's Performance Metrics Targets on Major Outage Event ("MOE") Performance Metrics related to Preparation Phase of the Emergency Response Plan (ERP) which has eight steps.

Q. Please describe what is the Preparation Phase of the MOE Performance Metric.

A. It involves 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. The Preparation Phase has eight steps.

Q. Please describe the steps of the Preparation Phase of the MOE Performance Metric.

The eight steps are:

1. Event-level categorization based on weather forecasts, system resiliency assessment and available resources.
2. Press releases issued/text messages/emails sent.
3. Municipal conference calls held.
4. Critical & essential customers alerted — based on established list with current information.
5. Point of contact for critical facilities alerted — based on established list with current information.
6. Company compliance with training program as specified in the Emergency Response Plan.
7. Participation in all pre-event mutual assistance group calls.

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.

Q. Please describe how the first step of the Preparation Phase of the MOE Performance Metric will be measured.

A. As mentioned before, the first step of the Preparation Phase is an event-level categorization based on weather forecasts, system resiliency assessment and available resources. Each atmospheric event that may trigger this Performance Metric will be evaluated on the Saffir-Simpson scale and the number of outages in accordance with the system noted above, in order to measure the resilience of the system. The assessment of available resources will be measurable in terms of estimated restoration tempo (ETR). The Saffir-Simpson Hurricane Wind Scale estimates potential property damage caused by Hurricane events. While all hurricanes produce life-threatening winds, hurricanes rated Category 3 and higher are known as major hurricanes. Major hurricanes can cause catastrophic wind damage and significant loss of life simply due to the strength of their winds. Hurricanes of all categories can produce deadly storm surge, rain-induced floods, and tornadoes. These hazards require people to take protective action, including evacuating from areas vulnerable to storm surge. LUMA categorizes in the Emergency Response Plan the events by levels and the activation of the LUMA Emergency Operations Center (LEOC). The Levels are 5 in total:

1. Level 5- Normal Operation,
2. Level 4- Heightened Alert,
3. Level 3- High Alert,
4. Level 2- Emergency Conditions,

5. Level 1- Catastrophic Emergency.

Q. **Please describe how the second step of the Preparation Phase of the MOE Performance Metric will be measured.**

A. The second step of the Preparation Phase is press releases issued/text messages/emails sent. The Communications team has press releases designed with key messages for our customers and the community at large aligned with LUMA Emergency Response Plan. These press releases will be sent in a timely manner and aligned with the official press releases of the Government of Puerto Rico. These press releases will be issued more frequently depending on the activation level of LUMA's Emergency Operations Center. The key messages are focused on preparation, prevention and situation of the transmission and distribution system including outages and number of customers without services by sector. However, LUMA's Communications team periodically publishes key messages to the public about preparing for and responding to an atmospheric event. In most cases a message is published every four hours starting at forty-eight hours before the impact of a tropical cyclone. LUMA also internally communicates to its employees via text messages and emails about weather forecasts and weather systems under surveillance every four hours. The technology investments for LUMA's Emergency Operations Center includes the purchase of a mass alert system that will support strategies to keep LUMA's customers informed about the preparation, response and recovery of an emergency.

Q. **Please describe how the third step of the Preparation Phase of the MOE Performance Metric will be measured.**

A. The third step of the Preparation Phase is municipal conference calls held. LUMA is organized with different teams of Liaison Officers (LNO) between the stakeholders

external to LUMA and internal to LUMA. We also have LNO in the Emergency Operations Centers of Puerto Rico Emergency Management Bureau ("PREMB"), central and regional. These groups will be responsible for maintaining conference calls each operational period. The operational period can be every three to four hours or as determined by the Incident Commander. The metric related to this process is the percent of calls responded to in each operational period.

Q. **Please describe how the fourth step of the Preparation Phase of the MOE Performance Metric will be measured.**

A. The fourth step of the Preparation Phase is critical & essential customers alerted. The LUMA Emergency Response Plan includes Critical Community Lifelines: Hospitals and Emergency Medical Facilities, Emergency Shelters and Cooling Centers, Rescue Facilities, Emergency Operations Centers (LUMA and Municipal), Water pumping stations and Wastewater treatment plants, Fire, Police, Paramedics, Critical Utility and Communications Facilities, Fuel Transfer and Fuel Loading Facilities (ports), Mass Transit infrastructure (tunnels, electric drawbridges, ferry terminals, major rail facilities/rectifier stations), Airports, Military Bases and Critical Flood Control Structures. The metric is the percentage of these infrastructures and customers restored in percent and the estimated time of restoration.

Q. **Please describe how the fifth step of the Preparation Phase of the MOE Performance Metric will be measured.**

A. The fifth step of the Preparation Phase is point of contact for critical facilities alerted. The external stakeholder Liaison Officer (LNO) team, in the Energy - Emergency Support Function (ESF-12) attached to the Emergency Operations Center (EOC) of PREMB

maintain an updated list of points of contact (POC) of critical infrastructures. This is a living, constantly changing list that has been shared with the LUMA Operations team regarding hospitals, care and treatment centers, dialysis centers and water pumps. The metric is based on this information as it evolves or changes.

Q. Please describe how the sixth step of the Preparation Phase of the MOE Performance Metric will be measured.

A. The sixth step of the Preparation Phase is company compliance with training program as specified in the Emergency Response Plan LUMA developed a training plan base on FEMA requirements before June 1, 2021. The training was provided to LUMA Emergency Operations Center personnel (Crisis Management Committee, Command and General Staff). The training was coordinated by the Crisis Management Office. Any additional personnel to be trained will be coordinated according to LUMA's emergency operational needs. The metric is the number of employees trained.

Q. Please describe how the seventh step of the Preparation Phase of the MOE Performance Metric will be measured.

A. The seventh step of the Preparation Phase is participation in all pre-event mutual assistance group calls. LUMA and mutual aid stakeholders are to establish a joint communications plan. The plan must be coordinated before any predictable emergency such as tropical cyclones, where potential response needs are reviewed in a major disaster that exceeds LUMA capabilities. The metric is active participation in the communication plan until the creation of the mutual aid agreement. LUMA and mutual aid stakeholders are currently establishing a joint communications plan. The plan must be coordinated before any predictable emergency such as tropical cyclones, where potential response needs are

reviewed in a major disaster that exceeds LUMA capabilities. The metric is active participation in the pre-event communication.

Q. Please describe how the eight steps of the Preparation Phase of the MOE Performance Metric will be measured.

A. The eighth step of the Preparation Phase LUMA will verify materials/stockpiles level based on forecast. On the island, there is currently a $140 million stockpile of materials available to respond to an event. According to information available to LUMA, this stockpile of material will be consumed within 2 months of a major event of a (Category 2 and up), with only two months of support available. When that happens, we'll make sure to do a quick damage assessment and reorder equipment and materials. Technology program management makes it easy to run the event. Another IT tool is a damage assessment tool, which uploads and meets FEMA reimbursement requirements before being forwarded to engineers to design packages and figure out what supplies we'll need.

Q. Why did you consider the LUMA Emergency Response Plan to develop the Performance Metric for the Preparation Phase?

A. 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.

Q. What benefits does the approach utilized in the LUMA Emergency Response Plan provide?

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. Response to all emergency events should be guided by the principles of the National Response Framework (NRF), NIMS and the ICS.

Q. Why did you take into account the Saffir-Simpson Hurricane Wind Scale to develop the Performance Metric for the Preparation Phase?

A. The Saffir-Simpson Hurricane Wind Scale is a 1 to 5 rating based on a hurricane's sustained wind speed. This scale estimates potential property damage. Hurricanes reaching Category 3 and higher are considered major hurricanes because of their potential for significant loss of life and damage. Category 1 and 2 storms are still dangerous, however, and require preventative measures. In the western North Pacific, the term "super typhoon" is used for tropical cyclones with sustained winds exceeding 150 mph. Note that all winds are using the U.S. 1-minute average.

Q. Describe the baseline for the MOE Performance Metric on Preparation Phase?

A. There is no quantitative baseline for this metric. There is a point weighting for each Performance Metric Major Outage Event: Preparation Phase (Base Points).

This set of performance metrics depend on atmospheric phenomena, on the specific characteristics of each emergency or disaster. Emergencies and disasters are never the same, there are tropical depressions that can leave floods with catastrophic results and hurricanes of minor categories that simply leave slight damage to infrastructure. However,

these metrics provide a measurable basis for self-assessing the response to an emergency or disaster.

Q. Please explain the base points and effective weight allocated to each step in the Preparation Phase of the MOE Performance Metric.

A. Utilizing the NIMS, the Preparation Phase metrics focus on utility activities in anticipation of a significant outage event. The Base Points and Effective Weight are weighted on an equal basis with the exceptions of the following:

- 1.2 Press Releases issued/text messages/emails sent,
- 1.5 Point of Contact for critical facilities alerted – based on established list with current information.

Q. Please explain the target for the Preparation Phase of the MOE Performance Metric.

A. The OMA outlines technical metrics to establish targets for Performance Metrics that relate to the Preparation Phase of the MOE. As these metrics expressly characterize major outage events as abnormal, they are not intended to provide any quantitative measurement of utility performance during a major outage event. As such the Major Event Scorecard mentioned in Section 1.3.3 of the Revised Performance Metrics Targets Filing will be used as a tool to measure utility performance during the Preparation phase of an MOE.

Q. In brief, what are your recommendations?

A. I recommend the Energy Bureau approve the Major Outage Event: Preparation Phase metrics as a measure of LUMA's response during a catastrophic event.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mr. Abner Gómez-Cortés, being first duly sworn, states the following: The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that he would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is his direct testimony and to the best of his knowledge are true and correct.

Abner Gómez-Cortés

Affidavit No. -8,438-

Acknowledged and subscribed before me by Mr. Abner Gómez-Cortés, whose full name is as expressed herein, of legal age, married, business lead, and resident of San Juan, Puerto Rico, in his capacity as Crisis Management Leader of LUMA Energy, LLC, who is personally known to me.

In San Juan, Puerto Rico, this 18 day of August 2021.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

Direct Testimony

Exhibit A

LUMA Emergency Response Plan

Emergency Response Plan

(0430)

LUMA Energy

May 2021

Revision 0

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Handling Instructions

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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.

Wayne Stensby

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.

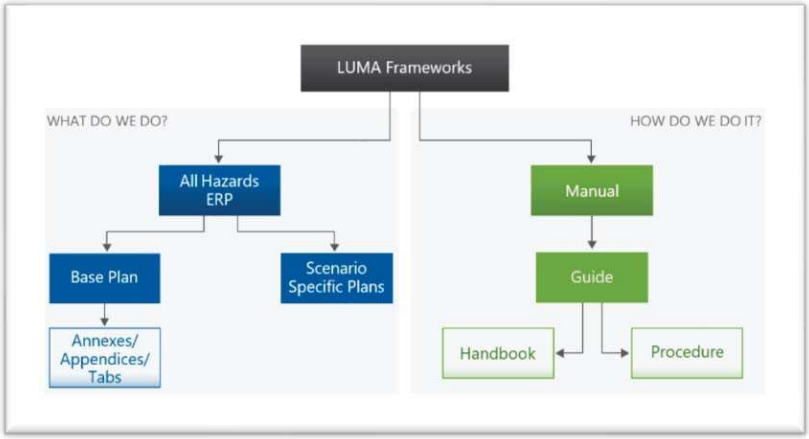

Figure 1: LUMA Frameworks

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

DocuSigned by:
[redacted]

May 22, 2021
Date

DocuSigned by:
[redacted]

May 21, 2021
Date

DocuSigned 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.

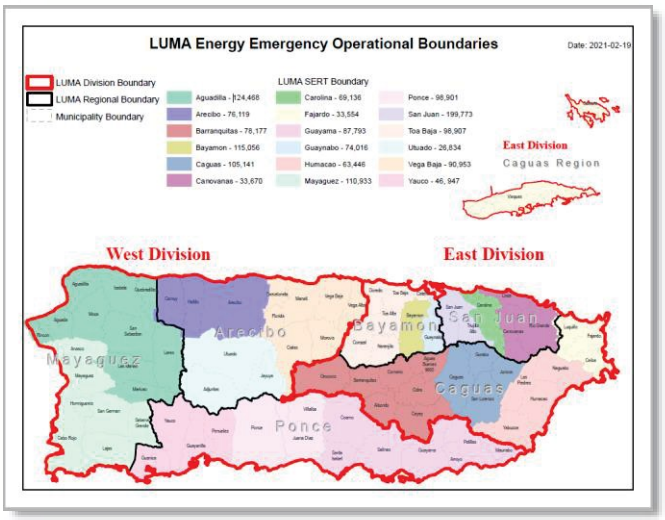


Figure 2: LUMA Emergency Operational Boundaries

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.

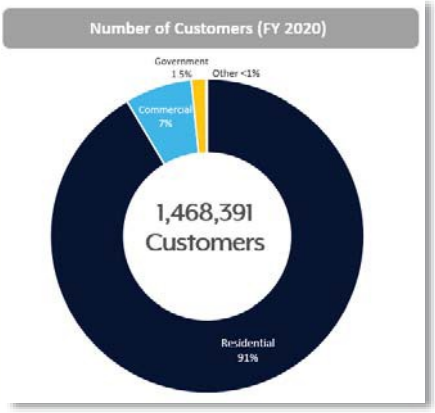


Figure 3: LUMA Customers

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.

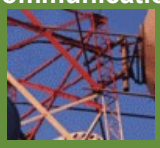
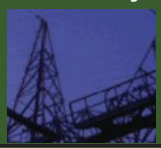
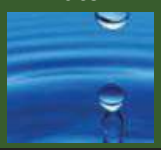
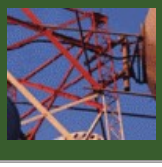
(Sub)sector Generating the Service	(Sub)sector Receiving the Service				
	Fuel 	**Electricity** 	**Transportation** 	**Water** 	**Communication** 
Fuel 		Fuel to operate power plant motors and generators	Fuel to operate transport vehicles	Fuel to operate pumps and treatment	Fuel to maintain temperatures 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.

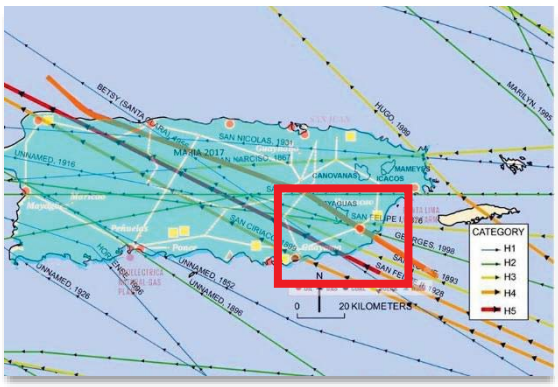


Figure 5: Historical hurricanes trajectories over the power generation layout of Puerto Rico

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.

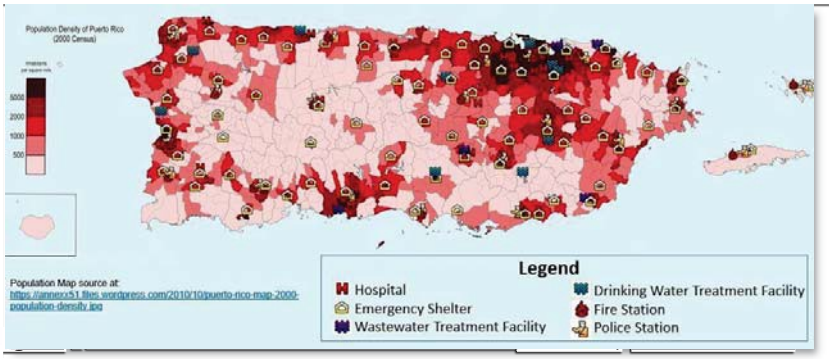
The Cybersecurity and Infrastructure Security Agency (CISA), under Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience, the Energy Sector is identified as uniquely critical because it provides an "enabling function" across all critical infrastructure sectors. Under 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

B. References

AAFAF (Ed.). (2018). Puerto Rico Aqueduct and Sewer Authority (PRASA). Retrieved January 28, 2021, from https://www.aafaf.pr.gov/relations-articles/puerto-rico-aqueduct-and-sewer-authority-prasa/

American Hospital Directory (Ed.). (2020). Individual Hospital Statistics for Puerto Rico. Retrieved January 29, 2021, from https://www.ahd.com/states/hospital_PR.html

American Red Cross (Ed.). (2021). Survival Kit Supplies. Retrieved February 04, 2021, from https://www.redcross.org/get-help/how-to-prepare-for-emergencies/survival-kit-supplies.html

Andrade, E., Barrett, N., Edberg, M., Rivera, M., Latinovic, L., Seeger, M., . . . Santos-Burgoa, C. (2020). Mortality Reporting and Rumor Generation: An Assessment of Crisis and Emergency Risk Communication following Hurricane María in Puerto Rico. *Journal of International Crisis and Risk Communication Research, 3*(1), 15-48. doi:10.30658/jicrcr.3.1.2

Associated Press. (2020, August 03). Puerto Rico power utility CEO resigns; thousands without power from last week's storm. Retrieved January 25, 2021, from https://www.nbcnews.com/news/latino/puerto-rico-power-utility-ceo-resigns-thousands-without-power-last-n1235661

Bell, R. (2018, April 23). After hurricane maria, AM radio makes a comeback in Puerto Rico. Retrieved from https://www.cjr.org/united_states_project/hurricane-maria-puertoricoradio.php#:~:text=Hurricane%20Maria's%20150%2Dmile%2Dper,AM%2C%20was%20maintaining%20its%20broadcast.

Build America Bureau (Ed.). (2020). Tren Urbano. Retrieved January 05, 2021, from https://www.transportation.gov/buildamerica/projects/tren-urbano

CEDR Admin (Ed.). (2019, October 02). Issues in National Shelter System Puerto Rico Locations. Retrieved January 05, 2021, from https://storymaps.arcgis.com/stories/bd57daa6cc7341689f9f33b14c4a61c0

Charles, D. (2017, September 29). Puerto Rico's Dairy Industry, Once Robust, Flattened By Maria. Retrieved January 05, 2021, from https://www.npr.org/sections/thesalt/2017/09/29/554492157/puerto-ricos-dairy-industry-once-robust-flattened-by-maria

Cybersecurity & Infrastructure Security Agency (Ed.). (n.d.). Energy sector. Retrieved February 04, 2021, from https://www.cisa.gov/energy-sector

Ecola, L., Davenport, A. C., Kuhn, K. D., Rothenberg, A. D., Cooper, E., Barrett, M., . . . Kendall, J. B. (2020). *Rebuilding surface, maritime, and air transportation in Puerto Rico after Hurricanes Irma and Maria: Supporting documentation for the Puerto Rico recovery plan*. Santa Monica, CA: RAND.

Federal Emergency Management Agency (2014, June 1). Region II Hurricane Annex for Puerto Rico & US Virgin Islands.

Federal Emergency Management Agency (2018, July 12). 2017 Hurricane Season FEMA After-Action Report.

Federal Emergency Management Agency (2020, July 7). Region II Caribbean All Hazards Plan National Support Playbook.

Federal Emergency Management Agency (2020, June). Region II Caribbean All Hazards Plan.

Federal Emergency Management Agency (2020, June). Region II Caribbean All Hazards Plan, Annex G: Puerto Rico Hurricane Annex.

FireCARES (Ed.). (2020, January 7). Puerto Rico State Fire Department. Retrieved January 29, 2021, from https://firecares.org/departments/92796/puerto-rico-state-fire-department

García-López, G. A. (2018). The Multiple Layers of Environmental Injustice in Contexts of (Un)natural Disasters: The Case of Puerto Rico Post-Hurricane Maria. *Environmental Justice, 11*(3), 101-108. doi:10.1089/env.2017.0045

Generator Source (Ed.). (n.d.). Cell phone towers use standby power generators Telecom industry. Retrieved February 04, 2021, from https://www.generatorsource.com/Articles/Industries/Cell-Tower-Generators.aspx

Kishore, N., Marqués, D., Mahmud, A., Kiang, M. V., Rodriguez, I., Fuller, A., . . . Buckee, C. O. (2018). Mortality in Puerto Rico after Hurricane Maria. *New England Journal of Medicine, 379*(2), 162-170. doi:10.1056/nejmsa1803972

Kunkel, M. (2020). *Lessons from a Hurricane: Supply Chain Resilience in a Disaster, An Analysis of the US Disaster Response to Hurricane Maria* (Unpublished master's thesis). University of Minnesota. Retrieved December 24, 2020, from https://conservancy.umn.edu/handle/11299/216534

Mares, T. (2019). CULTIVATING COMIDA: What Maria Exposed to Us. *Journal of Agriculture, Food Systems, and Community Development,* 1-5. doi:10.5304/jafscd.2019.091.033

National Infrastructure Protection Plan (NIPP), Energy Sector-Specific Plan 2013

Nieves, B. (2020). *PREPA's Hazard Identification Assessment 2020* (pp. 1-36). Bayamon, PR.

Ortiz-Blanes, S. (2020, July 29). Puerto Rico's power grid fails hours ahead of potential arrival of tropical storm. Retrieved January 25, 2021, from https://www.miamiherald.com/article244571552.html

Puerto Rico Emergency Management Bureau & Puerto Rico Department of Public Safety. (2021). Puerto Rico All Hazards Plan (pp. 1-48).

Request for Federal Assistance for Disaster Recovery: Build Back Better Puerto Rico (2017, November).

SAFECOM (2016, February). Land Mobile Radio (LMR) 101. Retrieved from https://www.cisa.gov/sites/default/files/publications/LMR%20101_508FINAL_0_1.pdf.

The Weather Channel (Ed.). (2017, September 28). Logistics Nightmare Drives Fuel Panic in Puerto Rico. Retrieved January 08, 2021, from https://weather.com/storms/hurricane/news/puerto-rico-fuel-gas-shortages-hurricane-maria

United States, Department of Justice, Civil Rights Division. (2011). *Investigation of the Puerto Rico Police Department: Executive summary* (pp. 12-13). Washington, D.C.: United States Dept. of Justice, Civil Rights Division.

Venton, D. (2019, November 08). When your power's out, internet's off and there's no cell service, radio still works. Retrieved February 04, 2021, from https://www.kqed.org/science/1950762/when-your-powers-out-internets-off-and-theres-no-cell-service-radio-still-works

Zorrilla, C. D. (2017). The View from Puerto Rico — Hurricane Maria and Its Aftermath. *New England Journal of Medicine, 377*(19), 1801-1803. doi:10.1056/nejmp1713196

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

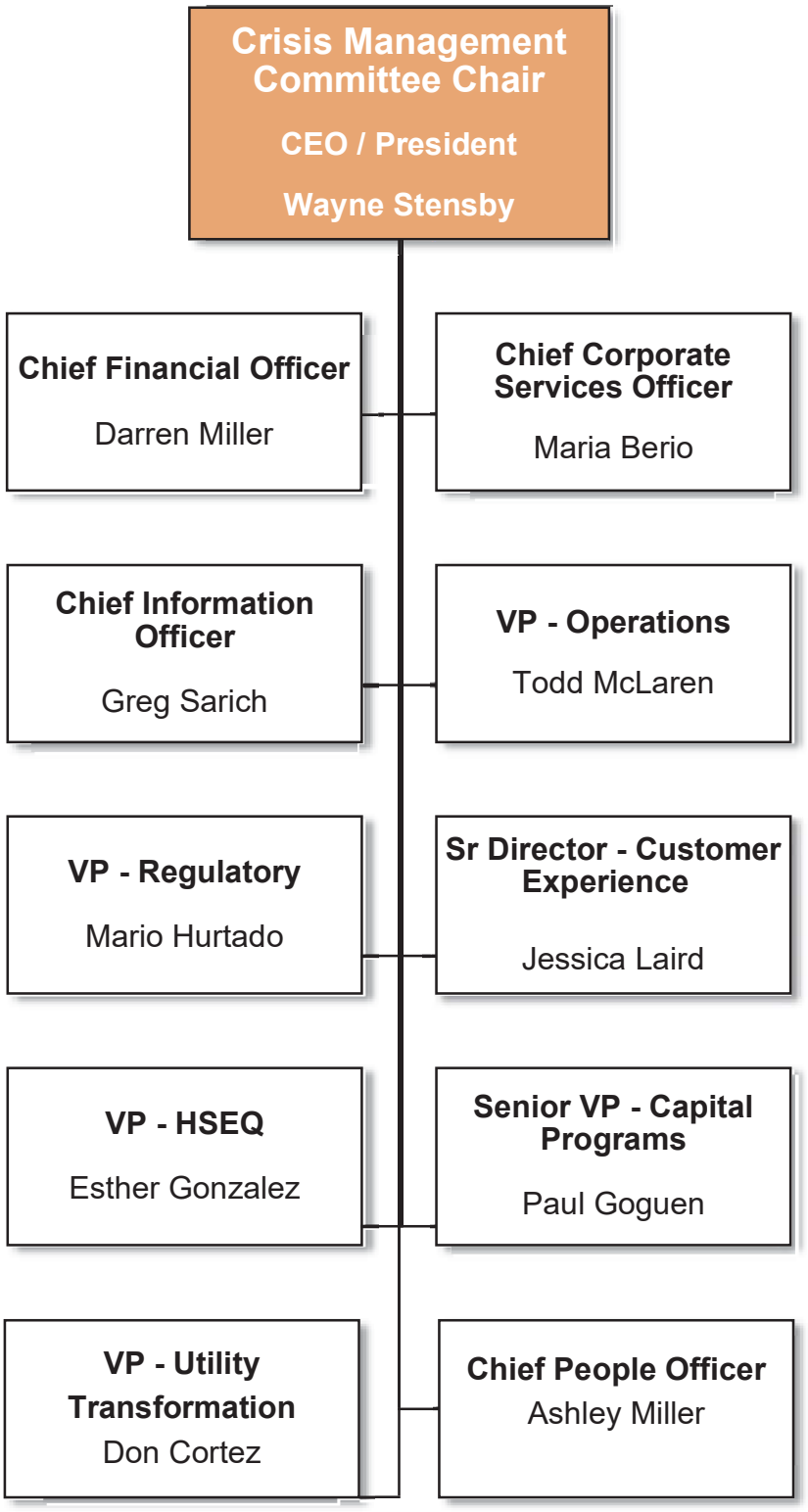
EOC Section	Position Title
Crisis Management Committee	Crisis Management Committee Chair (CEO/President)
Crisis Management Committee	Chief Corporate Services Officer
Crisis Management Committee	Chief Financial Officer
Crisis Management Committee	Chief Information Officer
Crisis Management Committee	Chief 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)

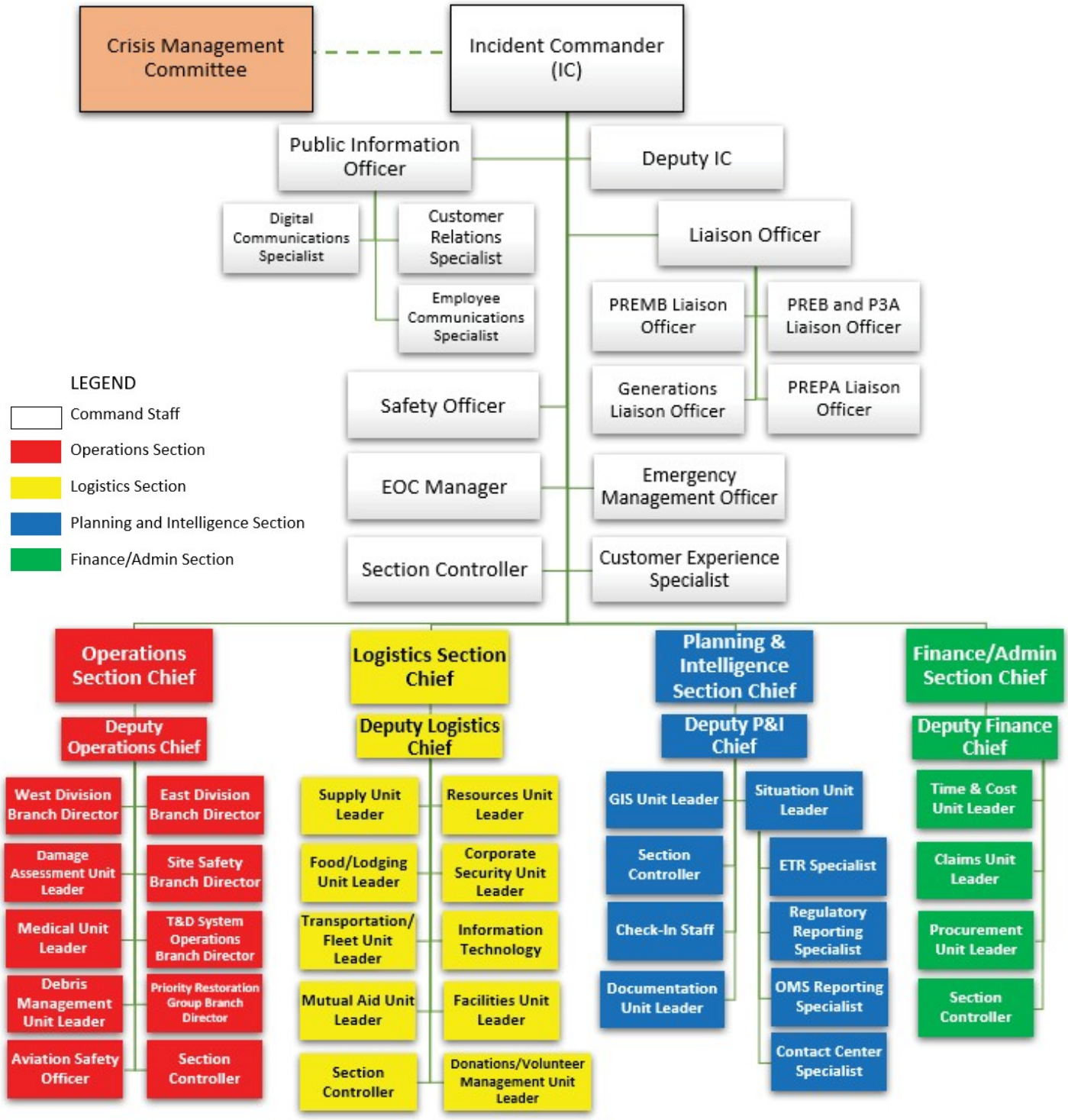
Finance	Section Controller (CONT)

Appendix A – LUMA ICS Structure

Crisis Management Committee Structure

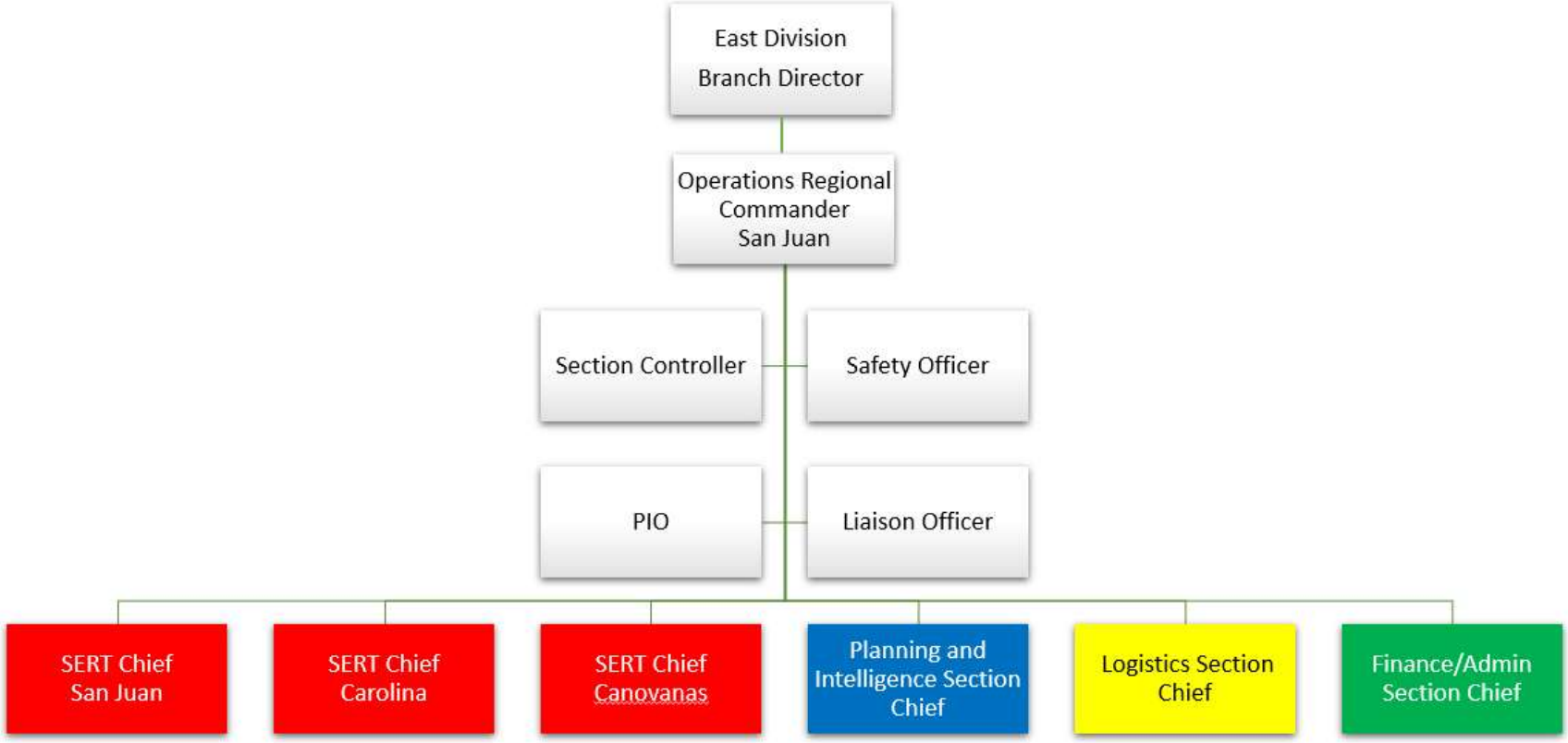


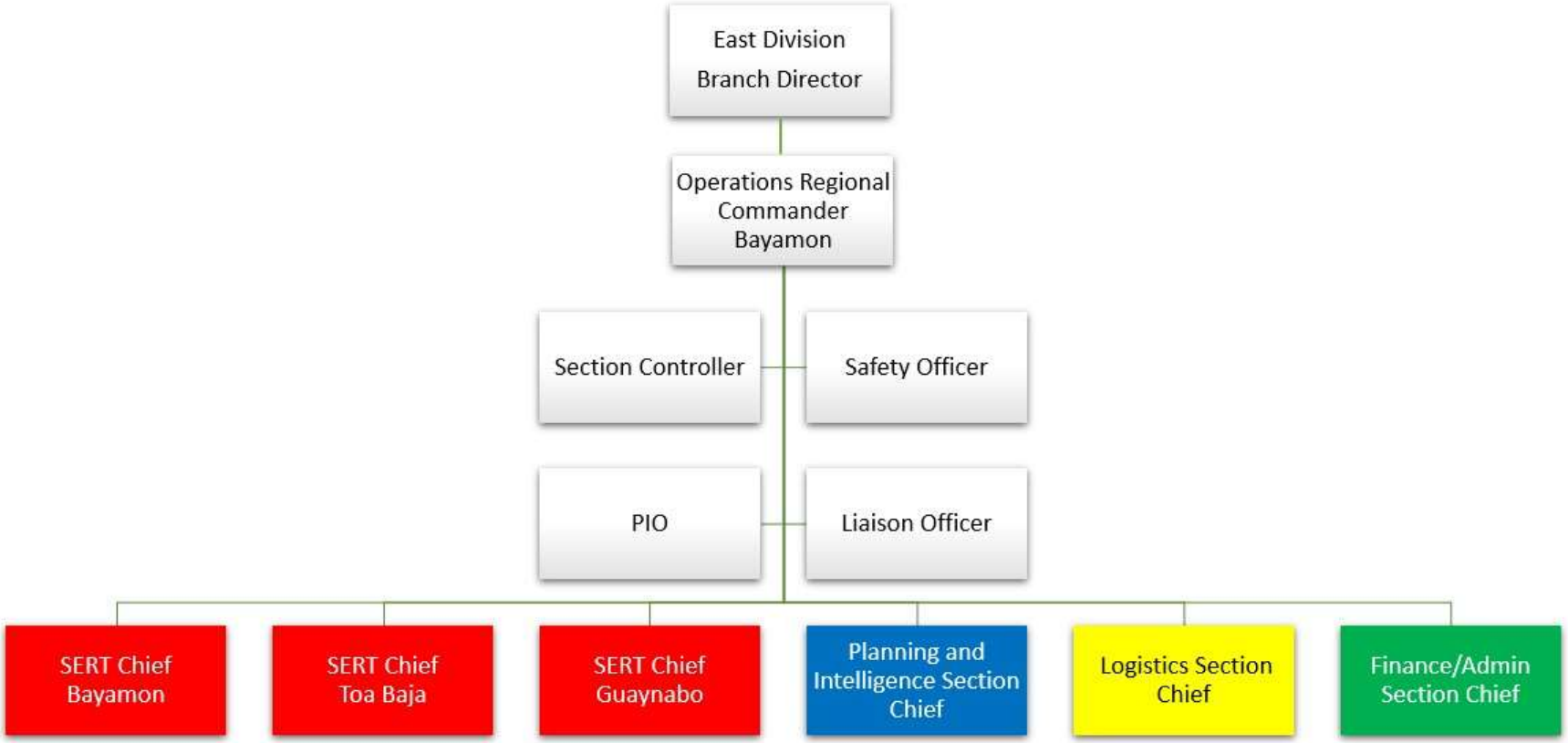
LEOC Structure

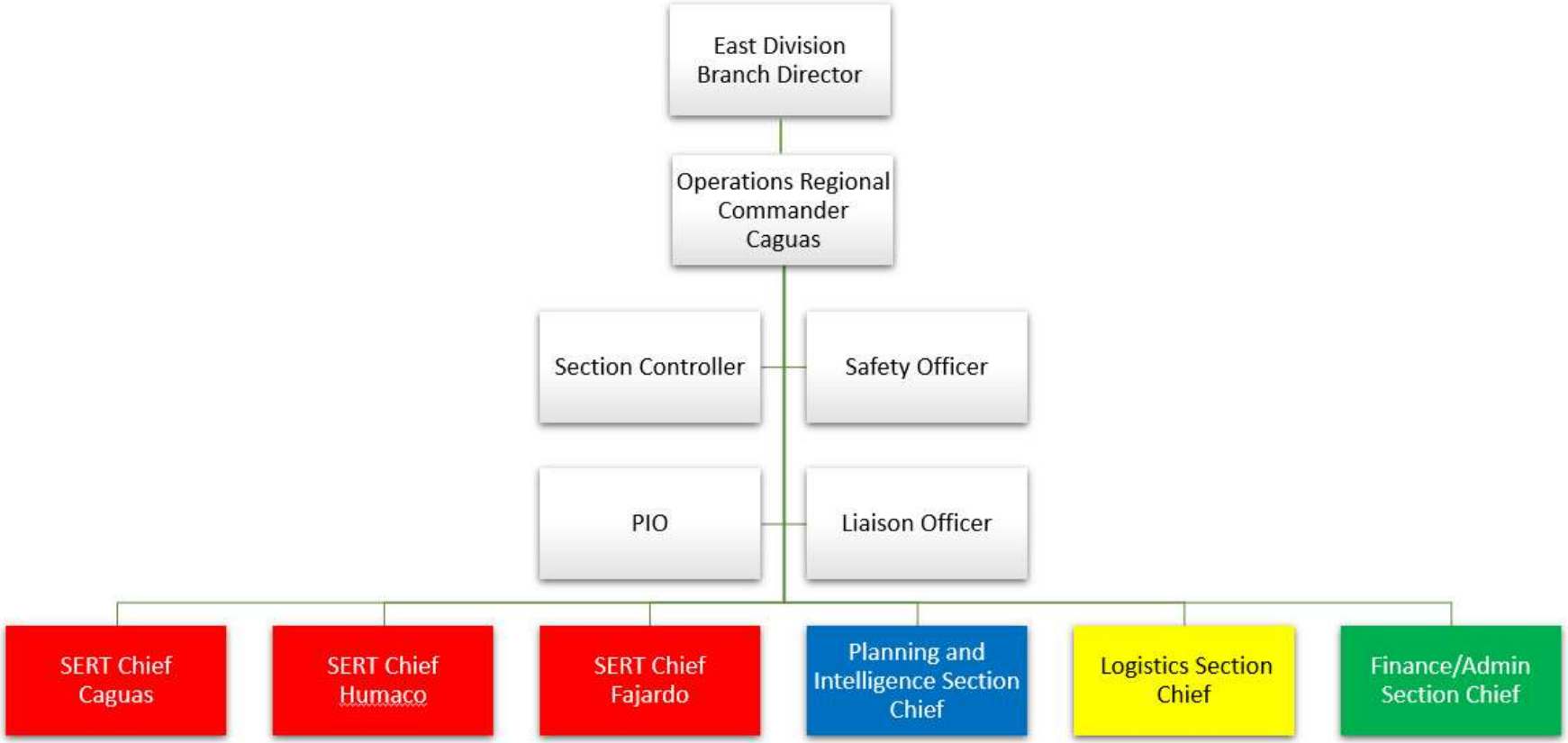


LUMA East Division Structure

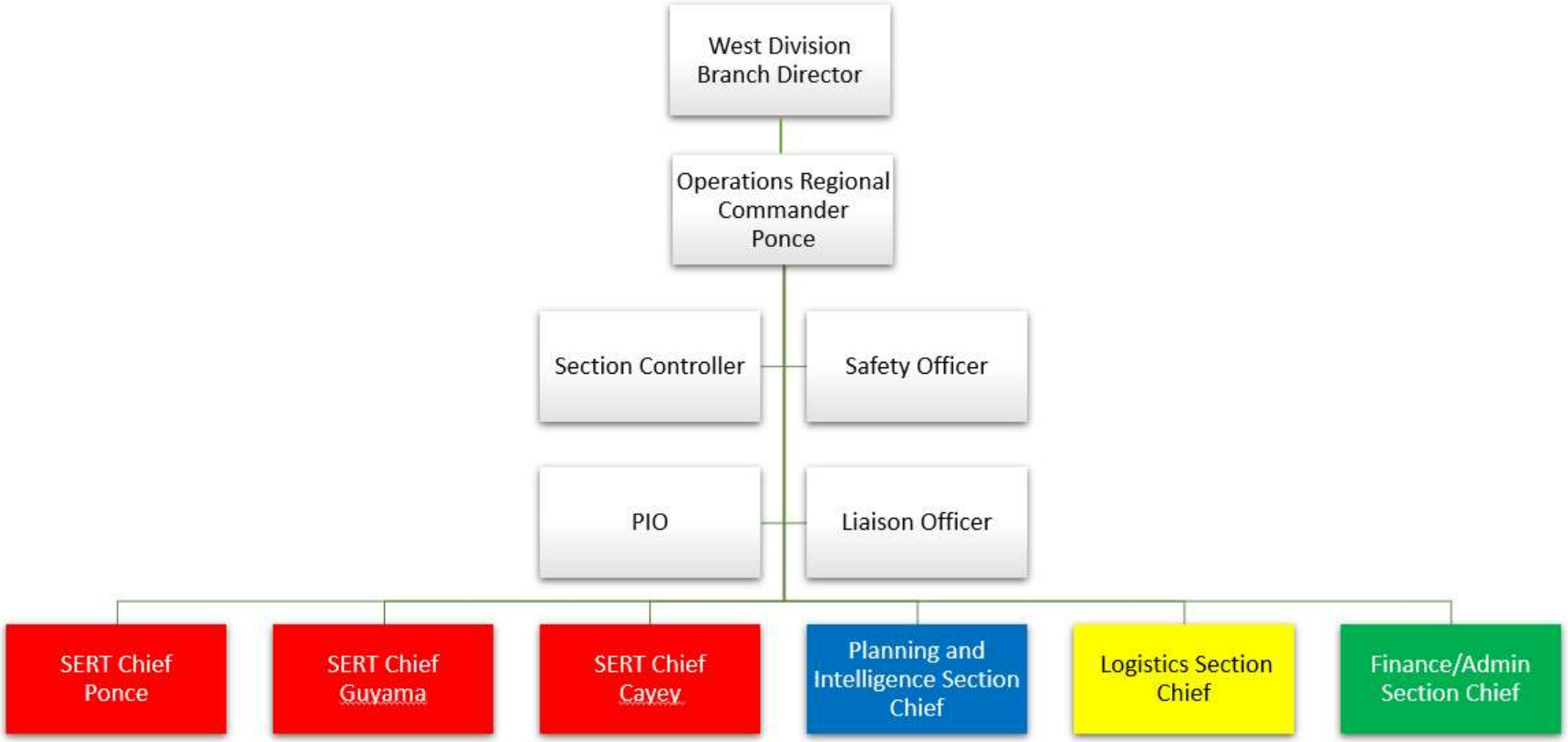
East Division Regional Structures




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

Terry Tonsi

Terry Tonsi

Director, Emergency Operational Response and Readiness

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.

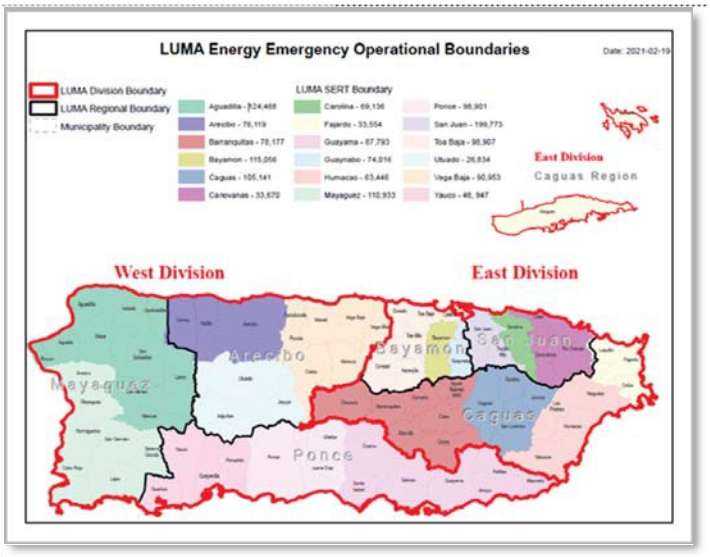


Figure 1: LUMA's Operational Boundaries

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.

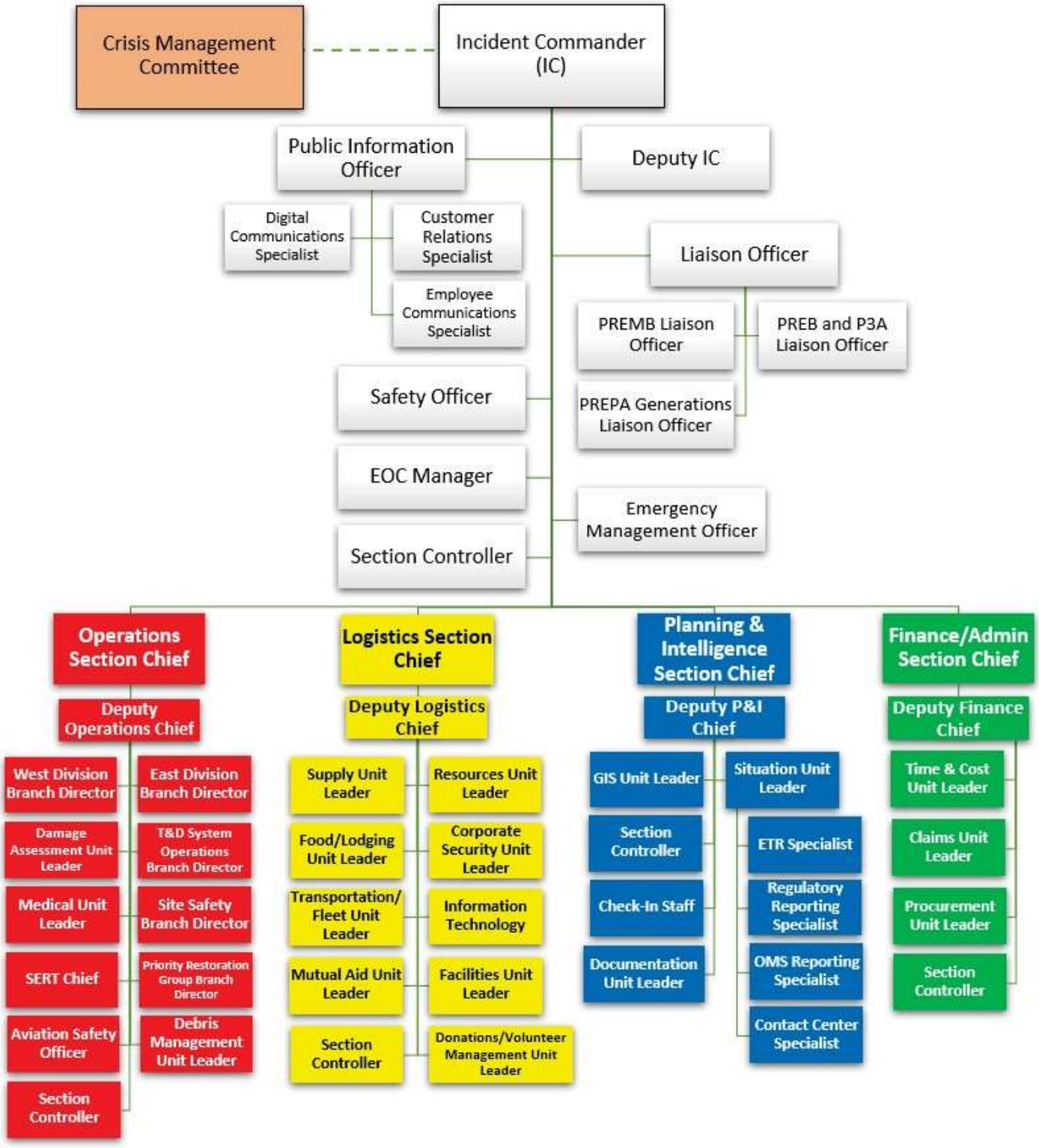


Figure 2: LUMA's Emergency Response Organization

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.

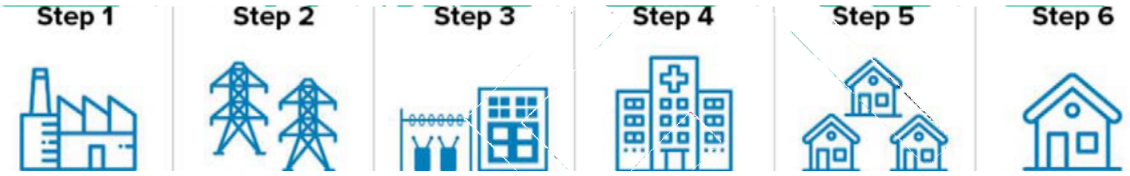


Figure 3: Prioritization of restoring power

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.

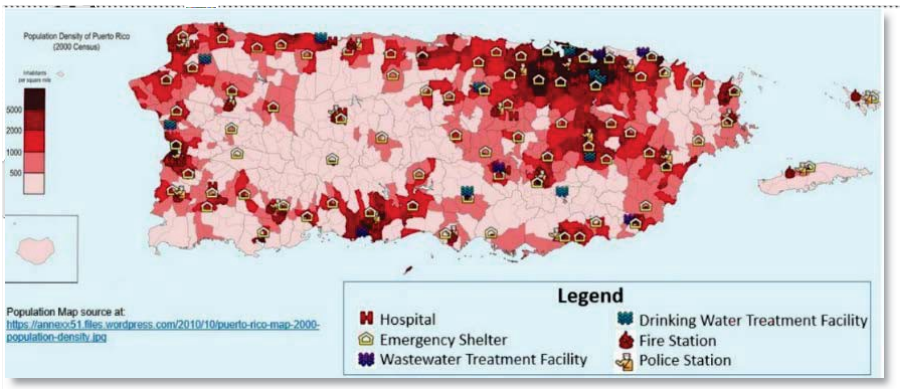


Figure 4: Map of Community Lifeline-related facilities

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.

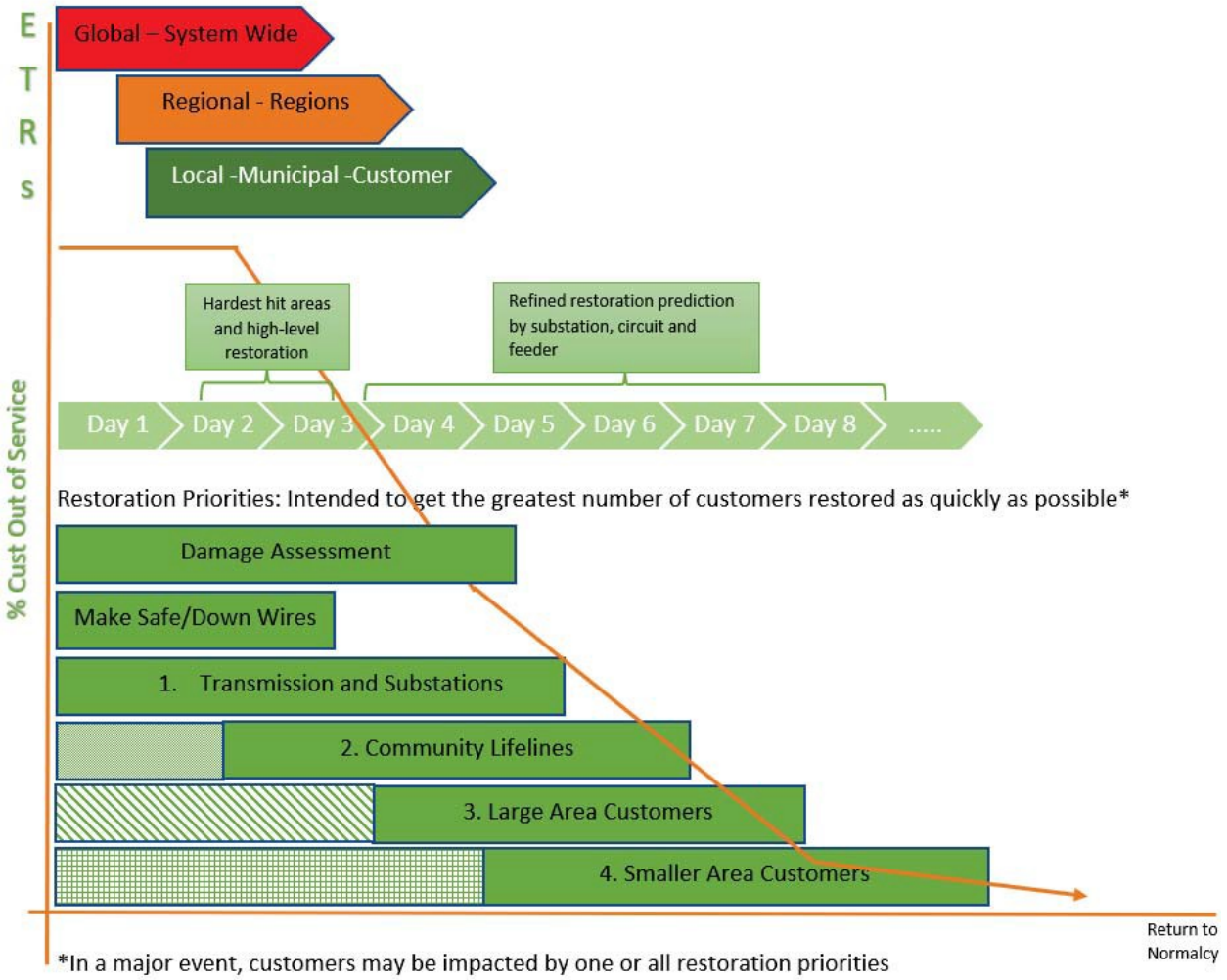


Figure 4: ETRs defined

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		

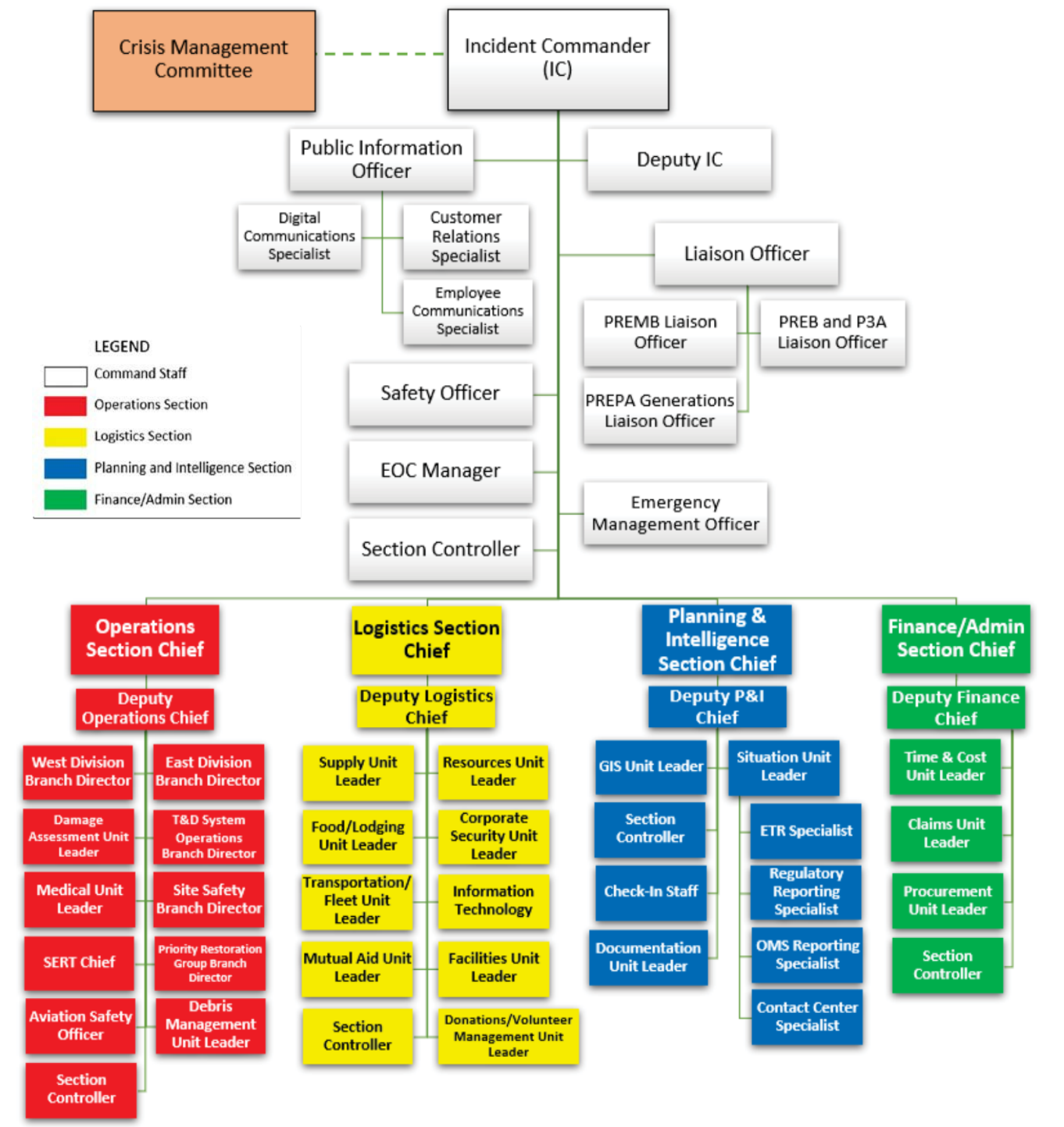
[1] This includes critical care customers (lifeline residential service customers).

	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.		

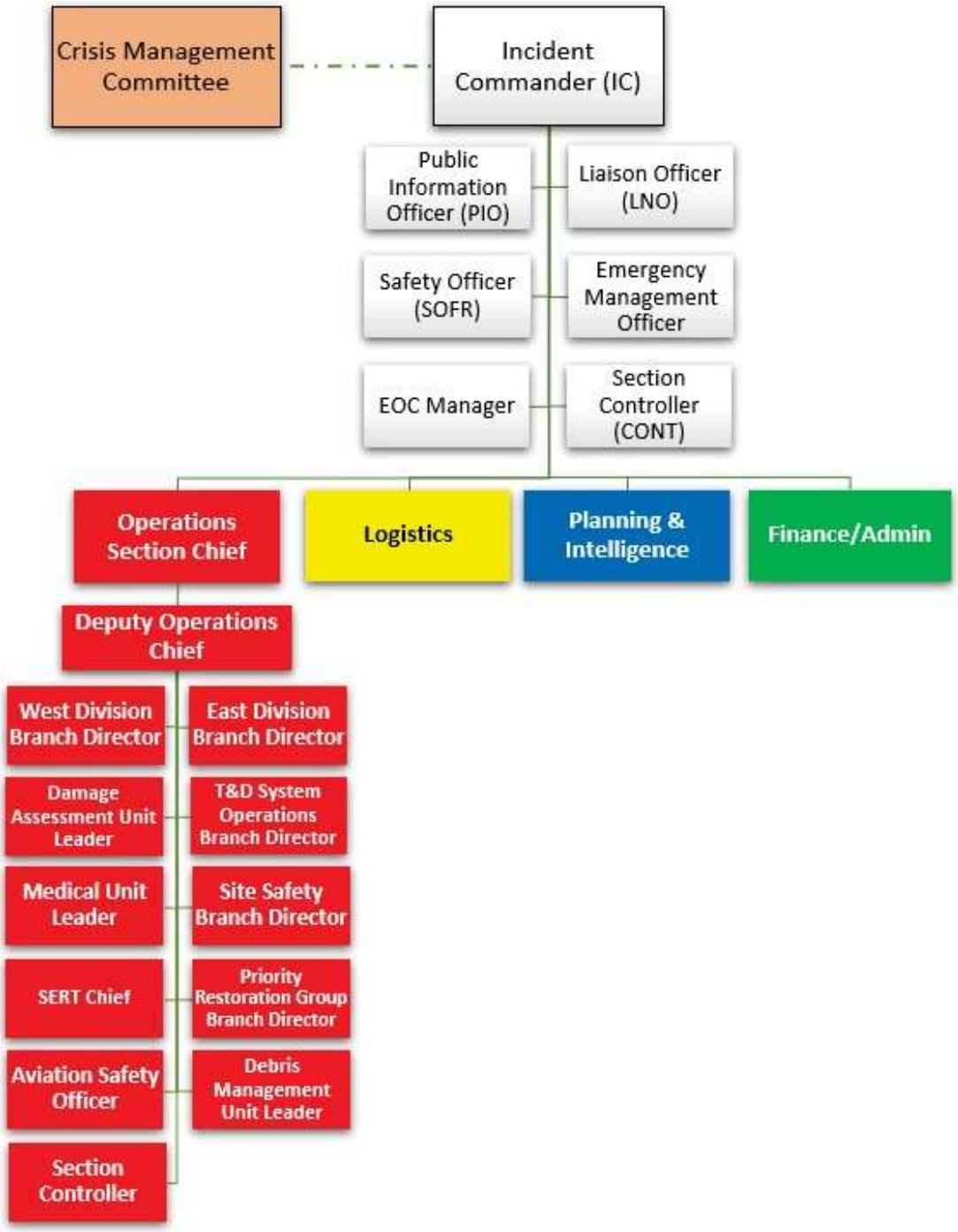
7. Municipality Coordination			
Coordination with municipalities regarding road clearing, downed wires, critical customers, etc.	Through the Municipal EOC the LUMA local Incident Command Center (ICC) Municipal Liaison will attend all scheduled Situation Report (SITREP) meetings. The Liaison will be the 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

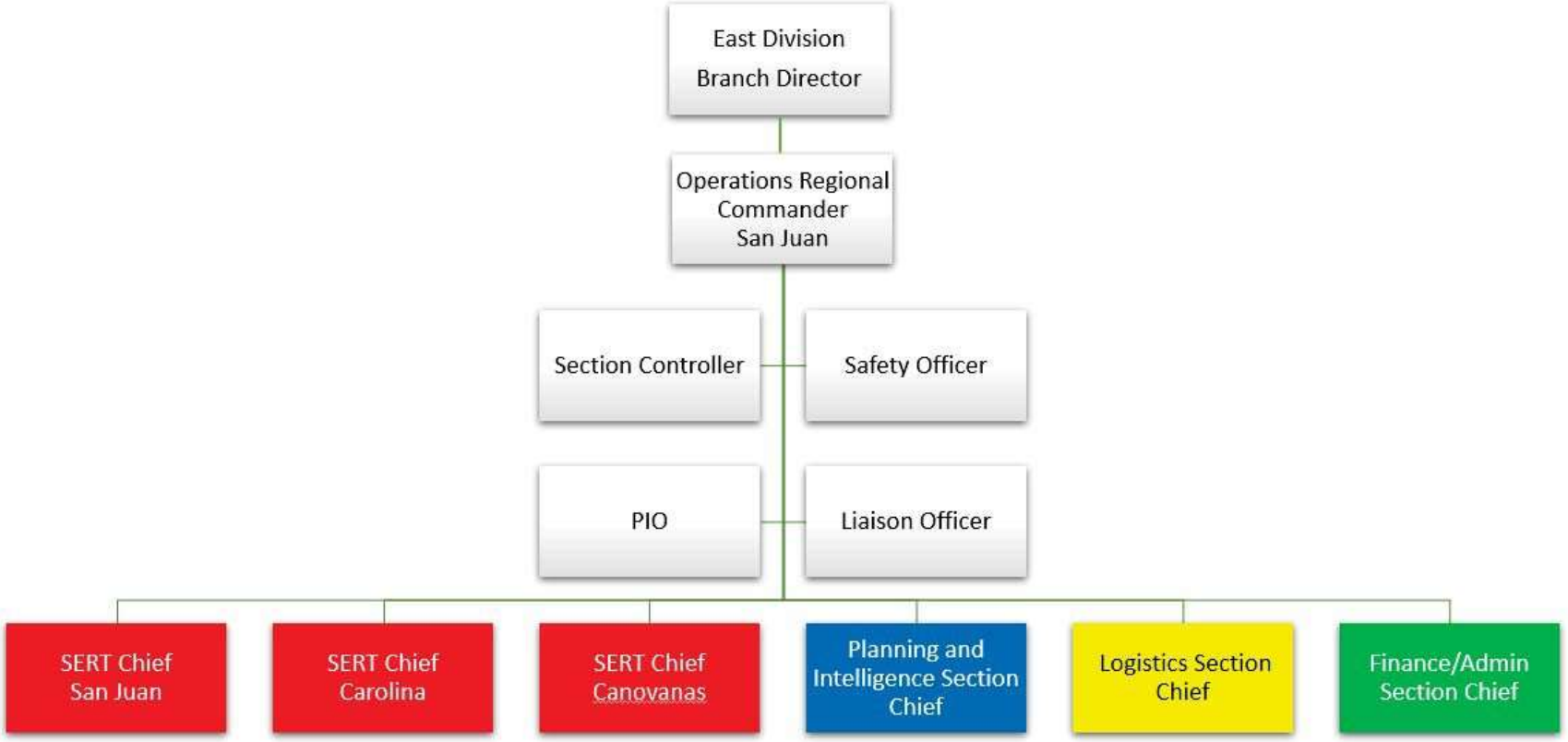


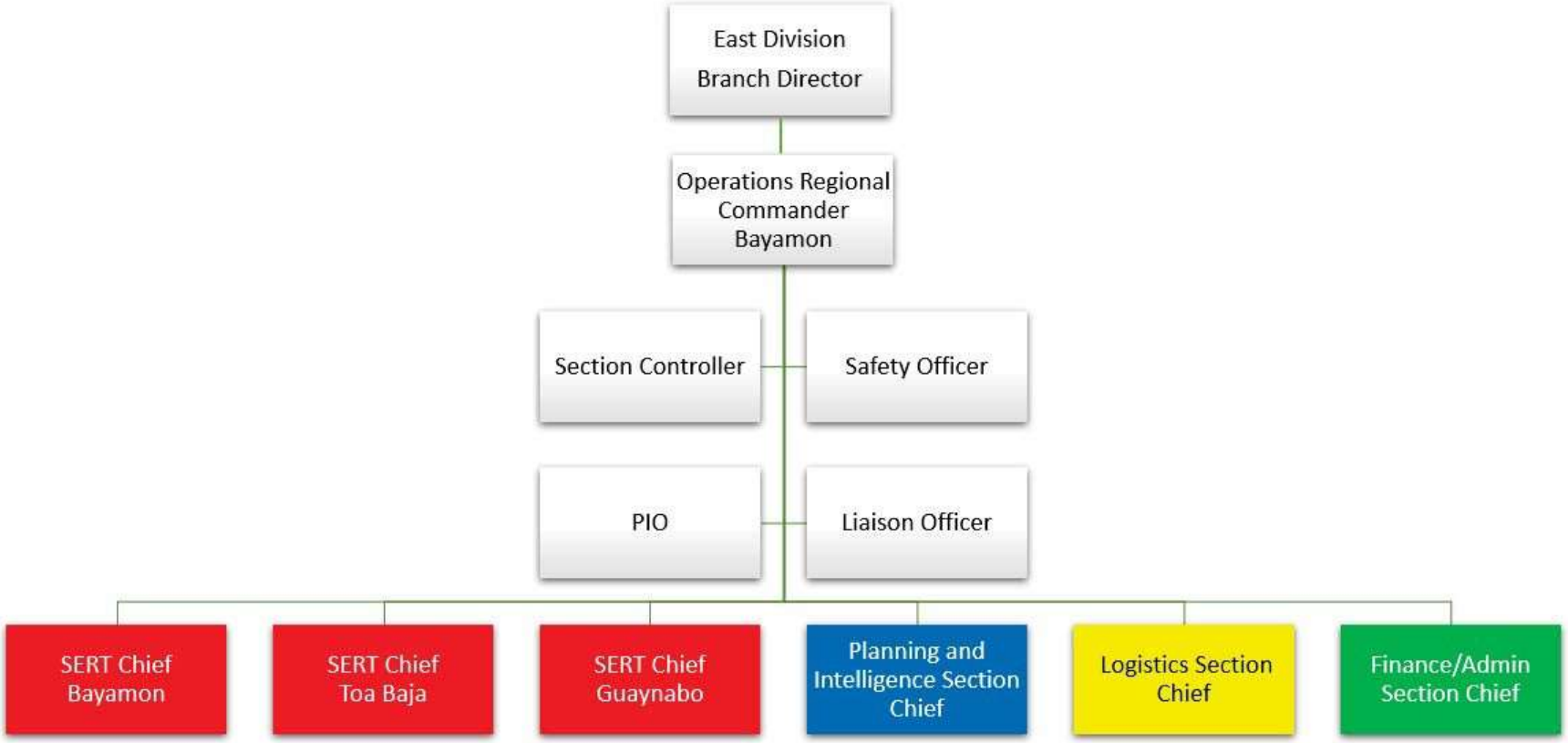
Operations Section

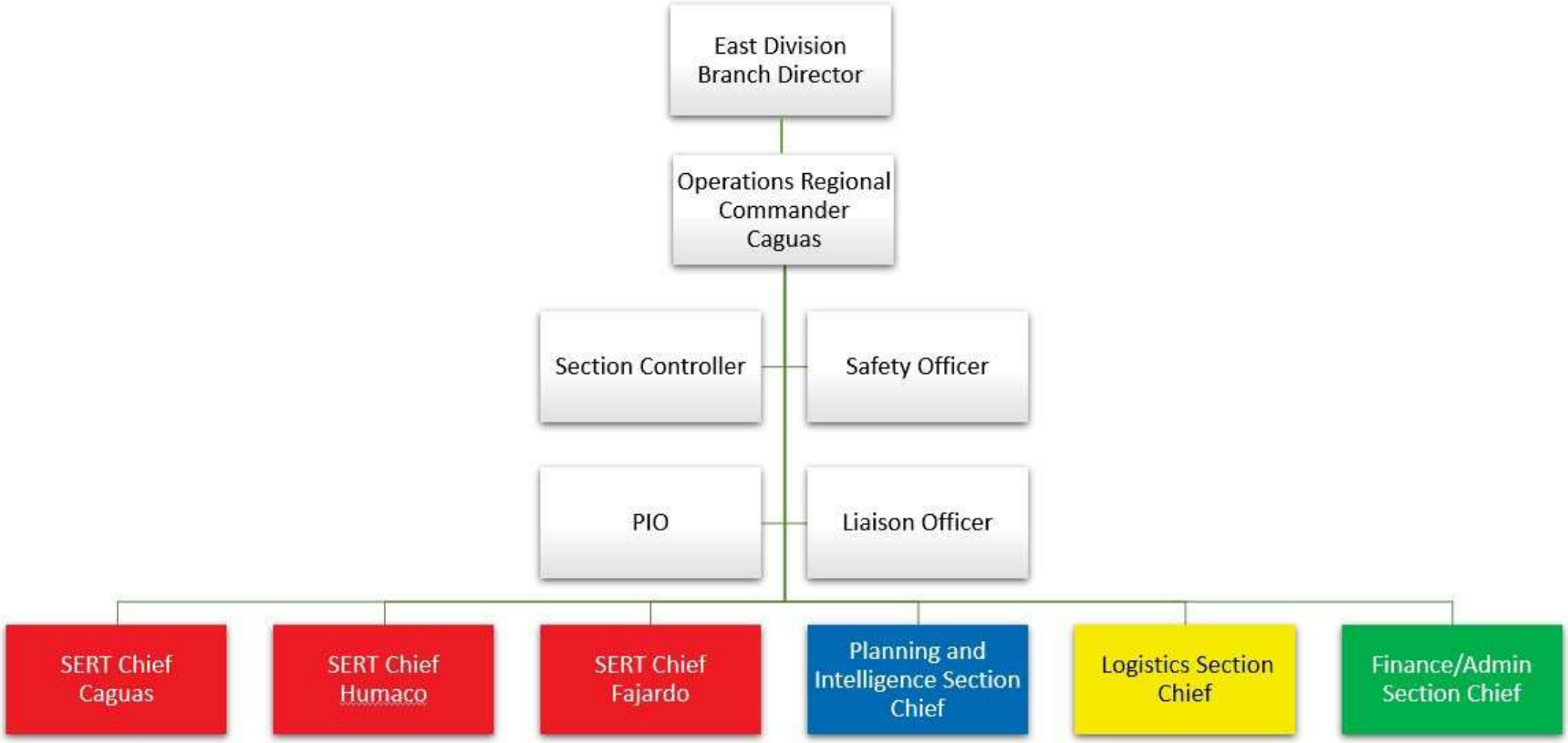


LUMA East Division Structure

East Division Regional Structures

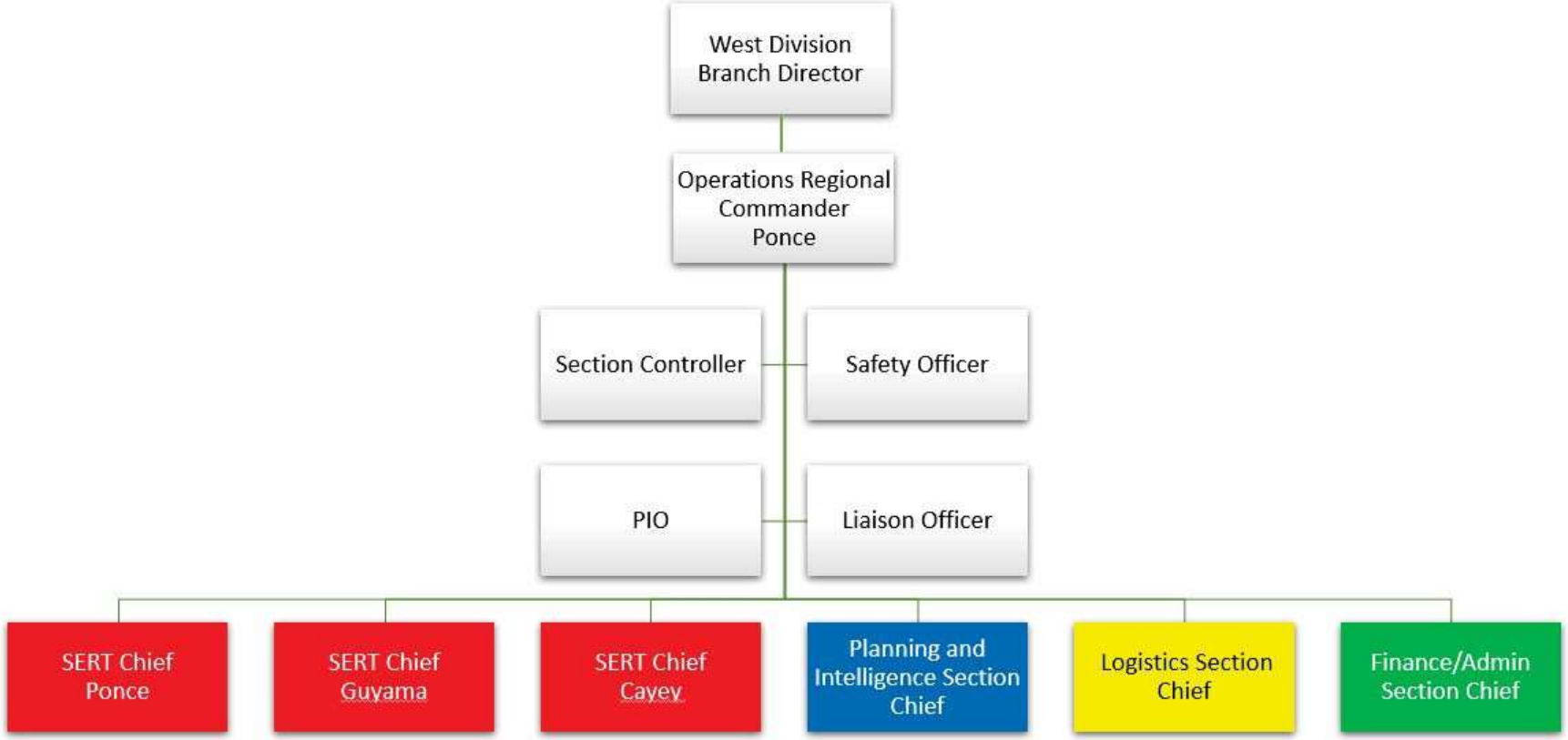



East Division
Branch Director
Operations Regional
Commander
Bayamon
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief
Bayamon
SERT Chief
Toa Baja
SERT Chief
Guaynabo
Planning and
Intelligence Section
Chief
Logistics Section
Chief
Finance/Admin
Section Chief

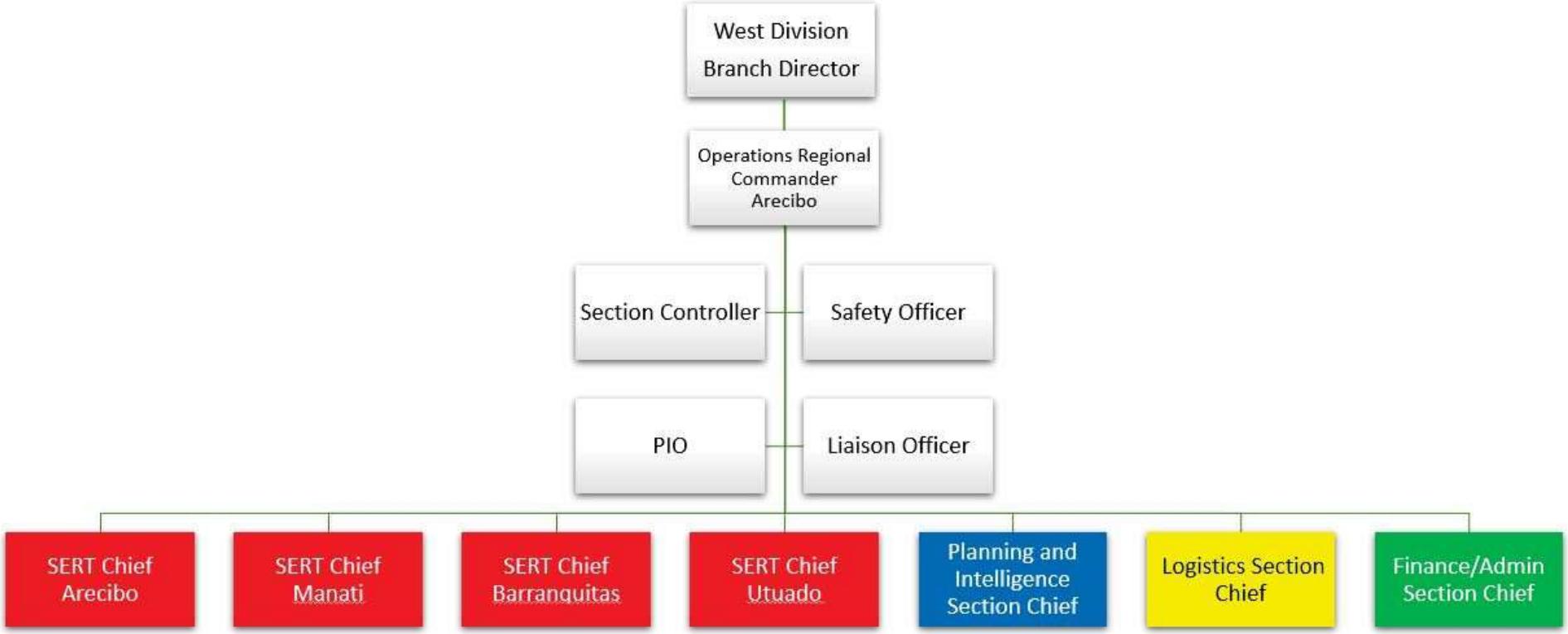

East Division Branch Director
Operations Regional Commander Caguas
Section Controller
Safety Officer
PIO
Liaison Officer
SERT Chief Caguas
SERT Chief Humacao
SERT Chief Fajardo
Planning and Intelligence Section Chief
Logistics Section Chief
Finance/Admin Section Chief

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	8001, 8002, 8004, 8005, 8007, 8008, 8010, 8011, 8013, 8014, 8015, 8501, 8602,
Key Transmission Feeders	Cambalache Plant, Cambalache TC Hatillo TC, Mirador Azul Sect. 8004-02 (Arecibo Distric facilities)/ 8015-08 (Arecibo Regional Facilities)
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
2300	Cambalache @Hospital District	Pavia Hospital (former Regional Hospital) sub 8059
2300	Cambalache @Hospital District	Water Pumping AAA sub 8091
2100	District Hospital - Hatillo TC	Pavia Hospital (Victor Rojas) sub 8082
2200	Factor @ Barceloneta TC	Wastewater treatment Super Acueducto sub 8096
2200	Factor @ Barceloneta TC	Water Pumping Super Acueducto sub 8064
6900	Cambalache TC @ Mirador Azul Sect.	Wastewater treatment AAA sub 8086
16300	Cambalche TC	Water Pumping Super Acueducto sub 8097
Critical Facilities Level 2		
Line Number	Description	Customer
2200	Factor @ Barceloneta TC	Correctional Facilities Sabana Hoyos Sub 8089
2100	District Hospital - Hatillo TC	Arecibo Coliseum (Military Vaccunation Center) sub 8063
Critical Facilities Level 3		
Line Number	Description	Customer
2200	Cambalache TC @ Factor	Abbott Santana (manufactures pacemakers sub 8061
2200	Cambalache TC @ Factor	EATON Manufactures Sub 8094/8069/8093-1 and 2/8073-1 and 2/8099
2200	Factor @ Barceloneta TC	MERCK Manufactures sub 8087-1 and 2
2100	District Hospital @ Hatillo TC	THERMO KING Manufactures sub 8085/8092

2100		District Hospital @ Hatillo TC	GE Sub 8050/8088
2100		District Hospital @ Hatillo TC	Luis Melendez School sub 7777
6900		Mirador Azul @ Hatillo Town	Interamericana University of Arecibo sub 8089
6900		Mirador Azul @ Hatillo Town	Plaza Norte Mall Sub 8067
13600		Distric Hospital @ Mirador Azul Sect.	Arecibo UPR sub 8080
2200		Cambalache TC @ Factor	Vocacional School sub 8095
2200		Cambalache TC @ Factor	Trofima sub 8070
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
8001	8001-01	Arecibo Municipal Police and Emergency Operatipn Center	Ave Manuel T Guillen, Arecibo
8001	8001-01	AAA water pumps	Road 651 El Juncos Arecibo
8001	8001-03	Arecibo State Police	Ave Rotario, Arecibo
8001	8001-03	Arecibo Fire Station	Ave Eugenio María de Hostos, Arecibo
8001	8001-04	Health Department Laboratory	Regional Hospital Facilities road 129 Zeno Gandia
8002	8002-01	Arecibo Dr Sussoni Hospital	Ave Victor Rojas int street Palmas Arecibo Town
8002	8002-02	Marcano CDT	Street Cristobal Colon Arecibo Town
8002	8002-05	Arecibo State Police	Ave Manuel T Guillen, Arecibo
8002	8002-05	Marrero CDT	Ave Constitucion Arecibo
8004	8004-02	Arecibo Distric Facilities (PREPA)	Road 681 sector Pasaje Islote
8004	8004-02	Fuel Transfer Cambalache Planta (PREPA)	Road 681 El Muelle Islote Arecibo
8004	8004-03	Water Pump of Cambalache Plant	Ave Domingo Ruiz Bajadera, Arecibo
8004	8004-04	Arecibo Municipal Airport	Road #2 Santana, Arecibo
8005	8005-01	Water Pumping Stations	Sec Dos Bocas Bo. Rio Arriba Arecibo
8007	8007-01	Villa Los Santos CDT	Road 653 Villa Los Santos Arecibo
8007	8007-03	SWAT Division PR Police	Street RW 14 Vista Azul Arecibo
8007	8007-04	Arecibo Medical Center	Road #2 Plaza Atlántico Arecibo
8008(portable subtation)	8008-01	Water Pumping Stations	Los Caños, La Planta, Jaguar, Calichoza, Bo. Hato Viejo (multiple station)

8010	8010-01	Quebrada CDT	Road 486 km 0.1 Quebrada
8010	8010-01	Water Pumping Stations	Road 134 Berrocal Hatillo, Road 455 Quebrada Camuy
8010	8010-02	Water Pumping Stations	Road 635 Cienegueta Arecibo/ Road 625 Las Marías Esperanza Arecibo
8010	8010-03	Water Pumping Stations	Road #2 Hato Arriba/ Road 490 Hato Arriba Arecibo
8011	8011-01	Water Pumping Stations	Street Landron Santana
8011	8011-02	Water Pumping Stations	Road 683 Garrochales Arecibo, Road 682 km 6.2 Road 682 km 9.1 Garrochales Arecibo
8011	8011-04	Water Pumping Stations	Road 650 Cercadillo Arecibo
8014	8014-06	Water Pumping Stations	Road 683 Garrochales Arecibo
8014	8014-08	Polyclynic Factor	Road #2 Factor Arecibo
8015	8015-08	Arecibo Regional Facilities (PREPA)	Ave Juan Rosado Arecibo Town
8602	8603-03	Water Pumping Stations	Road 628 Arrozal, Montaña Sabana Hoyos
Critical Facilities Level 2			
Substation	Feeder	Customer	
8001	8001-01	Super K radio	Road 651 El Junco
8001	8001-03	Arecibo Court	Ave Rotario, Arecibo
8002	8002-01	Arecibo Town Hall	Ave. Jose de Diego, Arecibo
8002	8002-01	WCMM radio	Street Ganzalo Marin Arecibo Town
8002	8002-01	San Rafael Geriatic Center Nursing Home	Street Antonio Barceló, Arecibo Town
8002	8002-03	Padre Anibal Nursing Home	Ave Rafael Rivera Aulet int. Street Garcia Arecibo Town
8004	8004-02	WMIA radio AM	Road 681 Islote
8007	8007-01	San Pablo Home Nursing Home	Street 22 Villa Los Santos Arecibo
8007	8007-03	Miramar Dialysis Center	Road #2 Miramar Arecibo
8007	8007-03	State Insurance Fund Corporation FSE Arecibo	Road #2 Miramar Arecibo
8008	8008-01	Hogar Mis Queridos Viejos Nursing Home	Road #10 Hato Viejo Arecibo
8011	8011-01	Miraflores Nursing Home	Road 638 Bo Miraflores Arecibo
8015	8015-09	Vista del Mar Elderly Nursin Home	Principal Street Jardines de Arecibo
8015	8015-09	Arecibo Observatory(close)	Road 625 Esperanzo Arecibo
Critical Facilities Level 3			
Substation	Feeder	Customer	
8001	8001-01	La Milagrosa School	Road 651 El Cotto Arecibo

8001	8001-03	Selectos Supermarker	Ave Eugenio María de Hostos, Arecibo
8001	8001-04	San Felipe School	Road # 129 San Felipe Arecibo
8002	8002-05	Pueblo Xtra Supermarker	Road # 10 Rodriguez Olmo, Arecibo
8004	8004-04	ECONO Supermarker	Road #2 Santana Arecibo
8004	8004-04	Federico Degetau School	Road 662 Santana Arecibo
8007	8007-01	Francisco Gonzale Pachin Marin School	Street 21 Urb Jardines Vista Azul, Arecibo
8007	8007-03	San Juan Bosco College	Street RW 14 Vista Azul Arecibo
8007	8007-04	Comercial Center Plaza Atlántico	Road #2 Plaza Atlántico Arecibo
8007	8007-04	US Postal Service	Ave Miramar Plaza Atlantico Arecibo
8008	8008-01	Enrique De Jesus Borras School	Road 6609 San Pedro, Hato Viejo
8010	8010-01	Padre Anibal School	Road 130 km 10.q Camp Alegre, Arecibo
8010	8010-01	Santiago R. Palmer School	Road 486 Quebrada Camuy
8010	8010-02	Manuel Ruiz Gandia School	Road 635 Int road 651 Dominguito
8011	8011-01	Dr. Cayetano Coll y Toste School	Road 638 km 6.1 Miraflores Arecibo
8011	8011-02	Eugenio m Hostos School	Road 682 Int Street Noriega Garrochales
8011	8011-04	Factor V School	Ave Princesa Paseo Reales Arecibo
8013	8013-01	Hatillo Cash & Carry Supermarker	Ave Interamericana Vista Azul Arecibo
8013	8013-01	Capitan Correa College	Road 493 Carrizales Hatillo
8013	8013-02	Comercial Center Plaza Norte Hatillo	Road #2 Carrizales Hatillo
8014	8014-08	Jose Ramon Rivera School	Road 639 Sabana Hoyos Arecibo
8014	8014-08	Sabana Hoyos Post Office	Road 639 Candelaria Sabana Hoyos Arecibo
8015	8015-09	Maria Cadilla Martinez School	Road 129 Hato arriba Arecibo

Utuado District SERT Team

Customer	26,834		
Substation	8101, 8104, 8103, 8202, 8203, 8301, 8302		
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
	2400	Treatment Plant	AAA Wastewater Bo Rio Abajo Utuado
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	
8101	8101-5	Metropolitan Mountain Hospital	Utuado
8101	8101-01	CDT Caparro	Utuado
8202	8202-01	Hospital Pueblo	Utuado
8103	8103-02	Plant AAA Roncador	Utuado
8103	8101-03	Planta AAA Caonilla	Utuado
8104	8104-02	-Centro Gobierno -Comandancia -Tec Utuado	Utuado
7902	7902-03	Hospital Castañer	Adjuntas
8202	8202-01	-Hosp CDT -Centro Gobierno -Bombas AAA Lago Garza	Adjuntas
8203	8203-02	-Planta AAA Yahuecas	Adjuntas
8301	8301-01	-Planta Bombas AAA El Nudo -Hosp Urbano	Jayuya
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	

Vega Baja District SERT Team

Customer	50,000		
Substation	9001, 9002, 9003, 9004, 9101, 9105, 9103, 9201, 9203, 9202, 9206, 9207		
Key Transmission Feeders	50200, 37400, 2200, 7800, 9400, 13200		
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
	2,200	Hospital	Wilma Vázquez
	7,800	Super Acueducto	AAA
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	
9001	9001-1	CDT Vega Baja	
9105	9105-7	CDT Vega Alta	
9202	9202-2	CDT Dorado	
9001	9001-2	Manejo de Emergencia Vega Baja	
9105	9105-6	Manejo de Emergencia Vega Alta	
9206	9206-9	Manejo de Emergencia Dorado	
9001	9001-1	Planta Filtración AAA Río Abajo, Vega Baja	
9001	9001-2	Planta Tratamiento AAA Alm. Sur, Vega Baja	
9001	9001-2	Planta AAA Charco Azul Vega Baja	
9002	9002-2	Bombas AAA Tratamiento Puerto Nuevo, Vega Baja	
9003	9003-5	Bombas AAA Sector El Criollo Algarrobo, Vega Baja	
9003	9003-6	Bombas Súper Acueductos Sector Russe, Vega Baja	
9003	9003-6	Bombas Súper Acueductos PR 155 Pugnado, Vega Baja	
9003	9003-6	Bombas AAA PR 155 Las Granjas, Vega Baja	
9003	9003-6	Pozo Algarrobo PR 155 C/Manuel Vélez Itier, Vega Baja	
9004	9004-8	Bombas Sanitarias AAA Jardines Vega Baja	
9004	9004-8	Bombas Sanitarias AAA Camino del Sol, Vega Baja	
9004	9004-10	Bombas Tratamiento AAA PR 6690 Vega Alta	
9004	9004-11	Bombas Tratamiento AAA Pozo Pugnado,	

9101	9101-1	Bombas AAA PR 678 Pámpanos Vega Alta
9101	9101-3	Bombas AAA Bajuras Vega Alta
9101	9101-4	Planta Tratamiento AAA PR 676 Bajuras, Vega Alta
9101	9101-4	Bombas AAA PR 647 Candelaria, Vega Alta
9101	9101-4	Bombas AAA PR 677 Maricao, Vega Alta
9103	9103-1	Bombas AAA PR 679, Int. 820, Convento, Dorado
9103	9103-1	Bombas AAA PR 659, Los Bloises, Dorado
9103	9103-4	Bombas AAA PR 694 Santa Ana, Vega Alta
9105	9105-7	Bombas Sanitarias AAA Velomas, Vega Alta
9201	9201-1	Bombas AAA Beach East, Dorado
9201	9201-2	Bombas AAA Pozo PR 690 Sabana Hoyos Vega Alta
9202	9202-1	Bombas Tratamiento AAA Pueblo Dorado
9202	9202-1	Bombas AAA San Antonio, Dorado
9202	9202-2	Bombas AAA Mameyal, Dorado
9202	9202-3	Bombas AAA Dorado del Mar, Dorado
9202	9202-3	Bombas AAA Costa de Oro, Dorado
9202	9202-4	Bombas AAA Sector Arenas, Dorado
9202	9202-4	Bombas AAA Monte Elena, Dorado
9203	9203-4	Bombas AAA PR 694, Dorado
9206	9206-7	Bombas AAA PR 696 Los Paseos, Dorado
9207	9207-5	Bomba Súper Acueducto Maguayo, Dorado
9207	9207-5	Bombas AAA PR 693 Maguayo, Dorado
9207	9207-5	Bombas AAA Sabanera, Dorado
9401	9401-1	Bombas AAA Río Lajas Dorado
9002	9002-3	Bomberos Vega Baja
9105	9105-6	Bomberos Vega Alta
9206	9206-8	Bomberos Dorado
9001	9001-1	Cuartel de Vega Baja
9105	9105-6	Cuartel de Vega Alta
9202	9202-3	Cuartel de Dorado
9206	9206-8	Guardia Nacional Tortuguero Vega Baja

Vega Baja (Manatí) District SERT Team

Customer	90,953		
Substation	9001, 9002, 9003, 9004, 9101, 9105, 9103, 9201, 9203, 9202, 9206, 9207, 8001, 8015, 8007, 8013, 8004, 8002		
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
	2200	Factor - Barceloneta	Super Aqueducts (AAA)
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	3501,3502, 9601,9602, 9605, 9703, 9901, 9902, Bqtas. TC, Comerio TC
Key Transmission Feeders	39,000, 8500, 7700, 6500, 4800, 4100, 2900, 18400
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
Hospital	4800	Medical Facilities	Hospital Menonita de Aibonito
Hospital	6500-7700	Medical Facilities	CDT de Comerio
Critical Facilities Level 2			
	Line Number	Description	Customer
Pharmaceutical	4800	Medical Products	Baxter Health Care
Critical Facilities Level 3			
	Line Number	Description	Customer
Industry	4800	Food Production	To- Ricos Corporation
Education	4800	School	Carmen D. Colon School
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
3501	3501-01	AAA	Water Plant Treatment, Water Dam
3501	3501-02	Hospital	Menonita Medical Facilities
3501	3501-03	Emerg. Shelter	José N. Gandara School, Military

3502	3502-01	AAA	Water Plant Treatment, Water Dam
3502	3502-02	AAA	Water Plant Treatment, Water Dam, Police, Municipal Emerg. Operation
9601	9601-01	AAA	Water Plant Treatment, Water Dam
9601	9601-02	Hospital, AAA	Bqtas. Hospital, Water Plant Treatment, Water Dam, Luma Emerg. Operation Center
9602	9602-03	Fire, Municipal	Fire Station, Municipal Emerg. Center
9602	9602-04	AAA	AAA, Facilities, Water dam
9605	9605-01	AAA	Water Plant Treatment, Water Dam
9605	9605-02	AAA	Wastewater treatment plant
9703	9703-01	AAA, Police,	Water Plant Treatment, Water Dam, Police, Municipal Emerg. Operation, Fire Station
9703	9703-02	Hospital	Comerio Hospital
9703	9703-03	AAA	Wastewater treatment plant
9901	9901-01	Communication	Police, Coastguard, TV and Radio Comm. Towers
9901	9901-02	AAA	Water Plant Treatment, Water Dam
9902	9902-02	Hospital, AAA	Water Plant Treatment, Water Dam, Police, Municipal Emerg. Operation, Fire Station
Critical Facilities Level 2			
Substation	Feeder	Customer	
9902	9902-03	Comm	Radio and TV, AEE Comm towers
Critical Facilities Level 3			
Substation	Feeder	Customer	
Included in level 1 & 2			

Cayey/Barrenquitas District SERT Team

Customer	46,329		
Substation	3401, 3402, 3403, 3405, 3406, 3601, 3602, 3603, 3604, 3701		
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
	0800	Cayey TC-COMSAT	Menonita Hospital
	3800	Cidra Sect-Cayey TC	Wastewater Treatment Plant (AAA) Cayey-Cidra
	3800	Cidra Sect-Cayey TC	Water Pumping Station Rincon Candela (AAA)
	0800	Cidra Sect-Cayey TC	Filtration Plant and Water Dam Lake (AAA)
Critical Facilities Level 2			
	Line Number	Description	Customer

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	
3401 Cayey TC	3401-02	Water Pumping Stations (AAA)	
3401 Cayey TC	3401-03	Menonitas Hospital (Clinics Building), Municipal Health Center Mariano Rivera Rios, Emergency Operations Center (Pedr Montañez Stadium), Cayey Police Department	
3402 COMSAT	3402-05	Water Dam La Central (AAA), Filtration Plant Farallon-Carite (AAA)	
3403 Jajome	3403-01	Filtration Plant Culebra (AAA)	
3405 Cayey Rural	3405-01	Cayey Fire Station, AEE Operations Office, AAA Operations Office	
3405 Cayey Rural	3405-03	Filtration Plant Urbana Pasto Viejo (AAA)	
3406 COMSAT	3406-03	Water Dam Puente de Hierro Arenas (AAA)	
3601 Cidra	3601-01	Filtration Plant Sud (AAA), Cidra Police Department	
3601 Cidra	3601-02	Water Pumping Station Rabanal (AAA)	
3601 Cidra	3601-04	Cidra's Municipal Hospital, Cidra Fire Station	
3603 Sabanera I	3603-01	Panamerican First Hospital	
3701 Aguas Buenas	3701-02	Filtration Plant Jagueyes (AAA), Wastewater Treatment Plant Jagueyes (AAA), Urban Aqueducts, Aguas Buenas Fire Station	
3701 Aguas Buenas	3701-03	Aguas Buenas Municipal Hospital, Filtration Plant Minillas (AAA), Water Dam Minillas (AAA), Aguas Buenas Police Station,	
3701 Aguas Buenas	3701-04	Service Station Transformer Aguas Buenas GIS	
Critical Facilities Level 2			
Substation	Feeder	Customer	
3401 Cayey TC	3401-03	Cayey Municipal Hall, AEE Comercial Office	
3406 COMSAT	3406-02	Communications: La Santa, Doppler Radar	
3601 Cidra	3601-03	Cidra Municipal Hall	
3701 Aguas Buenas	3701-02	Communications: Marquesa, La Mesa	
3701 Aguas Buenas	3701-03	Aguas Buenas Municipal Hall	
Critical Facilities Level 3			
Substation	Feeder	Customer	
3403 Jajome	3403-01	Governor's Country House	
3405 Cayey Rural	3405-01	Comercial Centers	
3406 COMSAT	3406-01	Comercial Center Plaza Cayey	
3603 Sabanera I	3603-02	Comercial Center Plaza Cidra	
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
	14400	Hospital	HIMA
	600	Hospital	Menonita
	3000	Police Academy	Police
	3000	Wastewater Treatment Plant	AAA
	5200	Wastewater Treatment Plant	AAA
Critical Facilities Level 2			
	Line Number	Description	Customer
	3000	City Courthouse	Centro Judicial de Caguas
Critical Facilities Level 3			
	Line Number	Description	Customer
	3000	Manufact. Plant	Medtronics
	9300	Manufact. Plant	Ethicon
	19400	Manufact. Plant	Janssen
	36200/41400	Manufact. Plant	AMGEN
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
3006	3006-05	PREPA	Emergency Operations Center
3103	3103-05	Caguas Municipality	Sanos Hospital
3101	3101-02	Gurabo Municipality	Gurabo Municipality Hospital
3201	3201-03	Juncos Municipality	Juncos Municipality Hospital
3301	3301-02	San Lorenzo Municipality	San Lorenzo Municipality Hospital
30006	3006-02	Caguas Municipality	Emergency Operations Center
3007	3007-03	AAA	Represa Borinquen
3007	3007-03	AAA	P/F Caguas Sur
3007	3007-03	AAA	E/B Beatriz I y II
3015	3015-05	AAA	E/B Altos de la Fuente
3010	3010-03	AAA	E/B Turabo Gardens
3004	3004-01	AAA	E/B La Pista
3008	3008-03	AAA	E/B La Princo
3014	3014-01	AAA	E/B San Luis
1908	1908-05	AAA	E/B San Pedro Estate
3013	3013-03	AAA	E/B Tomas de Casto I, Etapas 1
3013	3013-03	AAA	E/B Tomas de Casto I, Etapas 2
3013	3013-03	AAA	E/B Tomas de Casto I, Etapas 3
3013	3013-03	AAA	E/B Tomas de Casto II, Etapas 1
3013	3013-02	AAA	E/B Tomas de Casto II, Etapas 2
3010	3010-01	AAA	E/B Cañaboncito Caguas, Etapa 1
3010	3010-01	AAA	E/B Cañaboncito Caguas, Etapa 2
3014	3014-01	AAA	E/B La Barra
3014	3014-01	AAA	E/B La Mesa I
3014	3014-01	AAA	E/B San Salvador
3014	3014-01	AAA	E/B San Salvador Etapa I
3007	3007-03	AAA	E/B San Salvador Etapa II

3007	3007-03	AAA	E/B San Salvador Etapa III
3014	3014-03	AAA	E/B San Antonio (Pedro Pollo)
3008	3008-01	AAA	E/B Mirador de Bairoa
3004	3004-01	AAA	Represa Cagüitas
3014	3014-04	AAA	E/B Jagüeyes Pajilla Etapa 1
3014	3014-04	AAA	E/B Jagüeyes Pajilla Etapa 2
3014	3014-04	AAA	E/B Jagüeyes Pajilla Etapa 3
3205	3205-08	AAA	P/F Gurabo
3101	3101-04	AAA	E/B Jagual 2da Etapa
3101	3101-03	AAA	E/B Celada Etapa 2
3101	3101-03	AAA	E/B Celada Etapa 3
3102	3102-01	AAA	E/B Soterrada Rincón Etapa I
3102	3102-01	AAA	E/B Soterrada Rincón Etapa II
3205	3205-08	AAA	Pozo Mamey
3205	3205-08	AAA	E/B Mamey
3006	3006-03	AAA	E/B Reina de los Ángeles
1908	1908-05	AAA	E/B Jaguas Lomas Etapa I
1908	1908-05	AAA	E/B Jaguas Lomas Etapa II
3102	3102-01	AAA	Pozo #3 Estación Experimental
3302	3302-02	AAA	Represa Nueva Cerro Gordo
3302	3302-02	AAA	P/F Cerro Gordo
3302	3302-01	AAA	E/B Tanques Urbanos
3301	3301-01	AAA	E/B El Tamarindo (Quemados)
3301	3301-02	AAA	E/B Quebrada Etapa I y II
3302	3302-02	AAA	E/B Los Velázquez Etapa I, II y III
3302	3302-02	AAA	E/B Los Carrasquillos I
3301	3301-01	AAA	E/B Los Carrasquillos II
3301	3301-01	AAA	Represa Jagual
3301	3301-01	AAA	P/F Jagual
3301	3301-01	AAA	E/B Jagual 2da Etapa
3301	3301-01	AAA	E/B Tino Borges
3301	3301-01	AAA	P/F Espino
3301	3301-01	AAA	E/B Jacobo Pérez Etapa I
3301	3301-01	AAA	E/B Jacobo Pérez Etapa II
3301	3301-01	AAA	Planta Microfiltración Quebrada Arenas
3013	3013-02	AAA	E/B Soterrada Bo. Hato
3302	3302-04	AAA	E/B Florida (Masso)
3302	3302-04	AAA	E/B Florida Etapa II
		AAA	P/F Juncos Urbanas (KTP 90)
3201	3201-01	AAA	Represa Bombeo Pueblito del Río
3201	3201-04	AAA	P/F Ceiba Sur
3302	3302-04	AAA	Represa Ceiba Sur
3202	3202-02	AAA	Pozo 1, 5, 7 La Antigua Central Juncos (Remoción)
3102	3102-02	AAA	E/B Soterrada Canta Gallo (convertidor)
3202	3202-01	AAA	E/B Piñas Etapa I
3202	3202-01	AAA	E/B Piñas Etapa II
		AAA	E/B Campo Traviesa
		AAA	E/B El Ensanche
3201	3201-02	AAA	E/B Lirios Cementerio

3201	3201-02	AAA	E/B Lirios Jocelyn
3302	3302-04	AAA	E/B Valenciano I
3302	3302-04	AAA	E/B Pello Pomales
Critical Facilities Level 2			
Substation	Feeder	Customer	
3006	3006-05	Fresenius Kidney Care	Dialysis Center
Critical Facilities Level 3			
Substation	Feeder	Customer	
3005	3005-02	Caguas Tower	High-Rise Residential Building

Humacao District SERT Team

Customer	63,446		
Substation	2601, 2602, 2603, 2604, 2801, 2901, 2906, 2701, 2702		
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
	9900	Medical Facility	Ryder Hospital
	36300	SHELL	Fuel Distribution
	12600	AAA, Medical Services	Wastewater Treatment plant. PRAXAIR
	3000	AAA	Water Treatment plant
	3700	Yabucoa Govern Center	
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	12500	Large employers	Medtronic, University Of PR, Lutron, General Electric
	5300	Lage Employers	Merck, Cristalia, MC Neil, To-Rico, Eaton, Carmela, Aspen, PRICH, Johnson @ Johnson
	12600	Large Employers, Food Warehouse	Bristol-Meyers, Microsoft, Marshalls, Walmart, Home Depot, BARD, Nelly Pack
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
2601	2601-03	Municipality Police Station, Municipality Government Center	Humacao Municipality
	2601-04	Water pumping station	AAA Caserio Roig
	2601-02	Medical Facility	HIMA San Pablo Hospital
2602	2602-01	Emergency Medical Facility, AEE Facilities	CDT Humacao, Humacao Technical Office AEE, Commercial Office AEE
	2602-03	AEE Facility Government Facility	Service Station Yabucoa TC Fire Station
2603	2603-08	Medical facility, Municipality facility	Menonita Hospital, CDT Las Piedras, Las Piedras City Hall, Las Piedras Municipal Police
	2603-09	Airport, Government office	Humacao Airport, Judicial Center

	2603-10		Humacao Police Command
2604	2604-01	AEE Facility	Service Station Yabucoa TC
2701	2701-03	Medical facility and Government offices	Naguabo Diagnostic and treatment Centre, Naguabo City Hall, Police Office, Fire station
2702	2702-01	Communication Facilities	El Yunque communications towers, Claro Tower
	2702-02	Communication facilities	Navy Communications services
2801	2801-01	Government Security	Police Station, Fire station
	2801-02	Water Pumping station	AAA Water Pump Las Piedras
2803	2803-02	Water Pumping station	AAA Water Pump Anton Ruiz Humacao, AAA Higuerilo Water Pumps
	2803-03	Water treatment	AAA Water Treatment Plant Quebrada Grande< las Piedras
2901	2901-02	Security	Municipal Police Station
	2901-02	Water Treatment	AAA water Treatment Plant La Pica Yabucoa
	2901-03	Medical facility	Yabucoa Diagnostic and treatment Centre
	2901-03	Security	Fire station
2906	2906-03	Security	FURA Yabucoa
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	
2604	2604-01	Large residential complex	Palmas del Mar
2603	2603-09	Food warehouse, Large employers	Palma Real Shopping Center, Triumph Plaza Shopping Center, Econo Supermarket
2906	2906-.2	Food warehouse	Ralph Food Warehouse

Fajardo District SERT Team

Customer	37,585		
Substation	2001, 2002, 2003, 2005, 2006, 2101, 2201, 2501, 3801		
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
	3100	Hospital	HIMA San Pablo
	3100	Aeropuerto	Autoridad de Puertos
	3100	Planta Tratamiento	AAA
	3100	Planta de tratamiento	AAA Sector Las Carolinas, C/3, Int.
	3100	Embalse	AAA Sector Las Carolinas, C/3, Int.

Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	16500	Large Employer	Hotel El Conquistador
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
2005	10	Torre San Pablo, Carr. 194 Sector Luna, Fajardo	
2005	10	Caribbean Medical Center, Fajardo	
2005	10	Defensa Civil OMME Carr 194 Fajardo	
2005	09	Policía Garrido Morales, Esq. Calle Victoria, Fajardo	
2006	03	Defensa Civil OMME Detrás de la plaza de Recreo en Ceiba	
2201	02	Defensa Civil OMME Calle Soledad, en la Alcaldía - Luquillo	
2201	02	Policía – Calle Soledad – Luquillo	
2501	02	Centro de Tratamiento de Vieques, Bo. Las Marías	
2501	03	Defensa Civil OMME Calle Benítez Guzmán Vieques	
2501	03	Policía Carr 200 cerca del Pueblo, Vieques	
3801	02	Departamento de Salud C/ William Font, Culebra	
3801	02	Defensa Civil OMME, Barriada Clark, Culebra	
3801	02	Policía – Bo. Fulladoza, Culebra	
3801	01	Autoridad de Transporte Marítimo, Culebra	

2001	01	AAA EP Potable	C/ 987 Int. Ave. Osvaldo Molina frente a Burger King
2001	01	AAA EP Potable	C/987, Km 5, Bo. Las Croabas
2001	04	AAA EP Potable	Calle Unión, al lado Santa Isidra I
2002	01	AAA Tanque Reserva	Barriada Roosevelt
2002	01	AAA EP Potable	C/976 Sector Goya Flores Bo. Florencio
2002	01	AAA EB Alcantarillado	Sector Volantín
2002	01	AAA EP Potable	Curva Los Pomales, Bo. Paraíso
2002	01	AAA Tanque Reserva	Po Peñón, Tanque de 1 millón
2002	02	AAA EP Potable	C/3, Veve Calzado, lado Subest. 2002
2002	03	AAA EB Alcantarillado	C/194, Frente Garaje Texaco Int. Urb. Baralt
2003	01	AAA EP Potable	Ave. Conquistador, Esq. Ave. Hipólito Robles
2005	09	AAA EP Potable	Calle Hatillo, al lado de CVS
2005	09	AAA EB Alcantarillado	Bo. Jerusalén
2005	10	AAA EP Potable	C/194, al lado de Fajardo Community School
2005	10	AAA EP Potable	C/194, lado Caribbean Cinemas
2101	01	AAA EP Potable	C/3, Int. C/982, Bo. Demajagua
2101	01	AAA Planta Tratamiento	Ave. Lauro Piñero
2101	01	AAA Tanque Reserva	C/977, Bo. Rincón
2101	01	AAA EP Potable	C/978, Bo. Chupacallos
2101	01	AAA EP Potable	C/975, Bo. Río Abajo
2101	01	AAA EP Potable	C/975, Urb. Jardines Ávila
2101	01	AAA EB Alcantarillado	Desvío Felisa Rincón
2101	01	AAA Planta Tratamiento	Ave. Lauro Piñero
2101	01	AAA EP Potable	C/3, Bo. Quebrada Seca
2101	01	AAA EB Alcantarillado	C/3, Urb. Santa María
2101	01	AAA EP Potable	C/981, Sector Los Machos
2002	03	AAA EP Potable	C/940, después de Hacienda Margarita
2002	03	AAA EP Potable	Sector Cuesta del Tigre
2002	03	AAA Planta Tratamiento	Sector Cuesta del Tigre
2002	03	AAA EP Potable	Sector Los 48
2201	01	AAA EP Potable	C/991, Int. C/3, Centro Industrial
2201	01	AAA EP Potable	C/9990, Buena Vista Carrión, Bomba 1 y 2
2201	01	AAA EP Potable	C/983, Bo. Sabana
2201	01	AAA EP Potable	C/983, Int. 9983, Sector Santo Domingo
2201	01	AAA EP Potable	C/988, Bo. Sabana, Sector Las Viudas
2201	04	AAA EP Potable	C/992, Sector San Vicente

2305	02	AAA EB Alcantarillado	C/940, hacia Hacienda Margarita
2305	02	AAA EP Potable	Urb. Paisajes del Río
2305	02	AAA EB Alcantarillado	C/991 Int. C/992, lado Urb. River Edge
2305	02	AAA EP Potable	C/992, Mameyes, Entrada Hacienda Carabalí
2501	01	AAA EP Potable	C/ 200. Bo. Mosquito
2501	01	AAA Planta Tratamiento	C/ 200, Bo. Martineau
2501	01	AAA EB Alcantarillado	C/ 200, Bo. Martineau, Parque Industrial
2501	03	AAA EB Alcantarillado	Calle Germán Rieckehoff, Isabel II, Frente ATM
2501	03	AAA Agua Potable	C/100, Bo. Villa Borinquén
2501	02	AAA Agua Potable	C/997, Bo. Monte Carmelo
2501	01	AAA Agua Potable	C/ 995, Bo. Pilón
2501	01	AAA EB Alcantarillado	C/ 201, Bo. La Mina
2501	02	AAA EB Alcantarillado	Calle Lirios, Bo. Esperanza
2501	01	AAA Agua Potable	C/ 201, Bo. Florida
3801	02	AAA Alcantarillado y Desalinizadora	C/250
3801	02	AAA Estación de Bombas	C/251, Bo. Flamenco, frente Aeropuerto
3801	02	AAA Estación de vacío y bombas alcantarillado	C/250, Bda. Clark
3801	02	AAA Estación bomba Aux. Alcantarillado	C/250, Sector San Isidro
3801	02	AAA Tratamiento	C/250, Sector La Perla
3801	02	AAA Planta Desalinizadora	C/250, Sector San Isidro
Critical Facilities Level 2			
Substation	Feeder	Customer	
2005	10	Centro Envejecientes Carr 194 frente Escuela Superior Fajardo	
2005	09	Alcaldía Calle Muñoz Rivera, Esquina Dr. López	
2001	01	Comunicación WMDD AM, Carr. 987, Km 5, Las Croabas, Fajardo	
2002	01	Centro Gubernamental - Calle Garrido	

		Morales, esq. Calle Victoria Fajardo	
2003	01	Fajardo Inn. Parcelas Beltrán	
2101	01	Centro de Envejecientes Municipal Ceiba - Al lado complejo deportivo y Centro de Usos Múltiples	
2101	01	Centro de Envejecientes, Calle Severiano Fuentes No. 639, Ceiba	
2101	01	Centro de Envejecientes, Carr. 978, Urb. Celina, Ceiba	
2006	03	Alcaldía Ceiba – Detrás de la plaza pública Ceiba	
2101	01	Centro Gubernamental de Ceiba Carr 3, Km. 58, lado Cuartel de la Policía	
2101	01	Centro Industrial Aguas Claras Carr. 3 km 58.5 Ceiba	
2201	02	Centro de Envejecientes, Calle Garrido Morales, Luquillo	
2201	01	Centro de Envejecientes, Carr. 991, Bo. Sabana, Luquillo	
2201	04	Comunicaciones - Radio Sol, Carr. 992 Km. 1 Sector Torrens, Bo. Mata de Plátano, Luquillo	
2201	05	Centro Gubernamental Calle 14 de Julio, Luquillo	
2201	02	Alcaldía Calle 14 de julio, frente plaza pública	
2501	03	Alcaldía Vieques 449 Calle Carlos Lebrón	

2501	02	Comunicaciones – W.I.V.V. Bo. Esperanza, Vieques	
3801	02	Radio Línder, Villa Muñeco, Culebra	
3801	02	Antenas Redes de Celulares,	
3801	01	Antena Telefónica, Calle William Font, Culebra	
3801	02	Alcaldía – Calle Escudero #83, Culebra	
3801	01	Centro Industrial – R.D. Medical – Bo. Fulladoza, Culebra	
Critical Facilities Level 3			
Substation	Feeder	Customer	

Mayaguez Region

Mayaguez District SERT Team

Customer	110, 933		
Substation	6001,6002,6003,6004,6005,6007,6008,6010,6012,6014,6015,6101,6301,6303,6305,6306,		
Key Transmission Feeders	6401,6404,6406,6501,6601,6603,6702,6703,6704,6705,6801,6802		
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
	L-9200		Zona Industrial de Añasco
	L-5600		Planta Tratamiento Aguas Usadas, Hospital Veteranos, Planta Bomba AAA
	L-1200	Sub 6479 Hospital	Hospital La Concepción
	L-13400/15700	Sub 6660 Water	PRASA (AAA)
	L-1500	Sub 6574 Wastewater	PRASA (AAA)
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	L-1500		Colegio (RUM) de Mayagüez
	L-2000		Fresenius Kabi de Maricao
	L-1200		Universidad Católica, Super. Pueblo Extra de Mayagüez
	L-6100		Alimentos Federación, Universidad Albizu Mayagüez
	L-1600		Almacenes Mr. Special, Escuela Jose de Diego Mayagüez y Cervecería India
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
6101	6101-01	CDT de Añasco, Cuartel de la Policia Estatal	
6101	6101-02	Alcaldía de Añasco	
6101	6101-03	Planta de Tratamiento Aguas Usadas	
6301	6301-01	CDT de Maricao, Cuartel de la Policia	
6303	6303-01	Planta Tratamiento Aguas Usadas	
6305	6305-02	Planta AAA, Rio Prieto	
6305	6305-03	Bomba AAA	

6306	6306-02	Bomba AAA	
6001	6001-01	Hospital Perea de Mayagüez	
6002	6002-05	Clínica Yagüez de Mayagüez	
6003	6003-01	Cuartel de la Policia Estatal	
6004	6004-05	Centro Médico de Mayagüez	
6005	6005-02	Pista Aeropuerto Mayagüez	
6808	6808-02	Centro Médico y Guardia Nacional de Mayagüez	
6808	6808-04	Centro Médico de Mayagüez	
6010	6010-01	Hospital Bella Vista (amarre)	
6012	6012-02	Aeropuerto y Planta de Aguas Usadas	
6012	6012-05	Planta de Filtración AAA	
6014	6014-01	Hospital San Antonio, Oficina Manejo de Emergencia	
6014	6014-02	Planta AAA	
6015	6015-01	Centro de Trauma	
6015	6015-02	Comandancia de la Policia Estatal	
6802	6802-01	Pozo AAA	
6802	6802-02	Cuartel de la Policia Estatal, Centro Manejo de Emergencia y Pozo AAA	
6401	6401-01	Alcaldía de San Germán	
6401	6401-02	Cuartel de la Guardia Nacional	
6401	6401-04	Estación Bombeo AAA Las 40, Estación Bombeo AAA Sabana Eneas	
6404	6404-01	Estación Bombeo AAA San Marta, Estación Bombeo AAA Riverside	
6404	6404-02	Estación Bombeo AAA Salamanca, Estación Bombeo AAA L a Tea, Centro de Manejo de Emergencia	
6404	6404-03	Cuartel de la Policia, Estación Bombeo AAA-Guamá	
6406	6406-02	Hospital La Concepción, Planta de Filtración AAA y Estación Bomberos	
6406	6406-04	Hospital de Sabana Grande, Centro Manejo de Emergencia, Bombeo AAA	
6501	6501-01	Estación Bombeo AAA Machuchal y Pozo AAA Molinas	
6501	6501-02	Tres Estaciones de Bombeo AAA Santana	
6501	6501-03	Alcaldía de Sabana Grande, Cuartel de la Policia y Estación Bombeo AAA	
6501	6501-04	Estación Bombeo AAA de Rayo Guaras y Papayo	
6601	6601-01	Alcaldía de Lajas y Cuartel de la Policia	
6601	6601-03	Bombas AAA-La Plata, Lajas	
6601	6601-04	Pozo AAA y Bomba AAA Palmarejo y Parcelas Palmarejo de Lajas	

6603	6603-01	Estación Bombeo AAA La Parguera y Cuartel de la Policia de La Parguera, Lajas	
6702	6702-01	Estación Bombeo AAA, Carr. 101 Cabo Rojo	
6703	6703-01	Centro Operaciones de Emergencia, Planta de Filtración AAA y Bombas AAA-Monte Grande	
6703	6703-03	Hospital Metropolitano, Pozo AAA de agua potable, Cuartel Policia Estatal y Bombas AAA-Carr.312	
6704	6704-02	Estación Bombeo AAA Combate y Cuartel de la Policia	
6704	6704-02	Estación Bombeo AAA de Boquerón	
6705	6705-01	Estación Bombeo AAA de Puerto Real y Unidad Guardia Nacional	
6802	6802-02	CDT de Hormigueros, Policia Estatal, Centro Manejo Emergencia y Pozo AAA- Bo. Lavadero	
6802	6802-04	Pozo AAA- detrás Hotel Perichis de Joyuda	
6802	6802-05	Alcaldía de Cabo Rojo, Cinco Pozos AAA- Bo. Bajura	
Critical Facilities Level 2			
Substation	Feeder	Customer	
6303	6303-01	Centro Telecomunicaciones AEE y Radio Telecomunicaciones Radio, Televisión y Red Celular-Monte del Estado en Maricao	
6305	6305-03	Torre de Telecomunicaciones Bo. Carrizales	
6001	6001-01	Centro Judicial de Mayagüez	
6001	6001-03	Campamento El Limón (Correción)	
6008	6008-04	Antena Telecomunicaciones Emisora Radial Noti-Uno	
6012	6012-02	Centro Diálisis- El Maní	
6012	6012-03	Distrito Técnico-Services Station Transformer	
6802	6802-02	Antenas Telecomunicaciones Carr. 343	
6601	6601-03	Canales de Riego AEE- Lajas	
6702	6702-01	Antenas Telecomunicaciones-La 22 Cabo Rojo	
6704	6704-02	Antenas de Telecomunicaciones Cabo Rojo	
6802	6802-04	Antenas de Telecomunicaciones de Miradero	
Critical Facilities Level 3			
Substation	Feeder	Customer	
6101	6101-01	Casco Urban de Añasco	
6105	6105-05	Casco Urbano de Añasco	

6001	6001-01	Casco Urbano de Mayagüez	
6003	6003-01	Centro Gubernamental	
6007	6007-05	Zona Industrial de Mayagüez	
6014	6014-01	Casco Urbano de Mayagüez	
6015	6015-01	Oficina Regional AEE de Mayagüez	
6015	6015-02	CESCO, Fondo del Seguro del Estado	
6801	6801-01	Casco Urbano de Hormigueros	
6801	6801-03	Hogar de Ancianos San José	
6802	6802-02	Casco Urbano de Hormigueros	
6401	6401-01	Casco Urbano de San Germán	
6401	6401-02	Casco Urbano de San Germán	
6404	6404-03	Centro Gubernamental	
6406	6406-02	Distrito Técnico de San Germán	
6406	6406-4	Urbanización San José-Sabana Grande	
6501	6501-03	Casco Urbano de Sabana Grande	
6601	6601-01	Casco Urbano de Lajas y Centro Gubernamental	
6603	6603-03	Casco Urbano de Lajas	
6702	6702-03	Zona Turística, Poblado Boquerón y Unidad Marítima FURA de Cabo Rojo	
6706	6703-01	Depto. Obras Pública Municipal de Cabo Rojo	
6802	6802-05	Casco Urbano de Cabo Rojo	

Aguadilla District SERT Team

Customer	124,468		
Substation	7002,7003,7004,7005,7006,7008,7011,7012,7101,7104,7201,7301,7303, 7504		
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
	L-2500		Hospital San Carlos de Moca
	L-5600		Planta Filtración Culebrinas- Aguada
	L-15900		Planta Tratamiento AAA- Aguada
	L-2800		Hospital Buen Samaritano,Aguadilla
	L-2100	Hatillo TC @ Quebradillas Sect	Coliseo Raymond Dalmau(FEMA)
Critical Facilities Level 2			
	Line Number	Description	Customer
	L-15900		Antena Navy-Aguada
	L-2700		Carcel Guerrero-Aguadilla
Critical Facilities Level 3			
	Line Number	Description	Customer
	L-2500		Zona Industrial Moca
	L-2800		Suiza Dairy- Aguadilla
	L-6000		UPR de Aguadilla
	L-2700		Zona Industrial Aguadilla
	L-2500		Escuela Manuel Méndez de San Sebastián y Supermercado Econo
	L-1900		Escuela Josefina Linares de San Sebastián
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
7003	7003-02	Centro Manejo Emergencia de Aguadilla	
7004	7400-001	Aeropuerto y Edificios Federales Base Ramey	
7005	7005-01	Aeropuerto y Edificios Federales Base Ramey	
7011	7011-01	Estación de Bomberos	
7011	7011-02	Planta Filtración AAA - La Montaña	
7011	7011-03	Estación de Bomba AAA- Lago Calero	

7504	7504-01	Estación de Bomba AAA	
7101	7101-04	Alcaldía de Moca	
7201	7201-02	Alcaldía de Aguada	
7301	7301-03	Cuartel Municipal y Estación de Bomberos	
7301	7301-04	Varias Bombas de Relevo AAA-PR 115	
7301	7301-05	Alcaldía, Cuartel de la Policía Estatal, Planta de Tratamiento Aguas Usadas.	
7402	-01	Quebradillas Medical Center	Quebradillas, Bo Cocos
7402	-02	Shalom Medical Care	Quebradillas, Bo Terranova
7402	-05	AAA(PF- Charcas)	Quebradillas, Bo Charcas
7402	-05	Policía Estatal	Quebradillas, Bo Pueblo
7403	-01	AAA(potable)	Quebradillas, Las Margaritas Bo Guajataca
7403	-02	AAA(potable)	Camuy, Bo Puertos
7403	-02	AAA(PF Guajataca)	Quebradillas, Bo Guajataca
7404	-07	AAA(sanitaria)	Quebradillas, Las Cuevitas
7404	-07	AAA(potable)	Quebradillas, Pozo del Rey
7404	-07	Policía Municipal y Manejo de Emergencias	Quebradillas, Terranova
7404	-07	Bomberos	Quebradillas, Pueblo
7404	-07	Centros Integrados de Servicios de Salud de Lares	Quebradillas, Pueblo
7404	-07	Alcaldía	Quebradillas, Pueblo
7502	-01	Alcaldía	Isabela, Pueblo
7502	-02	AAA(potable)	Isabela, Bo Llanadas
7502	-02	AAA(potable)	Isabela, Capiro, Bo Galateo Alto
7502	-03	Bomberos	Isabela, Bo Mora
7502	-03	Hospital CIMA	Isabela, Bo Mora
7502	-03	AAA(PF Isabela)	Isabela Sector La Curva, Bo Mora
7503	-02	Policía Estatal	Isabela, Bo Pueblo
7503	-03	AAA(sanitaria)	Isabela, La Corchado
7503	-04	Policía Municipal y Manejo de Emergencias	Isabela, Bo Mora
7503	-04	AAA(sanitaria)	Isabela, Carr 112 Bo Pueblo
7505	-05	AAA(PAS)	Isabela, Villa Pesquera, Bo Guayabo
7505	-05	AAA(potable)	Isabela, Sector Los Pinos, Bo Arenales Bajos
7505	-05	AAA(potable)	Isabela, Sector Rocha, Bo Arenales Bajos
7801	7801-01	Alcaldía de San Sebastián	
7801	7801-02	Cuartel de la Policía	
7801	7801-03	CDT de San Sebastián	

7802	7802-03	Planta Tratamiento AAA aguas usadas	
7802	7802-04	Centro Operaciones de Emergencia, Planta de Tratamiento AAA aguas usadas y Estación de Bomberos.	
7805	7805-13	Planta Tratamiento AAA Aguas Usadas	
6201	6201-01	Planta AAA, Hospital Municipal de Las Marías	
7901	7901-01	Centro Manejo de Emergencia y Estación de Bomberos.	
7901	7901-02	Planta Tratamiento AAA Aguas Usadas y Cuartel de la Policía de Lares.	
7902	7902-01	Planta de Acueductos	
7902	7902-03	Hospital General de Castañer, Cuartel de la Policía y Estación de Bomberos de Lares	
7903	7903-06	Hospital de Lares	
Critical Facilities Level 2			
Substation	Feeder	Customer	
7005	7005-03	Coast Guard Housing Base Ramey	
7008	7008-04	Centro Telecomunicaciones AEE	
7011	7011-01	Centro Telecomunicaciones Claro	
7301	7301-05	Centro Telecomunicaciones de Claro	
7303	7303-01	Centro Comunicaciones AEE, Centros Telecomunicaciones de Radio, Televisión y Red Celular en Pico Atalaya	
7801	7801-02	Tribunal Municipal	
7805	7805-13	Centro Renal y Diálisis.	
Critical Facilities Level 3			
Substation	Feeder	Customer	

7002	7002-01	Casco Urbano, Depto. Obras Públicas, Depto. Transportación y Obras Públicas y Residencial Público Aguadilla	
7002	7002-02	Casco Urbano de Aguadilla	
7002	7002-03	Casco Urbano de Aguadilla	
7008	7008-05	Casco Urbano, Distrito Técnico de Aguadilla	
7008	7008-07	Casco Urbano, Comercial AEE de Aguadilla	
7011	7011-01	Aguadilla Medical Plaza y Hotel Las Cascasdas	
7101	7101-04	Casco Urbano de Moca	
7104	7104-06	Casco Urbano de Moca (resguardo) y Zona Industrial	
7201	7201-02	Casco Urbano de Aguada	
7301	7301-02	Centros Comerciales Plaza Rincón, Banco Popular, Gasolineras	
7301	7301-03	Casco Urbano de Rincón y Health Center.	
7301	7301-04	Centro Envejecientes y Correo Servicios Postales	
7301	7301-05	Casco Urbano de Rincón, Hotel Villa Cofresi	
7801	7801-01	Casco Urbano de San Sebastián	
7801	7801-03	Comercial AEE de San Sebastián	
7801	7801-04	Distrito Técnico de San Sebastián	
7805	7805-11	Egida El jibarito, Centro Comercial, Centro Deportivo y Establecimientos de comida rápida.	

6201	6201-01	Hogar de Envejecientes de Las Marías	
6201	6201-02	Casco Urbano de Las Marías	
7901	7901-02	Casco Urbano de Lares	

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
Sub 5092	0500	Ave Baramaya Sector La Cotorra Bo Canas	Planta filtración La Cotorra
Sub 5085	0500	Carretera PR 2 Km 257 Bo Canas Ponce	Planta tratamiento AAA
Sub 5075	0900	Ponce bypass 2213, Ponce	Hospital Damas
Sub 5876	7900	917 Ave. Tito Castro (PR14), Ponce	Hospital Distrito
Sub 5871	18000	Carretera PR 506 km 1.0 Coto Laurel, Ponce	Hospital San Cristóbal
	37000-36900	Carr 123 Canas Ponce	Suple Línea privada 17600
	7900	Barrio Amuelas. Carretera 532 Km 5.6, Juana Díaz	Casa del Veterano
	0200	Carr 149 Km 5.7, Juana Diaz	Base Fort Allen
	0300	Carr 149 Km 58.5 Bo Tierra Santa, Villalba	CDT Villalba
Sub 5974	4800	Carr 150 km 5.3 Bo Higuero Villalba	Bomba AAA
Critical Facilities Level 2			
	Line Number	Description	Customer
Sub 5081, 5277, 5060	0500	Bo. El Tuque Sector Las Cucharas Carr. #2	Centro Corrección Las Cucharas
Sub 5093	1800	2150 Ave Santiago de los Caballeros, Ponce	Centro Judicial
Sub 5876	7900	Carr. 14 KM 1.0 H 1.0, Distrito Ponce	Cárcel de Menores
Critical Facilities Level 3			

	Line Number	Description	Customer
Sub 5278	0500	4820 Calle Cándido Hoyos, Ponce	Instituto Tecnológico
	0900	2250 Ave Las Americas, Ponce	Universidad Católica
Sub 5014	1800	2151 Ave. Santiago de los Caballeros, (PR1) Ponce	Universidad UPR
Sub 5059	1800	#21 Ave. Santiago de los Caballeros, Ponce	Fondo del Seguro
Sub 5276	1800	2050 Ponce Bypass, Ponce	Plaza del Caribe
	10200	Punto Oro, Tuque Ponce	Zona Industrial El Tuque
	10200	PR 123 Int PR 500 Magueyes Urbano (Canas) Ponce	Línea spare para Ponce Cement
	11200	PR 1 Mercedita, 104 Turpeaux Ind Park, Mercedita, Ponce	Universidad Interamericana
Sub 5097	11200	Urb Villa del Carmen Avenida Caribe 1150, Ponce	Hotel Ponce Hilton
	11200	Urb. Industrial Sabaneta, Calle Húcar Ponce	Zona industrial Sabanetas
SUB 5018	37000-36900	PR 500 a PR 123 Magueyes Urbano Ponce	Ponce Cement
	7900	Carr.149 km 56.3 Tierra Santa, Villalba	Medtronics
	0300	Carr 5561 Km 1.6 Bo Jagueyes, Villalba	Escuela Salvador Busquets
	17900	500 Calle Desvio Victor Cruz, Juana Díaz	Cooper Vision
	17900	Cal Muñoz Rivera- PR 592 Sector Esperanza, Juana Diaz	Bellas Artes
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
5002	5002-01	Tanque de agua AAA – Baramaya	
5002	5002-04	Bombas AAA - Tierra Santa	
5004	5004-06	Bombas AAA Ondeo - La Vaquería	
5004	5004-06	Planta Compacta AAA - Tibes	

5004	5004-06	Planta Filtros AAA - Ponce Vieja	
5004	5004-06	Represa AAA - Tibes	
5004	5004-06	Tanque AAA - La Ferry	
5004	5004-06	Tanque AAA - Planta Vieja	
5004	5004-06	Represa Tibes	
5004	5004-06	Bombas AAA - El Paraiso	
5004	5004-06	Bombas AAA - La Yuca	
5004	5004-07	Bombas AAA - Valle Alto	
5005	5004-07	Ofic. Regional AAA	
5007	5004-07	Bomba AAA (T-2) detrás Camino del Sur	
5007	5007-05	Bombas AAA #1 - #8, #10 - Santa Cruz	
5011	5011-03	Bombas AAA – Caracoles	
5012	5012-03	Planta Compacta AAA-Hogares Seguros	
5012	5012-03	Represa Lago Cerillo	
5012	5012-04	Tanque AAA - Rio Chiquito	
5013	5013-01	Bombas AAA	
5013	5013-02	Planta Compacta - Real Anón	
5016	5016-01	Bombas AAA - Camino del Sur	
5016	5016-01	Bombas Aguas Usadas, Urb. Villa del Carmen	
5016	5016-02	Bombas AAA - La Guancha	
5016	5016-03	Bomba Pozo Nicole, Costa Caribe	
5018	5018-01	Bombas AAA Montemar Apartments	
5018	5018-02	Planta Filtración AAA – Magueyes	
5018	5018-04	Oficina Comercial AAA	
5018	5018-04	Oficina Comercial AAA - Calle Villa	
5019	5019-01	Compañía de Aguas – Ponce	
5019	5019-01	Taller mecánico Campañta de Aguas	

5019	5019-01	Tanque AAA - Brisas del Caribe	
5019	5019-02	Tanque AAA - Sector Caliche	
5021	5021-01	Bomba AAA - Lagrimas-2	
5021	5021-01	Planta Compacta AAA - Guaraguao	
5021	5021-01	Tanque AAA - Guaraguao/Lomas	
5021	5021-01	Tanque AAA - Iglesia Santas Pascuas	
5901	5901-01	Academia de la Policia	
5901	5901-01	Cuartel de Policía - Villalba	
5901	5901-02	Guardia Municipal Villalba	
5013	5013-02	EB EL LAGO	
5013	5013-03	EBAS JACAGUAS	
5013	5013-03	POZO CEIBA	
5013	5013-03	POZO PUENTE	
5013	5013-03	POZO RIOS	
5013	5817-02	POZO EXPERIMENTAL	
5013	5817-02	POZO LA FE	
5801	5801-01	EBAS POTALA PASTILLO	
5801	5801-02	POZO PASEO SOL Y MAR	
5801	5801-04	EBAS POTALA SERRANO	
5802	5802-01	EBAS ESTANCIAS DEL SUR -- AAA	
5802	5802-01	EBAS VALLE HUCARES	
5802	5802-03	EBTK EL QUEMAO	
5802	5802-03	EBTK GUAYABAL II "HER & AMY	
58020	5802-03	EBTK GUAYABAL III " EL CERRO "	
5802	5802-05	EBAS LEONARDO SANTIAGO	
5802	5802-05	EBAS LOMAS	
5803	5802-03	EBAS GUAYABAL I -- BO	
5803	5802-03	EBAS GUAYABAL II	
5803	5803-02	EB VILLAS DE RIO CAÑAS	
5803	5803-02	EBAS COLINAS VERDE AZUL	
5803	5803-02	EBAS MONTE SOL	

5803	5803-02	EBAS PASEOS DE LOS REYES	
5803	5803-02	EBAS SANTA MARTA	
5803	5803-02	POZO AMELIA I	
5803	5803-02	POZO AMELIA II	
5803	5803-02	POZO DAYAN	
5803	5803-02	POZO ESTANCIAS DEL SUR	
5803	5803-02	POZO LOS REYES	
5804	5804-01	EBTK CUEVAS I	
5804	5804-01	EBTK MAGAS	
5804	5804-02	EBTK PROVINCIA	
5804	5804-02	EBTK UBUEYES -- RIO CANAS	
5805	5803-02	EBTK CORRAL FALSO	
5805	5803-02	POZO AGUSTINILLO	
5817	5817-02	POZO ARUZ NUEVO (PARQUE)	
5817	5817-02	POZO ARUZ VIEJO (PUENTE)	
5817	5817-02	POZO VERTEDERO	
5901	5901-01	EB ROMERO	
5901	5901-01	EBAS JAGUEYES	
5901	5901-01	EBS JAGUEYES II	
5901	5901-01	PF JAGUEYES (VILLALBA)	
5901	5901-01	PF VILLALBA (ILUM)	
5902	5902-02	EB SISTEMA AEREACION REPRESA TOA VACA	
592	5902-02	EBTK CAMARONES	
5902	5902-03	CASETA LAGO TOA VACA	
5902	5902-03	EB CRUDA PF LAGO TOA VACA	
5902	5902-03	EB SISTEMA AEREACION REPRESA TOA VACA	
5902	5902-03	EBS HIGUERO	
5902	5902-03	EBTK PALMA SOLA II	
5902	5902-03	REPRESA TOA VACA (VALVULA DISTRIBUCION)	
5902	5902-03	TK CERRO GORDO	
9901	9901-02	EBTK TORO NEGRO	
5901	5901-02	Specialty Family Clinic	
5901	5901-03	Centro de Salud San Cristóbal	
Critical Facilities Level 2			
Substation	Feeder	Customer	
5803	5803-02	Emisora WCGB	

Critical Facilities Level 3			
Substation	Feeder	Customer	
5001	5001-02	Escuela Aguayo	
5001	5001-03	Escuela de Medicina-2	
5001	5001-03	Instituto Tecnológico	
5001	5001-04	Escuela Andrés Grillasca	
5001	5001-05	Escuela Ismael Maldonado	
5001	5001-05	Teatro U.P.R.	
5002	5002-01	Colegio El Ave Maria	
5002	5002-01	Escuela Julio Alvarado	
5002	5002-02	Colegio San Conrado	
5002	5002-02	Escuela Antonio Paoli	
5002	5002-02	Escuela Dr. Pila	
5002	5002-03	Escuela Joaquín Ferrán	
5003	5003-02	Caribbean School	
5003	5003-02	Academia Cristo Rey	
5003	5003-02	Colegio Sagrado Corazón	
5004	5004-06	Escuela Santa Teresita	
5004	5004-06	Escuela Simon Moret	
5004	5004-07	Colegio Ponceño	
5004	5004-07	Escuela Cerrillos	
5004	5004-07	Escuela Rehabilitación Vocacional	
5004	5004-07	Escuela Superior Jardines de Ponce	
5004	5004-09	Escuela de Cosmetología	
5004	5004-09	Escuela Ramos Antonini	
5005	5005-02	Escuela Lucy Grillasca	
5005	5005-04	Escuela Superior Vocacional	
5007	5007-01	Ponce Paramedical College	
5008	5008-01	Instituto de Banca	
5008	5008-01	Instituto de Banca (antes La Riviera)	
5008	5008-02	Colegio de Electricidad	
5008	5008-02	Metro College	
5010	5010-01	Escuela Abraham Lincoln	
5010	5010-03	Colegio Sagrada Familia	

5011	5011-03	Escuela de Medicina de Ponce	
5011	5011-03	Escuela de Urb. Starlight	
5011	5011-05	Escuela Ed. Especial Ramon Marín	
5013	5013-01	Escuela Llanos del Sur	
5013	5013-01	Escuela Pedro Juan Serrallés	
5016	5016-01	Escuela Josephine Bayon	
5016	5016-03	Escuela Angel A. Cordero Bernard	
5016	5018-01	Escuela Dr. Pedro Albizu Campos	
5018	5018-02	Escuela Aurea E. Rivera Collazo	
5018	5018-02	Escuela Betzaida Velázquez	
5018	5018-02	Escuela Las Delicias	
5018	5018-03	Escuela Eugenio Leconte	
5018	5018-04	Escuela Newman	
5019	5019-01	Escuela Pedro Albizu Campos	
5019	5019-01	Escuela Fernando L. Malavé	
5021	5021-01	Escuela Jose E. Betances	
5802	5802-02	Junta de Inscripcion Permanente	
5802	5802-01	Alcaldia - Juana Diaz	
5901	5901-02	Alcaldia - Villalba	
5901	5901-02	Junta de Inscripcion Permanente	
5901	5901-03	Centro de Gobierno - Villalba	
5902	5902-01	Recursos Naturales	
9901	9901-01	Repetidores Antenas-Cerro Punta	
5013	5013-01	Escuela Llanos del Sur	
5013	5013-01	Escuela Pedro Juan Serrallés	
5013	5013-03	Escuela Josefina Cangiano	
5803	5803-01	Escuela Elemental Bo. Amuelas	
5803	5803-02	Escuela Carmen Flores	
5805	5805-01	Head Start de El Trueno	

5817	5817-01	Head Start Bo. La Cuarta	
5817	5817-02	Esc. Santiago Collazo Pérez-Aguilita	
5901	5901-01	Escuela Norma Torres	
5901	5901-01	Escuela Francisco Zayas	
5901	5901-02	Escuela Emilia Bonilla	
5803	5803-02	Hotel El Eden	
5803	5803-02	Motel Marbella	
5802	5802-05	Plaza Juana Diaz Shopping	
5901	5901-03	Villalba Mini Mall	

Yauco District SERT Team

Customer	46,947		
Substation			
Key Transmission Feeders	37100		
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	
5401	04	Escuela Josefa Velez Bauza	Emergency Shelters
5602	01	AAA Aguas Usadas	Wastewater treatment plants
Critical Facilities Level 2			
Substation	Feeder	Customer	
Critical Facilities Level 3			
Substation	Feeder	Customer	
5401	01	Penuelas Plaza	Food Shopping Center

Guayama District SERT Team

Customer	87,793
Substation	4001, 4002, 4003, 4006, 4101, 4201, 4301, 4401, 4402, 46501, 4502, 4503, 4504, 4601, 4602, 4603
Key Transmission Feeders	100, 200, 3700, 4800, 15200, 36300, 37800, 40100, 40200, 40300
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
Guayama District	40100	Aguirre – Jobos TC	Jobos TC – Sub. 4003
	40200	Aguirre – Jobos TC	Jobos TC – Sub. 4003
	37800	Jobos TC – Cayey TC	Cayey TC
	36300	Jobos TC – Maunabo TC	Maunabo TC
	10900	Jobos TC	Glaxo Smirt-Klain - GSK
	10900	Jobos TC	Baxter
	10900	Jobos TC	ALPLA Caribe
	10900	Jobos TC	Correccional de Guayama
	10800	Jobos TC - GSK	Glaxo Smirt-Klain - GSK
	3700	Jobos TC 3750 - 3765	Planta Tratamiento AAA
	3700	3765 - 3760	AES Water System
	3700	3750 - 3769	Centro Comercial Guayama
	3700	3750 - 3731	Univ. Interamerica de PR
	3700	3750-3731	Hospital Menonita Guayama
	3700	3750 - 3797	Stryker
	3700	3797 - 3745	Sub. 4101
	3700	3745 - 3755	Sub. 4201
	3700	3755 - 3770	Maunabo TC
	100	0152 - 0140	Sub. 4001
	100	0152 - 0147	Wal-Mart Supercenter
	100	0147 - 0165	Sub. 4002
	100	0165 - 0169	Sub. 4006
	100	0150 - 0130	AES Ilumina
	15000	15010 - 15031	Sub. 4301

Santa Isabel District	40300	Aguirre 40330 – 40340 Santa Isabel TC	Sub. 4402
	40300	40350 - 40370	PATTERN WIND GENERATION
	40300	Pattern 40360 – 40310 Ponce TC	Ponce TC
	4800	4850 - 4825	Sub. 4601
	4800	4825 - 4840	Wal-Mart
	4800	4870 - 4885	Sub. 4603 y SJ-meet
	4800	4875 - 4861	EATON
	4800	4861 - 4805	Sub. 4602
	200	0260 - 0203	Bombas AAA
	200	0205 - 0205	Hamilton Sundstrand
	200	0250 Jobos TC – 0270 Salinas Sect.	Salinas SECT. HORIZON
	200	0280 Salinas Sect. - 0231	Camp. Santiago
	200	0280 Salinas Sect. - 0231	Sub. 4504
	200	0231 - 0265	Sub. 4502
	100	0150 Jobos TC – 0170 Salinas Sect.	Salinas SECT. HORIZON
	100	0170 Salinas Sect. - 0109	DOW Agroscience
	100	0109 - 0171	Pioneer
	100	0171 - 0145	Sub. 4501
	100	0171 - 0125	Hacienda Las Carolinas
Critical Facilities Level 2			
	Line Number	Description	Customer
Guayama District	100	Jobos TC – Horizon Sect.	
	200	Jobos TC – Horizon Sect.	
Santa Isabel District	4800	Santa Isabel TC – Toro Negro	Línea Averiada
	100	Santa Isabel Sect. – Pastillo Sect 5801	Línea Averiada
	200	Santa Isabel Sect. – Pastillo Sect 5801	Línea Averiada

	100	Salinas 4501 – Santa Isabel Sect.	Línea Averiada
	200	Salinas 4501 – Santa Isabel Sect.	Línea Averiada
Critical Facilities Level 3			
	Line Number	Description	Customer
	15200	Jobos TC	Fabrica (abandonada)
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
4001	4001-02	Bombas AAA	
	4001-03	Bombas AAA	
4002	4002-02	Bombas AAA	
	4002-03	Bombas AAA	
4003	4003-01	Bombas y planta AAA	
	4003-02	Comandancia de la Policia, Bomberos, Tribunal, COE Regional, Hospital Menonita	
	4003-03	Hospital Menonita, Centro Diálisis Fresenium, Centro Emergencia Pavia	
4006	4006-02	Zona Urbana Arroyo	
	4006-04	Centro Comercial de Guayama, Centro Diálisis	
	4006-05	Oficinas Distrito Técnico de Guayama	
4101	4101-01	Bombas AAA	
	4101-02	Hospital Laffayette (Menonita)	
	4101-03	CDT Hospital de Emergencias Arroyo, Cuartel de la Policia, Estacion de Bomberos y Bombas AAA	

4201	4201-01	Bomba y planta AAA	
	4201-02	Cuartel de la Policia, CDT Hospital de Emergencias Patillas, COE Municipal	
	4201-03	Bomba y Planta AAA, **Represa Patillas**	
	4201-04	Bomba de AAA y Represa Patillas	
4301	4301-01	CDT Hospial emergencias Maunabo, Cuartel de la Policía, Estación Bomberos COE Municipal y Planta AAA	
	4301-02	Bomba y planta AAA	
	4301-03	Bomba AAA	
	4301-04	Bombas AAA	
4401	4401-02	CDT Hospital de Emergencias Santa ISabelFamiliar	
	4401-03	Cuartel de la Policia, COE, Bomberos	
4402	4402-01		
	4402-02		
4501	4501-01	CDT Hospital SAlinas, COE Municipal	
	4501-02	Bombas AAA	
4504	4504-01	CDT Hospital Emergencias	
4602	4602-02	COE Municipal, Cuartel de Policia Bomberos, Hospital Menonita	
	4602-03	Hospital Municipal Coamo	

Critical Facilities Level 2			
Substation	Feeder	Customer	Comments
4001	4001-03	Police Antenna	
4002	4002-02	Antenna WIBS 1540 AM Radio	
4003	4003-01	Centro Sor Isolina Ferre	
	4003-02	WIBS 1540 AM Radio AM, WAPA Radio WXRF 1590	
	4003-03	Centro Dialisis Fresenium, ALCALDIA	
4006	4006-04	Centro de Dialisis, Centro de Envejecientes Santa Ana	
4101	4101-03	ALCALDIA	
4201	4201-02	ALCALDIA	
	4201-04	X-61 WEXS 610 AM Radio Patillas	
4301	4301-01	ALCALDIA	
	4301-02	Egida de la Policia	
4401	4401-01	ALCALDIA	
4501	4501-01	WHOY 1210 AM Radio Salinas , ALCALDIA	
4603	4603-01	WCPR 1450 AM Radio Coamo	
Critical Facilities Level 3			
Substation	Feeder	Customers	
4001	4001-01	Esc. Calimano	**433 Customers** - POSSIBLE SHELTERS
	4001-02		**795 Customers**
	4001-03	Esc. Guamani, Carite Head Star	**1950 Customers** - POSSIBLE SHELTERS
	4001-04	Esc. Carioca, Colegio Guamani	**1350 Customers** - POSSIBLE SHELTERS
4002	4002-01		**751 Customers**
	4002-02		**2132 Customers**
	4002-03	Esc. Costa Azul	**810 Customers** - POSSIBLE SHELTERS
4003	4003-01	Head Star Santa Ana, Esc. Puerto Jobos, Esc. Intermedio Puente Jobos,	**3454 Customers** - POSSIBLE SHELTERS

		Centro Sor Isolina Ferre	
	4003-02	Esc. Pales Mato, Fondo Seguro del Estado, Esc. Superior, Instituto Tecnológico, Academia San Antonio, Colegio Guamaní	**4222 Customers** - POSSIBLE SHELTERS
	4003-03	Colegio San Patrick, Esc. Simon Madera	**2208 Customers** - POSSIBLE SHELTERS
4006	4006-01		0
	4006-02	Esc. Superior Jardines de Arroyo	**1186 Customers** - POSSIBLE SHELTERS
	4006-03		0
	4006-04	Head Star Villa Rosa.	**217 Customers**
	4006-05	Colegio Cristiano Bautista	**469 Customers**
4101	4101-01	Esc. La Palma, Head Star La Palma	**2150 Customers** - POSSIBLE SHELTERS
	4101-02	Esc. Jardines de Arroyo	**944 Customers** - POSSIBLE SHELTERS
	4101-03	Esc. Superior Arroyo, Esc. Calle Morse, Head Star Arroyo, Colegio Mayor de Tecnología	**1715 Customers** - POSSIBLE SHELTERS
	4101-04	Esc. Yaurel, Esc. Pitahaya, Esc. Intermedia Bda. Marín, Esc. Las 500	**2910 Customers** - POSSIBLE SHELTERS
4201	4201-01	Esc. El Bajo, Esc. Los Pollos, Esc. Jacaboa, Head Star Jacaboa	**2736 Customers** - POSSIBLE SHELTERS
	4201-02	Esc. Superior de Patillas, Head Star El Mamey	**1465 Customers** - POSSIBLE SHELTERS
	4201-03	Esc. Zona Urbana, Esc. Marín	**1092 Customers** - POSSIBLE SHELTERS

	4201-04	Esc. Cacao Alto, Esc. La Mula, Esc. Quebrada Arriba, Esc. El Real	**2146 Customers** - POSSIBLE SHELTERS
4301	4301-01	Esc. Talante, Esc. Superior Urbana, Head Star Zona Urbana, Head Star Bo. Qda. Arriba	**1512 Customers** - POSSIBLE SHELTERS
	4301-02	Esc. Bordaleza	**1893 Customers** - POSSIBLE SHELTERS
	4301-03	Esc. Palo Seco, Esc. Calzada, Head Star Lizas, Esc. Matuyas	**1616 Customers** - POSSIBLE SHELTERS
	4301-04	Esc. Guardarraya, Esc. Recio	**1008 Customers** - POSSIBLE SHELTERS
4401	4401-01	Esc. Playita Cortada, Esc. Velazquez	**1720 Customers** - POSSIBLE SHELTERS
	4401-02	Esc. Elementar, Zona Urbana, Esc. Parcela Paso Seco	**2766 Customers** - POSSIBLE SHELTERS
	4401-03	Esc. La Playa, Esc. Superior	**781 Customers** - POSSIBLE SHELTERS
	4401-04	Esc. Jauca	**1303 Customers** - POSSIBLE SHELTERS
4402	4402-01		**339 Customers**
	4402-02	Esc. Rio Jueyes, Esc. Los Flores	**2342 Customers** - POSSIBLE SHELTERS
4501	4501-01	Esc. Superior, Esc. Intermedia Zona Urbana, Colegio, Head Star Urbano, Head Star La Margarita	**1199 Customers** - POSSIBLE SHELTERS
	4501-02	Head Star Monserrate	**1203 Customers**
	4501-03		**882 Customers**
	4501-04	Esc. Godreu	**1339 Customers** - POSSIBLE SHELTERS
	4501-05	Head Star, Esc. La Playa, Esc. La Playita	**1411 Customers** - POSSIBLE SHELTERS
4502	4502-01		**892 Customers**
	4502-02	Esc. El Coco	**1590 Customers**
4503	4503-01	Esc. Aguirre, Esc. El Coqui, Esc. San Felipe	**2243 Customers** - POSSIBLE SHELTERS
	4503-02		**312 Customers** - POSSIBLE SHELTERS

	4503-03		0
4504	4504-01	Esc. Parcelas Vazquez	**985 Customers** - POSSIBLE SHELTERS
	4504-02	Esc. La Plena	**781 Customers** - POSSIBLE SHELTERS
	4504-03	Esc. Sabana Llana	**600 Customers -** POSSIBLE SHELTERS
4601	4601-01		**1829 Customers**
	4601-02	Esc. Penuelas	**392 Customers** - POSSIBLE SHELTERS
	4601-03		0
	4601-04		**1807 Customers**
4602	4602-01	Esc . Cuyon, Esc. Santa Ana, Esc. Palmarejo	**2772 Customers** - POSSIBLE SHELTERS
	4602-02	Esc. Superior Urbana	**2133 Customers** - POSSIBLE SHELTERS
	4602-03	Esc. Zona Urbana (3), Esc. San Diego	**2536 Customers** - POSSIBLE SHELTERS
	4602-04	Esc. Intermedia Zona Urbana	**51 Customers** - POSSIBLE SHELTERS
	4602-05		**29 Customers**
4603	4603-01	Esc. Superior Zona Urbana II, Esc. Santa Catalina, Esc. Coamo Arriba, Esc. Pedro Garcia	**2496 Customers** - POSSIBLE SHELTERS
	4603-02	Esc. Los Llanos	**1048 Customers** - POSSIBLE SHELTERS

San Juan Region

San Juan (Monacillo & Río Piedras) Districts SERT Team

Customer	268,909		
Substation	1204, 1206, 1303, 1346, 1908, 1106, 1111, 1113, 1118, 1301, 1310, 1335, 1336, 1401, 1414, 1419, 1421, 1424, 1437, 1330, 1338, 1420		
Key Transmission Feeders	L37900, L36200, Monacillo TC, Llorens Torres SC, Martin Peña GIS, Berwind TC, Villa Prades SC, L8900, Tres Monjitas SC, Hato Rey TC, L8900, Baldrich SC, L7300, L6600		
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	
1204	1204-03	Water	Represa Carraízo (resguardo)
1204	1204-05	Hospital	Hospital Capestrano
1206	1206-03	Hospital	CDT Trujillo Alto
1206	1206-04	Alcaldía	Alcaldía Trujillo Alto, Cuartel Policía
1303	1303-02	Hospital	Hospital Pavía
1346	1346-05	Hospital	Hospital San Gerardo
1908	1908-05	EOC	Oficina Manejo Emergencias Estatal
1106	1106-02	Flood Control	Bombas Recursos Naturales
1106	1106-04	Waste Water	Planta Filtración Las Margaritas
1111	1111-01	Hospital	Hospital Pavía Santurce
1111	1111-02	Hospital	Hospital Pavía Hato Rey
1113	1113-01	Hospital	CDT El Belavar
1118	1118-10	Hospital	Hospital San Jorge
1301	1301-03	Waste Water	Planta Filtración calle Neblin

1310	1310-05	Waste Water	Planta Filtración University Gardens
1335	1335-01	Hospital	CDT Parcelas Falú
1336	1336-08	Flood Control	Bombas Recursos Naturales Laguna San José
1401	1401-07	Hospital	Clínica Las Américas
1414	1414-02	Police	Cuartel Municipal Ave. Eleanor Roosevelt
1419	1419-13	Police, Waste Water	Cuartel General Policía, Planta Filtración Nemesio Canales, Correo General USPS
1421	1421-03	Water	Bombas AAA, Égida La Merced
1424	1424-06	EOC	Parque de Bombas c/Domenech y Canal 6
1424	1424-07	Hospital	Torre Médica Auxilio Mutuo, Centro de diálisis, Centro para Tratamiento del Cáncer, Unidad Transplante de Riñón
1437	1437-01	Hospital	CDT San José
Critical Facilities Level 2			
Substation	Feeder	Customer	
1421	1421-04	Banco	Banco Cooperativo
1330	1330-04	Radio	Estación de Radio NotiUno
Critical Facilities Level 3			
Substation	Feeder	Customer	
1346	1346-04	Comercial	Centro Comercial Plaza Olmedo
1303	1303-03	Comercial	Centro Comercial Los Paseos
1303	1303-04	Comercial	Centro Comercial Montehiedra
1338	1338-03, 1338-04	Comercial	Casco Urbano Río Piedras
1420	1420-03, 1420-04	Comercial	Centro Comercial Plaza Las Américas

San Juan (Carolina) District SERT Team

Customer	52,736		
Substation	1602, 1607, 1615, 1616, 1617, 1618, 1619, 1646, 1647, 1652, 1657, 1658		
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
	3100	Hospital	Hospital UPR Dr. Federico Trilla
	3100	Hospital	Doctors Center Hospital
	3600	Aeropuerto	LMM Int,l Airport
	3600	Planta Tratamiento Aguas Negras	AAA

Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	3600	Food Warehouse	Econo
	3100	Large Employer	Lilly Del Caribe Pharmaceuticals
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
2402	03	Metro Pavía Clinic	
1657	03	Municipio Carolina	Centro de Mando Isla Verde, Palmar Norte
1646	05	Bomberos	Bomberos, Ave. Roberto Clemente, Villa Carolina
1647	08	Policía	Policía – Comandancia Carolina pueblo
1336	06	Policía	Policía - Carolina Oeste, Ave. Iturregui
1619	02	Policía	Policía – Carolina Norte Calle Andorra Urb. Vistamar
1336	06	FAA	Comunicación – Facilidades FAA marginal Baldorioty de Castro, Carolina
1646	02	Municipio Carolina	Comunicación s -Centro de Operaciones Municipal Carr. 877
1607	03	Municipio Carolina	Comunicación – Centro Gobierno Barrazas, Carr. 853 km. 11.0
1657	02	AAA	Bombas detrás Cond. Verde C/violeta Biascochea.
1118	02	AAA	Calle 7 Final Villa Mar
1619	01	AAA	Carr. 190 k0 H6 calle Evita Eq. Patty Urb. La Cerámica
1620	05	AAA	Carr. 860 KM 1.5 Residencial Los Mirtos
1602	05	AAA	Carr 860 K1 H1 Bo Martin González
1602	05	AAA	Carr 3 R860 K3 H2 Bo Martin González
1607	03	AAA	Carr 853 K 8 H 1 Bo. Barrazas
1646	02	AAA	Calle C Esq Calle D Urb. Jardines de Carolina
1646	01	AAA	Carr3 R887 K0 H9 Bo Martin González
1607	03	AAA	INT 852 (al lado puente pequeño)
1607	03	AAA	Carr 181 K15 H9
1607	03	AAA	Carr 3 R853 K11 H7 Bo Barrazas
1607	01	AAA	Carr 3 R857 K9 H5 Bo Carruzo
1602	04	AAA	Carr 859 K3 H6 BOMBAS 6 BO Trujillo alto
1607	01	AAA	Carr 3 R857 K9 H5 Bo Filipinas
1607	01	AAA	Carr 3 R857 K9 H5 Bo Carruzos
1607	01	AAA	Carr 185 K12 H4 Bo. Cedros

1602	01	AAA	Calle Agustín Cabrera Final Norte pueblo
1607	01	AAA	Carr 856 A 857 Bo Barrazas
1602	04	AAA	Carr Municipal Sector El Trompito Est. Bombas 7
1646	01	AAA	Carr 3 R887 K0 H6 Carolina
1646	02	AAA	Carr 3 R887 Victoria Ind. Park Bo. Martín González
2402	03	AAA	65 Infantería K11 H1
1602	03	AAA	Almendro final Bo Buenaventura
2404	07	AAA	Camino Cambute R857 K0 H9
1602	04	AAA	Carr 859 KO H1 Trujillo Bajo
1602	04	AAA	Carr 853 KM 3.5 Entrada izquierda, después de buzones
1602	04	AAA	Carr 3 R853 K0 H2 Bo Barrazas
1647	08	AAA	Cstt874 K2 H3 Bo Hoyo Mulas
1646	05	AAA	Ave. Roberto Clemente, Villa Carolina
Critical Facilities Level 2			
Substation	Feeder	Customer	
1647	08	Alcaldía de Carolina	
Critical Facilities Level 3			
Substation	Feeder	Customer	
1647	06	Large Employer	Plaza Carolina
1647	07	Large Employer	Plaza Carolina
1657	01	Large Employer	Hotel El San Juan Casino, Ave. Isla Verde, Carolina
1657	03	Large Employer	Hotel ESQ Tower Ave. Isla Verde, Carolina
1658	13	Large Employer	Hotel Ritz Carlton, Ave Isla Verde, Carolina
1658	15	Large Employer	Hotel Embassy Suite Ave. Isla Verde, Carolina
1657	01	Large Employer	Hotel Intercontinental, Ave. Isla Verde, Carolina
1658	14	Large Employer	Hotel Hampton, Ave. Isla Verde, Carolina
1658	14	Large Employer	Hotel Marriot Courtyard, Carr. 187, Ave. Isla Verde

Canóvanas District SERT Team

Customer	56,855		
Substation	2301, 2302, 2305, 2306, 2401, 2402, 2403, 2404		
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
	11100	AAA Planta de Tratamiento de Aguas Usadas Carr. # 874 final, Barrio Torrecilla Alta, Canóvanas	AAA
	3100	AAA Planta de Filtración Carr. # 3, Barrio San Isidro, Canóvanas	AAA
	3100	AAA Planta de Distribución (El Yunque) Carr. # 3 25.2, Ramal 955, KM 0.1 Río Grande	AAA
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	10300	Food Warehouse	Econo
	3100	Large Employer	IPR Pharmaceutical
	10300	Large Employer	Hipódromo Camarero
	3100	Large Employer	Prime Outlets
	3100	Large Employer	Hotel
	3100	Large Employer	Rio Grande Town Center
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
2401	02	Canóvanas CDT – Hospital Municipal Canóvanas	
2402	02	Concilio de Salud Integral de Loíza	
2302	03	CDT Rio Grande - Community Health Center	

2401	02	Alcaldía - Canóvanas	
2403	01	Alcaldía – Loíza	
2301	03	Alcaldía – Rio Grande	
2401	02	Municipio Canovanas	Defensa Civil - Calle Autonomía Canóvanas
2402	02	Municipio Loiza	Defensa Civil – Municipio Loíza Antiguo Parque de bomba, La Cueva de María
2301	03	Municipio Rio Grande	Defensa Civil - Calle Soledad Antiguo CDT (emergencia) Rio Grande
2402	02	Bomberos	Calle Corchado (al lado cuartel policía), Canóvanas
2403	01	Bomberos	Carr. 187 Int. Carr. 188 Loíza
2301	03	Bomberos	Carr. 187 km 1.0 Urb. PH Hernández Rio Grande
2401	02	Policia	Calle Corchado Canóvanas
2403	01	Policia	Carr. 188 Esq Carr 187 Barrio Honduras Loíza
2301	02	Policia	Calle del Carmen, Rio Grande
2401	01	Municipio Canovanas	Obras Públicas – Carr 185 km 1.5 frente a entrada Hipódromo el Camarero, Canóvanas
2403	01	Municipio Loiza	Obras Públicas – Carr 187 km 10.2 Medianía Baja Loíza
2301	03	Municipio Rio Grande	Obras Públicas – Carr. 187 km 1.0 Urb. PH Hernández - Rio Grande
2702	01		Torres de Comunicación Carr. 191 km 13 El Yunque Rio Grande
2702	02		Facilidades FAA El Yunque, Pico El Este
2404-08	08	AAA	Bombas Campo Rico
2404	08	AAA	Bombas El Comandante
2401	01	AAA	Bomas Neumática
2401	01	AAA	Bombas Martín Rodríguez I y II
2401	01	AAA	Bombas Tanque Carruzo I
2401	01	AAA	Bombas Tanque Carruzo II
2401	01	AAA	Bombas La Condesa
2401	01	AAA	Bombas Cubuy

2401	01	AAA	Bombas Colinas de Cubuy
2402	01	AAA	Bombas Loíza Valley
2404	06	AAA	Bombas La Central II
2404	06	AAA	Bombas Torrecillas
2401	01	AAA	Bombas Peniel
2404	08	AAA	Bombas Alturas de Campo Rico
2404	08	AAA	Bombas Quintas de Canóvanas
2404	06	AAA	Bombas Brisas de Loíza
2403	02	AAA	Bombas Quintas de San Isidro
2403	02	AAA	Bombas Tierra Alta
2403	01	AAA	Bombas Alcantarillado
2402	02	AAA	Bombas Alcantarillado
2403	01	AAA	Bombas Alcantarillado
2403	01	AAA	Bombas Alcantarillado
2402	02	AAA	Bombas Alcantarillado
2403	01	AAA	Bombas Alcantarillado El Cabo
2402	02	AAA	Bombas Alcantarillado Vistas del Océano
2306	01	AAA	Bombas Alcantarillado Los Árboles
2301	03	AAA	Bombas Alcantarillado Hong Kong
2306	01	AAA	Bombas Alcantarillado Coco Beach
2306	01	AAA	Bombas Alcantarillado Río Grande Estates
2301	01	AAA	Bombas Alcantarillado Villas Río Grande
2306	01	AAA	Bombas Alcantarillado Río Grande Estates
2306	01	AAA	Bombas Potable Las 3T Etapa 2
2306	01	AAA	Bombas Potable TQ Las 3T, Etapa 4
2306	01	AAA	Bombas Potable TQ Las 3T, Etapa 3
2306	01	AAA	Bombas Potable TQ Las 3T, Etapa 1
2306	03	AAA	Bombas Potable Río Mar
2301	02	AAA	Bombas Guzmán Arriba

2301	02	AAA	Planta Tratamiento Guzmán Arriba
2301	02	AAA	Bombas Guzmán Arriba (Río)
Critical Facilities Level 2			
Substation	Feeder	Customer	
2201	04	Depto Correccion	Correctional El Zarzal
Critical Facilities Level 3			
Substation	Feeder	Customer	
2305	03	Windham Rio Mar	Large Employer
2302	03	Bahia Beach Resort	Large Employer

Bayamon Region

Bayamon(Guaynabo)District SERT Team

Customer	189,072
Substation	1579, 1359, 1374, 1367, 1584, 1589, 1368, 1583, 1365, 1365, 1366, 1582, 1987, 1996, 1995, 1162, 1572, 1571, 1599, 1578, 1973, 1992, 1988, 1964, 1166, 1013, 1014, 1100, 1114, 1115, 1117, 1119, 1120, 1359, 1529, 1531, 1709, 1907, 1909, 1911, 1118, 1519, 1011, 1116, 1512, 1520, 1901, 1924
Key Transmission Feeders	L8900, L10100, L3000, L3400, L7100, L5900, L3900, Isla Grande GIS, Covadonga GIS, Viaducto TC, L7100, Planta Santurce SC, L39200, Centro Médico SC, L15500, L16600, L38300, L10100, L37500, L3900, Llorens Torres SC, San Fernando SC, L6800, Sub Guaynabo SC
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
	8900	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
	10100	Hospital	Hospital Metropolitano
	3000	Water	Bombas AAA Piedras Blancas
	3000	Government	Centro Gobierno Guaynabo
	3400	Hospital	CDT Guaynabo
	7100	Hospital	Doctor's Center Hospital
	5900	Water	1572 Bombas AAA Puerto Nuevo
	3900	Militar	1793 Fort Buchannan
	3900	Fuel	1991 Texaco (Puma)
	3900	Fuel	1977 Standard Oil (Total)
	8900	Hospital	Centro Médico SC
	15500	Hospital	Centro Médico SC
	16600	Hospital	Centro Médico SC

Critical Facilities Level 2

	Line Number	Description	Customer
	5900	Transportation	1571 Navieras de PR (Toto)

	5900	Transportation	1599 Sealand
	5900	Transportation	1578 International Shipping
	3900	Carcel	1992 Carcel Federal
	3900	Prensa	1988 El Nuevo Día
	8000	Transportation	1166 Crowley
Critical Facilities Level 3			
	Line Number	Description	Customer
	3900	Services	1964 Centro Internacional Mercadeo
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
1002	1002-02	EOC	Estación Bomberos
1013	1013-13	Government	Coast Guard, Aduana Federal, Fortaleza y muelles de San Juan
1014	1014-18	Muelles	Comandancia de San Juan, Salvation Army, FDA y muelles 6, 8 y 10 (alimentador amarra con 1120-10), Casa Cuna, Aeropuerto de Isla Grande (Tribunal Supremo)
1100	1100-03	Water	Bombas colectoras de agua en la Ave. Fernández Juncos
1114	1114-01	Hospital	Hotel PRESBY, San Juan Health Center
1114	1114-03	EOC	Centro Gubernamental Minillas
1115	1115-05	Hospital	Hospital Pavía, NEOS (alimentador amarra con 1117-07)
1117	1117-11	Hospital	Hospital PRESBY
1119	1119-04	Police	Cuartel de la Policía, Dispensario HOARE, Hotel Excelsior, Departamento de Justicia Estatal
1120	1120-10	Airport	Aeropuerto de Isla Grande
1359	1359-01, 1359-02, 1359-03, 1359-04, 1359-05, 1359-06	Hospital	Centro Médico de Puerto Rico
1529	1529-12	Hospital, TV	Hospital del Niño, Estación de Televisión WAPA TV (alimentador amarra con 1711-07)
1529	1529-15	Hospital, AEE	Distrito Técnico de Guaynabo, Oficinas Médicas Hospital Metropolitano, Oficinas del 911 (alimentador amarra con 1909-09)
1531	1531-02	Hospital	Clínica Ciencias Médicas
1709	1709-03	Water	Infraestructura AAA Los Filtros
1907	1907-03	EOC	Manejo Emergencias, Complejo Deportivo (refugio)
1907	1907-04	Hospital	Hospital Professional

1907	1907-05	Comm Fac. EOC	Casco Urbano Guaynabo, Estación de Televisión y Radio de Univisión P. R., Alcaldía (alimentador amarra con 1907-04)
1907	1907-07	Water	Infraestructura AAA Los Filtros (alimentador amarra con 1709-03)
1911	1911-06	EOC	FEMA, Oficinas de Agencias Federales, Facilidades de Telecomunicaciones
Critical Facilities Level 2			
Substation	Feeder	Customer	
1115	1115-04	Comunications	Junta Reglamentadora de Telecomunicaciones
1118	1118-09	Comunicaciones	Edificio de Telecomunicaciones frente a Lloréns Torres
1519	1519-05	Comunicaciones	Vivienda Boriquen Towers,Edificio Periódico El Vocero
Critical Facilities Level 3			
Substation	Feeder	Customer	
1117	1117-08	Comercial	Comercios en la Avenida Ashford (alimentador amarra con 1116-04)
1117	1117-09	Comercial	Comercios en Avenida Juan Ponce de León
1529	1529-11	Comercial	Frigorífico
1909	1909-08	Services	Zona Industrial y Residencial
1911	1911-07	Comercial	Centro Comercial San Patricio Plaza
1011	1011-03	Comercial	Comercios Calle Fortaleza (alimentador amarra con 1011-04)
1011	1011-04	Comercial	Comercios del Viejo San Juan y Supermercado Plaza de Armas
1116	1116-01	Comercial	Edificio Cosmopólitan, área residencial grande (alimentador amarra con 1119-04)
1116	1116-02	Comercial	Centro Comercial Plaza Condado (alimentador amarra con 1115-04)
1116	1116-03	Comercial	Hoteles en el área de la Avenida Ashford (alimentador amarra con 1117-11 y 1117-08)
1116	1116-05	Comercial	Hoteles La Concha, Vanderbilt, Ventana al Mar (alimentador amarra con 1116-03 y 1116-08)
1512	1512-04, 1512-05	Comercial	Comercios de la Avenida John F.Kennedy
1520	1520-01, 1520-02, 1520-04, 1520-05	Comercial	Comercios Avenida Franklin D. Roosevelt
1901	1901-01	Comercial	Supermercado Pueblo
1901	1901-02	Comercial	Comercios Avenida Esmeralda

1924	1924-02	Comercial	Centro Comercial San Patricio Plaza

Bayamon (urban)District SERT Team

Customer	189,072		
Substation	1707,1710,1719,1704,1705,1711,1716, 1720, 1734, 9405, 9801		
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
	36,100	Represa La Plata	Sub. BTC @ Sub. Piñas
	4,000	Sub. AEE	Sub. Magnolia @ Naranjito
	10,000	Sub. AEE	Lomas Verdes @ Sub. S. Linda
	9,100	Sub. AEE	BTC @ Sub. Guaraguao
	9,800	Súper Acueducto	Sub.BayPueblo@Sub.Guaraguao
	37,500	Sub. AEE	BTC @ Rio Bayamón
	36,100	Sub. AEE	BTC @ Rio Bayamón
	38,200	Sub. AEE	BTC @ Corredor La Cambija
	37,600	Sub. AEE	BTC @ Corredor La Cambija
	37,700	Sub. AEE	BTC @ Corredor La Cambija
	37,400	Sub. AEE	BTC @ Corredor La Cambija
	4,300	Hospital San Pablo	BTC @ Sub. Bayamón Pueblo
	4,100	Naranjito Pueblo	Sub. Guaraguao @ Comerío
Critical Facilities Level 2			
	Line Number	Description	Customer
Critical Facilities Level 3			
	Line Number	Description	Customer
	4,000	Kmart, Home Depot	Sub. Magnolia @ Naranjito
	9,800	Cadillac Unifor, Pan Pepín, Cotsco	Sub.BayPueblo@Sub.Guaraguao
	3,400	UPR Recinto Bayamón	Sub Guaraguao @ Sub.UPR Bay
	10,000	Universidad Central	Lomas Verdes @ Sub. S. Linda
	10,700	Universidad Central Bayamón	Sub.BayPueblo@Sub.Hnas Dávila
	4,900	Plaza del Sol	Bay Pueblo @ PSP
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	

Caná	1710-01	Hospital Regional Bayamón	
Caná	1710-01	Cuartel Policía Bayamón Sur	
Sierra Linda	1704-03	Cuartel Bayamón Oeste	
Hmnas Dávila	1705-03	Bomberos P.R.	
BTC 1711	1711-01	Defensa Civil Bayamón	
BTC 1711	1711-01	Hospital Hermanos Meléndez	
BTC 1711	1711-01	Hospital Doctor Center	
BTC 1711	1711-01	Bayamón Health Center	
BTC 1711	1711-04	Comandancia Bayamón	
BTC 1711	1711-04	Manejo de Emergencias Bayamón	
BTC 1711	1711-04	Cuartel Bayamón Norte	
BTC 1711	1711-05	MEPSI Center	
BTC 1716	1716-01	Torre Medica San Pablo	
PIÑAS 9405 13KV	9405-05	Bombas AAA Ave. Toa Alta Heights	
Interamericana	1719-18	Bombas AAA	
Caná	1710-05	Bombas AAA	
Caná	1710-03	Bombas AAA	
Caná	1710-04	Bombas AAA	
Naranjito	9801-01	Bombas AAA	
Caná	1710-05	Bombas AAA	
Buena Vista	1734-02	Bombas AAA	
Guaraguao	1707-03	Bombas AAA	
Rio Bayamón 2	1720-07	Bombas AAA	
Rio Bayamón 2	1720-07	Bombas AAA	
Critical Facilities Level 2			
Substation	Feeder	Customer	
BTC 1711	1711-01	Centro Judicial	
BTC 1711	1711-01	Centro Judicial	
BTC 1711	1711-05	Fondo del Seguro del Estado	
BTC 1716	1716-02	Centro Gobierno Bayamón	

PIÑAS 9405 13KV	9405-05	Oficina Técnica AAA Carr.861 Toa Alta	
Critical Facilities Level 3			
Substation	Feeder	Customer	
Caná	1710-03	Centro Comercial Rexville Plaza	
Caná	1710-03	Plazoleta Forest Hills	
Caná	1710-01	Escuela Medicina Ramón L. Arnáu	
Interamericana	1719-16	Universidad Interamericana Recinto Bayamón	
BTC 1711	1711-01	Coliseo Rubén Rodríguez	
BTC 1711	1711-01	Estadio Juan Ramón Loubriel	
BTC 1711	1711-01	Santa Rosa Mall	
BTC 1711	1711-01	Acuífero Municipio Bayamón	
BTC 1716	1716-01	Hotel San Miguel	
BTC 1716	1716-02	Hotel Hyatt Place	
BTC 1716	1716-02	Plazoleta Cantón	
BTC 1716	1716-02	Plaza Del Sol	

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

Customer	98,907		
Substation	1801,1802,1803,1806,1703,1711,1713,1717,1718,9203,9207		
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
	9500	Centro Médico Correcional, LINDE GAS, Planta Tratamiento AAA	PE Planta – Cataño PDS
	10700	Super Acueducto A.A.A.	Hato Tejas TC- Dorado TC
	6400	La Malaria AAA	Bay View Sect- Amelia
	9600	PUMA	Cataño PDS - BTC
	6200	Líneas Exclusiva PUMA	Cataño PDS - BTC
Critical Facilities Level 2			
	Line Number	Description	Customer
	9600	CSC Management de PR (Centro Detención Juvenil), Carcel de Mujeres	Cataño PDS - BTC
	9500	Cárcel Correcional Bayamón	PE Planta – Cataño PDS
Critical Facilities Level 3			
	Line Number	Description	Customer
	10700	Panamerican Grain Company, Pepsi, Sprint, Holsum	Hato Tejas TC - Dorado TC
	13300	Plaza del Sol	BTC – Hato Tejas Sect.
	13200	La Famosa	Hato Tejas TC - Dorado TC
	4900	Walmart, Home Depot (Plaza del Sol)	Bayamón Pueblo-Palo Seco
	8200	Switch Claro	Cataño PDS - Amelia
	9600	B. Fernández y Hnos, José Santiago Dist., Puerto Rico Supply	Cataño PDS - BTC

	9500	Almacenes V. Suarez	PE Planta – Cataño PDS
	9700	Bacardi	PS Planta-Bay View Sect
	6400	Recursos Naturales	Bay View Sect- Amelia
Distribution Critical Facilities			
Critical Facilities Level 1			
Substation	Feeder	Customer	
Cataño PDS	1801-02	Comandancia de Bayamón	
Cataño PDS	1801-03	CDT Cataño	
Cataño PDS	1801-03	Bombas AAA La Puntilla	
Cataño PDS	1801-03	Cuartel Estatal y Municipa Cataño	
Cataño PDS	1801-03	Bomberos	
Cataño PDS	1801-03	Bombas AAA El Coquí	
Bay View	1802-01	Bombas Aguas Negras	
Amelia	1803-05	Bombas Puente Wilson	
Palo Seco	1806-01	Bombas AAA Camino del Mar	
Palo Seco	1806-01	Bombas AAA Tercera Levitown	
Palo Seco	1806-02	Técnica de Toa Baja	
Palo Seco	1806-02	Cuartel Estatal de Levitown	
Palo Seco	1806-02	Bombas AAA Levitown	
Palo Seco	1806-03	Bombas AAA	
Hato Tejas	1703-01	CDT Pajaros	
BTC	1711-04	Bombas AAAA Quintas del Río	
BTC	1711-04	Bombas AAA Las Veredas	
Hato Tejas TC	1713-05	Bombas AAA Monte Claro	
Hato Tejas TC	1713-05	BOMBAS Comercial Bayamón	
Hato Tejas TC	1713-05	Bombas AAA Carr. 863	

CREA	1717-01	Centro Emergencia Mohica (CDT Privado)	
CREA	1717-01	Bombas AAA Rio Plantation	
CREA	1717-04	Bombas AAA Plaza del Parque	
Candelaria Arenas	1718-02	CDT Toa Baja	
Candelaria Arenas	1718-02	Bombas AAA Pabellones	
Candelaria Arenas	1718-02	Bombas AAA Las Gaviotas	
Candelaria Arenas	1718-02	Cuartel Municipal	
Candelaria Arenas	1718-03	Bombas AAA Bucarabones	
Candelaria Arenas	1718-03	Bombas Aguas Negras Maedleine	
Candelaria Arenas	1718-03	Bombas AAA Monte Casino	
Dorado TC	9203-02	Bombas de Aguas Negras Toa Baja	
Dorado TC	9203-03	Bombas AAA Campanillas	
Dorado TC	9207-08	Bombas AAA Walmart	
Dorado TC	9207-08	Bombas AAA Las Colinas	
Dorado TC	9207-08	Bombas AAA Las Fuentes	
Bay View Sect-Amelia	6400	Bombas AAA	
Bay View	1802-02	Bombas AAA	
PE Planta-Cataño PDS	LINE 9500	Bombas AAA	
Cataño PDS	1801-03	Bombas AAA	
Cataño PDS	1801-03	Bombas AAA	
Amelia	1803-05	Bombas AAA	
Palo Seco	1806-03	Bombas AAA	
Palo Seco	1806-02	Bombas AAA	
Rio Bayamón 2	1720-07	Bombas AAA	
Interamericana	1719-18	Bombas AAA	
BTC	1711-04	Bombas AAA	
Crea	1717-01	Bombas AAA	
BTC	1711-04	Bombas AAA	
Palo Seco	1806-01	Bombas AAA	

Hato Tejas TC-Dorado TC	10700	Bombas AAA	
Hato Teja	1713-05	Bombas AAA	
Hato Teja	1713-05	Bombas AAA	
Candelaria Arenas	1718-02	Bombas AAA	
Dorado TC	9207-08	Bombas AAA	
Dorado TC	9207-08	Bombas AAA	
Dorado TC	9203-02	Bombas AAA	
Dorado TC	9203-03	Bombas AAA	
Hato Tejas TC-Dorado TC	10700	Bombas AAA	
Dorado TC	9207-08	Bombas AAA	
Dorado TC	9207-08	Bombas AAA	
Dorado TC	9207-08	Bombas AAA	
Critical Facilities Level 2			
Substation	Feeder	Customer	
Amelia	1803-05	Egida Mundo Feliz	
BTC	1711-04	COE Bayamón	
Hato Tejas TC	1713-03	COE Toa Baja	
Candelaria Arenas	1718-01	Quest Diagnostics	
Candelaria Arenas	1718-02	Égida Golden Age Tower	
Critical Facilities Level 3			
Substation	Feeder	Customer	
Cataño PDS	1801-01	Almacen Baxter	
Cataño PDS	1801-01	Almacenes Burguer King	
Cataño PDS	1801-02	Industrial Luchetti	
Cataño PDS	1801-03	Esc. Francisco Oller	
Cataño PDS	1801-05	Industrial Palmas	
Amelia	1803-05	Alcaldia	
Palo Seco	1806-01	Radar Punta Salinas	
Palo Seco	1806-02	Esc. Pedro Albizu Campos	
Palo Seco	1806-02	Alcaldia (Centro AVOLI)	
Palo Seco	1806-03	Royal Industrial Park	
Palo Seco	1806-03	Central Industrial Park	
Hato Tejas	1703-02	Centro de Primates UPR	
Hato Tejas	1703-04	HUBB PRTC	
Hato Tejas TC	1713-03	Liberty	
Hato Tejas TC	1713-04	HUBB T-Mobile	

Crea	1717-01	Esc. Basilio Milan	
Candelaria Arenas	1718-01	Escuela Refugio Carr. 865	
Candelaria Arenas	1718-02	Centro de Gobierno	
Dorado TC	9203-02	Esc. Sup. Toa Baja	
Dorado TC	9203-02	Centro de Gob. Toa Baja	
Dorado TC	9203-03	Esc. Elem. Campanillas Toa Baja	
Dorado TC	9207-08	Centro de Alimentos Atunez	

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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LUMA Energy

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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.

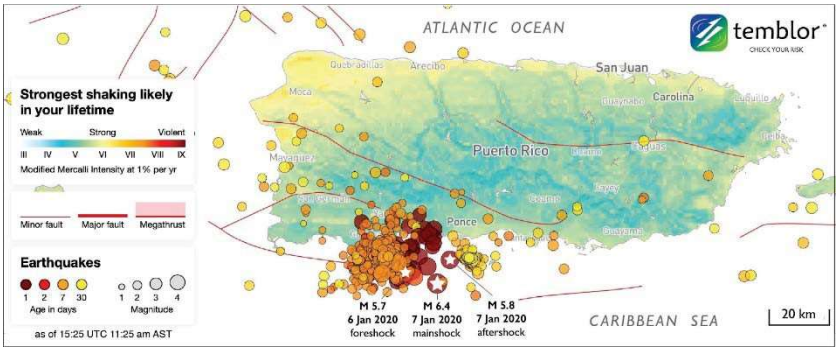

Figure 1- Puerto Rico Earthquakes. Dec. 2019- Jan. 2020 (Source: Temblor)

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:

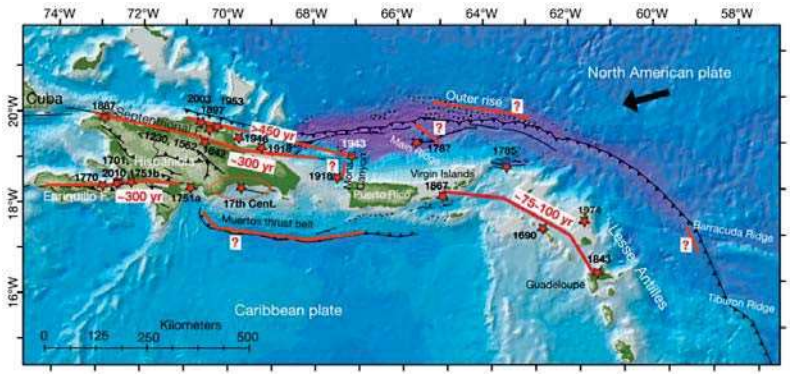

Figure 3- Puerto Rico Fault Lines (Source- U.S. Geological Survey)

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.

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mr. Juan Fonseca
Manager, Revenue Protection Department, LUMA Energy
August 17, 2021

Q. **Please state your name.**

A. My name is Juan Manuel Fonseca Rodríguez.

Q. **Please state your postal business address, title, and employer.**

A. My business mailing address is PO Box 363508 San Juan, Puerto Rico 00936-3508. I am the Manager, in the Revenue Protection Department for LUMA Energy, LLC.

Q. **On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").**

A. My testimony is on behalf of the LUMA before the Puerto Rico Energy Bureau Commonwealth of Puerto Rico Public Service Regulatory Board, Case No. NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. **Are there any exhibits attached to your testimony?**

A. Yes, is one exhibit attached to my testimony:

a. Exhibit A: DSO SUPPORTING DATA V3 (2019-2020)

Q. **What is your educational background?**

A. I graduated from East University in Carolina, Puerto Rico with a Master in Business Administration with a Major in Management.

Q. **What is your professional experience?**

A. I have approximately 19 years of professional experience in the Electric Utility Industry. In 2021, I joined LUMA's Revenue Protection Department as a Manager.

Q. **Please describe your work experience prior to joining LUMA Energy.**

A. I have approximately 24 years of professional experience in the airline and energy utility industry. In 1997 I joined American Eagle as a Customer Service Representative (Bus Driver, Escort and Agent). In 2003, I joined PREPA in customer service as a Customer

Service Clerk. In 2006 I was recruited as an Internal Auditor for PREPA. In 2013, I was recruited to Energy Irregularities Division as a Principal Supervisor. In 2021, I joined LUMA Energy's Revenue Protection Department as a Manager, reporting directly to Jessica Laird, Vice President of Customer Experience.

Q. Do you hold any professional licenses, if so, which?

A. No

Q. Have you previously testified or made presentations before the Energy Bureau?

A. No

Q. Which documents did you consider for your testimony?

A. I considered the following documents:

a. Performance Metric Filing submitted in Case No. NEPR-AP-2020-0025 on February 25, 2021,

b. LUMA's Performance Metrics Targets Revised filing to be submitted on August 18, 2021, in this proceeding, Case No. NEPR-AP-2020-0025,

c. Motion resubmitting LUMA's comments on Performance Baselines and Metrics in Case No. NEPR-MI-2019-0007 submitted February 5, 2021 as revised on February 8, 2021

d. The Resolutions and Order issued by the Puerto Rico Energy Bureau on April 8, 2021, May 21, 2021, and July 2, 2021 in Case NEPR-MI-2019-0007.

e. PREPA's Oracle Customer Care & Billing (CC&B) Report, and

f. PREPA's Monthly Report to the Governing Board (MOR) Report.

Q. What is the subject and purpose of your Direct Testimony?

A. My testimony is in support of LUMA's Performance Metrics Targets for:

a. Days Sales Outstanding ("DSO"): General Customers, which measures the ability to collect payment for general clients' customer billings and is calculated by dividing the year-end amount of general customers' receivables by the total year-end value of general customers' credit sales and multiplying the result by the number of days in that year.

b. DSO: Government Customers, which is calculated by dividing the year-end amount of Government accounts receivable by the total year-end value of government credit sales and multiplying the result by the number of days in that year. It is a performance metric that will reflect the impact of government collections, including critical service installations as defined in the Puerto Rico Energy Transformation and RELIEF Act, Act 57-2014, as amended by the Puerto Rico Energy Public Policy Act, Act 17-2019, and Contribution in Lieu of Taxes (CILT).

Q. Please describe the methodology for the Days Sales Outstanding Performance Metrics.

A. DSO Standard Metrics are common industry practice of dividing the sales, account receivables and days in a specific period, usually consisting of a 365-day period. In LUMA's case, due to the significant variance in the DSO calculation for General and Government customers, has considered these customers separately as two metrics, as allowed by the Energy Bureau in the Resolution and Order of April 8, 2021, in Case No. NEPR-MI-2019-0007.

Q. What data, if any, did you examine for the Days Sales Outstanding Performance Metrics?

A. Multiple data sources were considered as there were discrepancies in two reports that

PREPA provided – the CC&B and the MOR reports. Four years of data were analyzed. Using the MOR and CC&B reports, LUMA developed a dunning process where Customer Service would methodically communicate with customers to ensure the collection of accounts receivable and that would enable LUMA to improve DSO.

Q. How was the data used to calculate the baseline for Days Sales Outstanding?

A. The data used to calculate the baseline was the common industry standard DSO calculation for Sales, Receivables, and days of analysis. The Customer Experience Team received conflicting points of data from PREPA. That is, two different reports were received with customer collection data that differed.

After analyzing 4 years of data, LUMA is using FY2019 data from the MOR to calculate the baseline as it represented a standard period for customer collection data. After analyzing four years of data, LUMA discovered that PREPA did not perform any disconnections after Hurricane María until May 2019. In 2020, Puerto Rico and the rest of the world were hit with a pandemic and an executive order was issued to stop disconnections. This executive order is still in place as of August 2021. With these considerations, the most stable period for baseline calculations (normal period of operation) was May 2019-March 2020.

After said analysis, the proposed baseline for DSO General Customers is the average of 131 days during this period and the proposed baseline for DSO Government Customers is the average of 754 days during this period.

Q. What considerations were made upon analyzing the baseline data to set the baselines as proposed by LUMA?

A. The Baseline data was delivered by PREPA to the Energy Bureau in 2019-2020, includes

the period of natural disasters and the current pandemic which affected the collections data for the DSO metric. This extraordinary period impacted, atypically, PREPA's ability to assign proper resources to create, establish, guide, and manage an effective dunning process. LUMA also understands that the baseline data provided by PREPA, which was extracted from Oracle CC&B, includes adjustments between December 2019 and February 2020 to the report extracted from the system, which altered the results to no longer reflect actual figures. LUMA was not able to validate or confirm the adjustments made by PREPA to include in the baseline calculation. Thus, the most accurate data, albeit, without validation or proper audit is the 2019 data from the MOR for DSO Calculations.

Q. What are relevant factors for the DSO Performance Metrics calculations?

A. There are situations outside the Luma Customer Experience team's control that could negatively impact DSO performance and therefore deserve special consideration. For these or similar circumstances, the proposal is to either give relief from or reevaluate the DSO baseline.

Consideration should be given to the fact that the dunning process is limited by Law 57-2014 and Law 17-2019 that establish limitations to start the dunning process in more than 30 days after a bill is send for general clients and more than 45 days for Government accounts. Given that Government orders for disconnections moratoriums negatively impact Luma's ability to execute normal collections processes and manage DSO, LUMA should be relieved of the DSO Performance Metrics during moratorium periods and for 3-6 months after the moratorium been lifted as it is a trailing indicator

Secondly, PREPA does not have formal write off process or procedure. As LUMA develops this write off process in line with industry standards, the outcome will impact

collections data used for DSO metric.

Lastly, LUMA recommends comparing the Puerto Rico economy and poverty lines with Latin American countries that have similar poverty lines percentages, political and cultural structures. The latest census data establishes the poverty line at 43.5% in Puerto Rico, versus the 13.1% for the U.S. average or the 19.7% of Mississippi which is the worst poverty line in the U.S. According to the 2020 World Bank Group Poverty and Equity Division - Brazil, Honduras, Bolivia are comparable to Puerto Rico poverty lines and DSO. Comparing mainland companies with less than a million customers and a poverty line of 14% or less isn't an accurate model to follow and would not be a pragmatic approach to the DSO target metrics in General Customers and Government Customers.

Q. How were LUMA's targets determined?

A. LUMA's targets were determined after analyzing both the baseline data and the external factors that should be considered for DSO metric calculations. Specifically the current economic situation and state of PREPA arrears. Once those considerations were made, LUMA's goal was to effectively measure the progress LUMA must make to improve customer collections while efficiently building and enhancing the Customer Service Revenue Protection team and system (Oracle Customer Care & Billing). Those targets were then set using the team's expertise on the impact of improvements after starting an effective dunning process. The targets for the DSO Performance Metrics are found in Tables 2-21 and 2-22 of LUMA's Revised Performance Metrics Targets Filing.

Q. How does LUMA plan to achieve its targets with the DSO metric?

A. As stated in Section 3 of the LUMA's Performance Metrics Targets Revised Filing, LUMA is prioritizing establishing strong processes in their Revenue Protection team, including

developing a fulsome dunning process, where Customer Service would methodically communicate with customers to ensure the collection of accounts receivable, and enhancing the Oracle Customer Care & Billing platform to produce accurate reporting consequently improving the accuracy of our DSO calculations.

Q. In brief, what are your recommendations?

I recommend the Energy Bureau approve the Days Sales Outstanding metrics baselines and the targets and that the metrics for General Customers and Government Customers as presented in LUMA's Performance Metrics Targets Filing, be deferred for a period of three to six months after the government moratorium on collections is lifted.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mr. Juan Manuel Fonseca Rodriguez, being first duly sworn, states the following:

The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that he would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is his direct testimony and to the best of his knowledge are true and correct.

Juan Manuel Fonseca Rodriguez

Affidavit No. -0,435-

Acknowledged and subscribed before me by Mr. Juan Manuel Fonseca Rodriguez, in his capacity as Manager, Revenue Protection Department of LUMA Energy, whose full name is as expressed herein, of legal age, married, business manager, and resident of San Juan who is personally known to me.

In San Juan, Puerto Rico, this 18 day of August 2021.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

Direct Testimony

Exhibit A

DSO SUPPORTING DATA V3 (2019-2020)

Direct Testimony

Exhibit B

BILLED SALES VS COLLECTIONS M-8 2020-2021

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mr. Don Cortez
Vice President – Utility Transformation, LUMA Energy Servco LLC
August 17, 2021

Q. Please state your name.

A. My name is Don Cortez.

Q. Please state your business address, title, and employer.

A. My business postal address is LUMA Energy, PO Box 363508, San Juan, Puerto Rico 00936-3508. I am the Vice President of Utility Transformation for LUMA Energy, LLC.

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").

A. My testimony is on behalf of LUMA Energy as part of the Government of Puerto Rico, Public Service Regulatory Board, Puerto Rico Energy Bureau (Energy Bureau) proceeding NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. What is your educational background?

A. I graduated from Texas A&M University in 1976 with a Bachelor of Science Degree in Electrical Engineering.

Q. What is your professional experience?

A. I have approximately 40 years of professional experience in the utility industry. In 2020, I joined LUMA Energy as Vice President of Utility Transformation.

Q. Please describe your work experience prior to joining LUMA?

A. I have approximately 33 years with CenterPoint Energy and its predecessor companies. Ten of the 33 years, I spent turning around companies bought from governments in Argentina, Colombia and Brazil. In my last turnaround assignment, I was the Director of Operations in Eletropaulo (now Enel Distribuição São Paulo) responsible for all of the Transmission and Distribution (T&D) operations. The company served the Sao Paulo

metropolitan area and had (at that time) approximately 4.4 million customers. In my last assignment with CenterPoint Energy, I was the Vice President of Operations Technology responsible for the design of the smart grid and Advanced Metering Infrastructure. I also worked approximately 4 years with IBM in a Global Utilities Executive Business Development role. My last assignment prior to LUMA was working for Quanta Services in an Executive Business Development role.

Q. Do you hold any professional licenses, if so, which?

A. No.

Q. Have you previously testified or made presentations before the Energy Bureau?

A. Yes. I have presented and/or testified before the Energy Bureau in several proceedings as follows:

a. Distribution Planning Resources Compliance Hearing, NEPR-MI-2019-0011 – February 10, 2021

b. Initial Budgets Technical Conference, Case NEPR-MI-2021-0004 – May 3 - May 5, 2021

c. System Operation Principles Technical Conference, NEPR-MI-2021-0001 – May 10 - May 11, 2021

d. System Remediation Plan Technical Conference NEPR-MI-2020-0019 – May 14 and May 17, 2021

Q. Are there any exhibits attached to your testimony?

A. Yes, there are 2 exhibits attached to my testimony:

a. Exhibit A: The Excel spreadsheet showing the estimated expected annual percent improvements and resulting performance targets for System Average Interruption

Frequency Index (SAIFI) System Average Interruption Duration Index (SAIDI).

b. Exhibit B: The Excel spreadsheet showing the estimated expected cumulative annual percent of total infrastructure inspections and resulting performance targets for Distribution Line Inspections & Targeted Corrections; Transmission Line Inspections & Targeted Corrections; and T&D Substation Inspections & Targeted Corrections.

Q. Which documents did you consider for your testimony?

A. The documents I reviewed include:

- Exhibit 2 - LUMA's Comments on Performance Metrics Baselines in LUMA's Motion of February 5, 2021 resubmitting LUMA 's comments and proposals regarding PREPA's performance, baselines and metrics, in compliance with Resolution and Order of December 23, 2020, and based on data published by the Energy Bureau and presented during technical conference held on January 19th, 2021, Case No. NEPR-MI-2019-0007.
- The Energy Bureau's April 8th, 2021 Resolution and Order issued in Case No. NEPR-MI-2019-0007, subject of Findings on Performance Baseline data and analysis and request for additional information.
- The Energy Bureau's May 21st, 2021 Resolution and Order subject as Final Performance Baseline data and Benchmarks in Case No. NEPR-MI-2019-0007.
- Exhibit 1 of LUMA's Petition for Approval of Initial Budgets and Related Terms of Service dated February 24, 2021 Case No. NERP-MI-2021-0004.
- LUMA's Revised filing in this Docket entitled LUMA's Performance Metrics Targets dated August 18, 2021.
- The Excel spreadsheet showing the estimated expected annual percent improvements

and resulting performance targets for System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) provided as Exhibit A.

- The Excel spreadsheet showing the estimated expected cumulative annual percent of total infrastructure inspections and resulting performance targets for Distribution Line Inspections & Targeted Corrections; Transmission Line Inspections & Targeted Corrections; and T&D Substation Inspections & Targeted Corrections provided as Exhibit B.

Q. Did you rely on any other information for your testimony?

A. My professional experience, including my experience in connection with the Transmission and Distribution System of the Puerto Rico Electric Power Authority ("PREPA") and its operations ("T&D System").

Q. What is the subject and purpose of your Direct Testimony?

A. My testimony is in support of LUMA's five proposed Technical Performance Metrics related to reliability performance of the T&D system, including definitions, calculations, data, baselines, and targets.

Q. Which are these five metrics?

A. These five metrics are:

1. System Average Interruption Frequency Index (SAIFI)
2. System Average Interruption Duration Index (SAIDI)
3. Distribution Line Inspections & Targeted Corrections
4. Transmission Line Inspections & Targeted Corrections
5. T&D Substation Inspections & Targeted Corrections

Q. Please describe the performance objective of the System Average Interruption Frequency Index (SAIFI) performance metric.

A. The performance objective of this metric is to incentivize system reliability.

Q. Please describe the SAIFI performance metric.

A. This metric indicates how often the average customer experiences a sustained interruption over a predefined period of time. For LUMA, this is a fiscal year.

Q. What is the definition of sustained interruption?

A. A sustained interruption is an interruption with a duration exceeding five minutes.

Q. How is the SAIFI performance metric calculated?

A. It is calculated by dividing the total number of customers interrupted by the total number of customers served. Each sustained interruption experienced by a specific customer counts towards the total in the numerator.

Q. What is the proposed baseline for the SAIFI performance metric?

A. The proposed baseline for SAIFI is the Fiscal Year 2020 SAIFI of 10.6 interruptions as specified by the Energy Bureau in its May 21st, 2021 Resolution and Order subject Final Performance Baseline data and Benchmarks in Case No. NEPR-NI-2019-0007. Following review of LUMA's comments, analyses and findings detailed in LUMA's Exhibit 2 of LUMA's Comments on Performance Metrics Baselines in LUMA's Motion of February 5, 2021, the Energy Bureau ordered PREPA to recalculate and resubmit the SAIFI value applying the methodology proposed by LUMA in that filing in its April 8, 2021 Resolution and Order.

Q. Please describe the performance objective of the System Average Interruption Duration Index (SAIDI) performance metric.

A. The performance objective of this metric is to incentivize system reliability.

Q. Please describe the SAIDI performance metric.

A. This metric indicates the total duration of interruption for the average customer during a predefined period of time (for LUMA, this is a fiscal year).

Q. How is the SAIDI performance metric calculated?

A. It is calculated by summing the product of the duration of each interruption and the number of customers affected by that interruption for all sustained interruptions during the measurement period then dividing by the total number of customers served.

Q. What is the baseline for the SAIDI performance metric?

A. The proposed baseline for SAIDI is the Fiscal Year 2020 SAIDI of **1,243 minutes** as specified by the Energy Bureau in its May 21st, 2021 Resolution and Order subject Final Performance Baseline data and Benchmarks in Case NEPR-NI-2019-0007. Following review of LUMA's comments, analyses and findings detailed in LUMA's Exhibit 2 of LUMA's Comments on Performance Metrics Baselines in LUMA's Motion of February 5, 2021, the Energy Bureau ordered PREPA to recalculate and resubmit the SAIDI value applying the methodology proposed by LUMA in that filing in its April 8, 2021 Resolution and Order subject of Findings on Performance Baseline data and analysis and request for additional information.

Q. Please describe the methodology used to determine the baseline of the SAIFI and SAIDI Performance Metrics.

A. As described in LUMA's comments, analyses and findings detailed in LUMA's Exhibit 2 of LUMA's Comments on Performance Metrics Baselines in LUMA's Motion of February 5, 2021, and in the Energy Bureau's April 8, 2021 Resolution and Order issued

in Case NEPR-MI-2019-0007, the approach used to determine baselines for the SAIFI and SAIDI performance metrics is consistent with that specified in the IEEE Guide for Electric Power Distribution Reliability Indices IEEE Std 1366™-2012 dated May 21, 2012. This methodology includes transmission, substation, and distribution outages and excludes generations outages, planned outages, and major event days.

Q. Are the technical performance metrics included in Annex IX of the Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement of June 22, 2020 ("OMA") for which LUMA is requesting approval the same technical performance metrics outlined in the revised Annex IX prepared by LUMA dated August 18, 2021?

A. No. The draft Annex IX of the OMA executed on June 22, 2020 proposed three technical performance metrics and a financial performance metric which is based on technical analysis of the T&D System that LUMA did not include in its revised filing in this Docket, namely: Customers Experiencing Multiple Interruptions ($CEMI_N$); Momentary Average Interruption Frequency Index (MAIFI); Reduction in Network Line Losses (monetized and categorized as a financial metric but based on technical analysis); and Customer Average Interruption Duration Index (CAIDI).

Q. Please explain why LUMA did not propose those three technical performance metrics and the financial metric that were included in Annex IX to the OMA.

A. Based on LUMA's assessment of the $CEMI_N$, MAIFI, Reduction in Network Line Losses and CAIDI metrics and current data availability and quality, LUMA determined that data and/or related Information Technology Systems ("IT Systems") need significant improvement before meaningful values can be determined with any accuracy for these

metrics. In addition, the CAIDI metric is not proposed due to its industry-acknowledged limited value.

Q. Describe the $CEMI_N$ performance metric.

A. The $CEMI_N$ performance metric indicates the ratio of individual customers experiencing N or more sustained interruptions to the total number of customers served.

Q. Please explain LUMA's assessment on $CEMI_N$.

Setting a meaningful $CEMI_N$ metric is highly dependent on accurate customer information and sufficient customer connectivity in the Outage Management System. Due to data quality issues including a lack of accurate customer information and a lack of customer connectivity in the Outage Management System, LUMA proposes deferring $CEMI_N$.

Q. What actions, if any, does LUMA propose, to address the lack of data that lead LUMA to propose deferral of $CEMI_N$.

A. LUMA proposes deferring the determination of targets for the $CEMI_N$ metric until after the information can be corrected and a baseline determined, currently expected to be Year four of LUMA's operation of the T&D system. LUMA plans to perform field inspections to increase customer connectivity in the OMS which will be reflected in the GIS. A new process to update the connectivity model will be put in place to capture the new and future updates. These field inspections will be started in year one. The new update process for data connectivity will also be implemented in year one. Updates on the connectivity accuracy will be provided on an annual basis to allow for implementation of the $CEMI_N$ metric.

Q. Describe the MAIFI performance metric.

A. The MAIFI performance metric indicates the average frequency of momentary interruptions.

Q. Please explain LUMA's assessment on MAIFI.

A. Determining a meaningful MAIFI metric is highly dependent on extensive high-quality monitoring infrastructure (e.g., Supervisory Control and Data Acquisition (SCADA), Advanced Metering Infrastructure (AMI)) and information systems due to the short duration of a momentary interruption. These IT systems are not yet in place in PREPA.

Q. What actions, if any, does LUMA propose in connection with MAIFI?

A. LUMA proposes deferring the determination of targets for the MAIFI metric until it can be accurately measured. This requires replacing the Energy Management System which is currently targeted for year four to five of LUMA operation of the T&D system.

Q. Describe the Reduction in Network Line Losses performance metric.

A. The Reduction in Network Line Losses performance metric measures the ability to reduce electric line losses, which occur due to resistance along the electric lines. PREPA does not currently allocate losses to the components of the T&D System, such as lines. Such allocation requires the development of an appropriate model, as well as additional metering and other measures and is currently targeted for Year two of LUMA operation of the T&D system.

Q. Please explain LUMA's assessment on Reduction in Network Line Losses.

A. Reduction in Network Line Losses measures the progress in reducing electric losses. PREPA does not currently allocate losses to the components of the system, making this metric highly limited in accuracy and usefulness.

Q. What actions, if any, does LUMA propose in connection with Reduction in Network

Line Losses?

A. LUMA proposes to conduct an adequate loss study in Year one of LUMA operation of the T&D system. Such a study requires at least eight months and is highly dependent on the ability to accurately update the PREPA T&D System models.

Q. Describe the CAIDI performance metric.

A. The CAIDI performance metric represents the average time required to restore service and is equal to the quotient of SAIDI divided by SAIFI.

Q. Please explain LUMA's assessment on CAIDI?

Based on growing industry concerns that CAIDI is a limited value performance incentive metric, LUMA proposes eliminating CAIDI as a performance incentive metric. LUMA will include CAIDI (with appropriate caveats) in its quarterly performance metrics reports as ordered by the Energy Bureau in the Resolution and Order issued on April 8, 2021 in Case No. NEPR-MI-2019-0007.

Q. Explain the limited value of CAIDI.

A. Since CAIDI is the ratio between SAIDI and SAIFI, CAIDI can be misleading because it can remain the same even when the SAIDI and SAIFI values decrease. In this case, while the customer experience improves, the CAIDI metrics can remain the same, indicating that there was no improvement. Also, valuable improvements to the T&D System such as adding automation will tend to improve SAIDI and SAIFI but could also cause CAIDI to increase because automation tends to reduce less complicated interruptions to less than five minutes (IEEE definition of a sustained interruption). The more complicated and time-consuming interruptions are left for field personnel to repair and restore. Since the value of the CAIDI metric could remain the same or indicate worsening performance

while the customer experience is actually improving, LUMA proposes that the CAIDI metric is not an appropriate performance incentive metric.

Q. Does the proposed revised Annex IX of the OMA for which LUMA is requesting approval include alternative performance metrics to those not included from the draft Annex IX that was included in the OMA?

A. Yes. The proposed Annex IX includes three alternate performance metrics: Distribution Line Inspections & Targeted Corrections; Transmission Line Inspections & Targeted Corrections; and T&D Substation Inspections & Targeted Corrections.

Q. Please describe the performance objective of the Distribution Line Inspections & Targeted Corrections performance metric.

A. The performance objective of this metric is to incentivize system safety and provide data to make decisions on effective reliability improvements, predictive maintenance, circuit hosting capacity and resiliency upgrades.

Q. Please describe the Distribution Line Inspections & Targeted Corrections performance metric.

A. The Distribution Line Inspections and Targeted Corrections metric will assess the physical integrity of the poles, structures, components and equipment, providing data to develop an overall health rating to identify serious safety issues to either the public or worker that will result in high-priority attention by LUMA.

Q. How is the Distribution Line Inspections & Targeted Corrections performance metric calculated?

A. Number of distribution lines (circuits) inspected with results recorded in a database and Category 0 and Category 1 findings shall be incorporated in a plan within 60 days of

identification to address. That plan shall consider a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery Transformation Framework.

Q. Please define Category 0 and Category 1 findings.

A. Data collected from LUMA's field inspections will be used to categorize assets according to their health condition, based on estimates of condition (likelihood of failure) and criticality (consequence of failure). The overall health asset score will be based on 0 being the worse to 4 being the best. Asset scores of 0 and 1 will be the highest risk assets and will be given the highest priority to repair and / or replace. These will be assets (Asset Score of 0 and 1) that exhibit a high risk of failure, or already failed and likely to cause:

- A safety impact to LUMA employees and contractors and members of the public
- A violation of regulatory or legal requirements, including Act 17 which includes requirements related to safe (based on applicable safety standards) and prudent utility practices, or
- An outage that will be widespread, long duration and could affect critical customers.

Q. What is LUMA's Recovery Transformation Framework and what are its objectives related to the five-performance metrics that you have covered in this testimony?

A. As described in Section 1.4.3 – Phase 3: Planning of Exhibit 1 of the Initial Budgets: First 3 Years of Recovery & Transformation dated February 23, 2021, LUMA's Recovery and Transformation Framework is a set of guiding principles that ensure LUMA's plans for operational and asset improvements align with Puerto Rico's public policy objectives and customer needs. Its objectives related to the performance metrics in this testimony

include:

- Deliver a positive customer experience. Improve customer service quality, accessibility and reliability.
- Increase Service Reliability. Reduce the frequency and duration of interruptions to customers' electricity service.
- Effectively deploy federal funding.
- Ensure efficient management of funding, in compliance with FEMA guidelines for reimbursement.
- Restore damaged grid infrastructure. Focus first on critical loads, severely damaged infrastructure, and vulnerable community lifelines.
- Improve resiliency of vulnerable infrastructure. Identify and assess infrastructure and systems for vulnerability and health, to focus near-term investment.

Q. What is the proposed baseline for the Distribution Line Inspections & Targeted Corrections performance metric?

A. Since PREPA does not have a documented health condition assessment of the grid assets and it is unknown when and if PREPA conducted programed inspections of its assets, there is no data currently available from which to determine a baseline.

Q. Please describe the performance objective of the Transmission Line Inspections & Targeted Corrections performance metric.

A. The performance objective of this metric is to incentivize system safety and provide data to make decisions on effective reliability improvements, predictive maintenance, circuit hosting capacity and resiliency upgrades.

Q. Please describe the Transmission Line Inspections & Targeted Corrections

performance metric.

A. The Transmission Line Inspections and Targeted Corrections metric will assess the physical integrity of the poles, structures, components and equipment, providing data to develop an overall health rating to identify serious safety issues to either the public or worker that will result in high-priority attention by LUMA.

Q. How is the Transmission Line Inspections & Targeted Corrections performance metric calculated?

A. Number of transmission lines inspected with results recorded in a database and Category 0 and Category 1 findings shall be incorporated in a plan within 60 days of identification to address. That plan shall consider a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery Transformation Framework.

Q. What is the proposed baseline for the Transmission Line Inspections & Targeted Corrections performance metric?

A. Since PREPA does not have a documented health condition assessment of the grid assets and it is unknown when and if PREPA conducted programed inspections of its assets, there is no data currently available from which to determine a baseline.

Q. Please describe the performance objective of the T&D Substation Inspections & Targeted Corrections performance metric.

A. The performance objective of this metric is to incentivize system safety and provide data to make decisions on effective reliability improvements, predictive maintenance, circuit hosting capacity and resiliency upgrades.

Q. Please describe the T&D Substation Inspections & Targeted Corrections

performance metric.

A. The T&D Substation Inspections and Targeted Corrections metric will assess the physical integrity of the structures, components and equipment, providing data to develop an overall health rating to identify serious safety issues to either the public or worker that will result in high-priority attention by LUMA.

Q. How is the T&D Substation Inspections & Targeted Corrections performance metric calculated?

A. Number of T&D substations inspected with results recorded in a database and Category 0 and Category 1 findings shall be incorporated in a plan within 60 days of identification to address. That plan shall consider a coordinated approach to remediation based on severity and risk according to the objectives defined in LUMA's Recovery Transformation Framework.

Q. What is the proposed baseline for the T&D Substation Inspections & Targeted Corrections performance metric?

A. Since PREPA does not have a documented health condition assessment of the grid assets and it is unknown when and if PREPA conducted programed inspections of its assets, there is no data currently available from which to determine a baseline.

Q. What considerations were made upon analyzing the baseline data to determine the targets for SAIFI?

A. Since no reliable historical data exists that indicates what degree of T&D reliability improvement can generally be expected from a specific level of funds invested in Puerto Rico, LUMA relied upon my many years of experience in T&D at various utilities and the LUMA current and forecasted annual budgets to estimate an aggressive but attainable

annual percent improvement from the baselines to establish future annual targets for LUMA's first three years of operation. The resulting values are the target thresholds (100% goal) for this performance metrics with an improvement of 7.5% by the end of Year 1, a cumulative annual improvement of 20% by the end of Year 2, and a cumulative annual improvement of 30% by the end of Year 3. The estimated expected annual percent improvement is then reasonably varied to establish values for the minimum, 150%, 125%, 50%, and 25% performance goals. The spreadsheet showing the estimated expected annual percent improvements and resulting performance targets, and the annual budgets are provided as Exhibit A and B, respectively, in LUMA's Revised filing in this Docket entitled LUMA's Performance Metrics Targets dated August 18, 2021.

Q. What considerations were made upon analyzing the baseline data to determine the targets for SAIDI?

A. Since no reliable historical data exists that indicates what degree of T&D reliability improvement can generally be expected from a specific level of funds invested in Puerto Rico, LUMA relied upon my many years of experience in T&D at various utilities and the LUMA current and forecasted annual budgets to estimate an aggressive but attainable annual percent improvement from the baselines to establish future annual targets for LUMA's first three years of operation. The resulting values are the target thresholds (100% goal) for this performance metric with an improvement of 10% by the end of Year 1, a cumulative annual improvement of 25% by the end of Year 2, and a cumulative annual improvement of 40% by the end of Year 3. The estimated expected annual percent improvement is then reasonably varied to establish values for the minimum, 150%, 125%, 50%, and 25% performance goals. The spreadsheet showing the estimated

expected annual percent improvements and resulting performance targets, and the annual budgets are provided as Exhibit A and B, respectively, in LUMA's Revised filing in this Docket entitled LUMA's Performance Metrics Targets dated August 11, 2021.

Q. What leads you to believe that the LUMA proposed SAIFI and SAIDI Threshold Targets are aggressive and stretch performance?

A. Examination of the SAIFI and SAIDI FY2019, FY2020, and FY2021 results clearly shows that the performance of the T&D System is not stable but has been and continues to degrade year after year. The Energy Bureau's Resolution and Order prescribed baselines for these metrics based on FY2020 performance results. LUMA must make performance improvements on top of reversing this continually degrading performance, to meet the proposed performance targets. This will require aggressive action and stretch capabilities and budgets.

Fiscal Year	SAIFI	Degradation	SAIDI	Degradation
2019	8.3	N/A	1,156	N/A
2020	10.6	28%	1,243	8%
2021	11.0	4%	1,418	14%

One example of the significant challenges faced by LUMA in meeting the proposed targets is the number of T&D assets that are out of service and no work was done prior to June 1, 2021 to place them back in service. This causes further constraints to the electrical system, thus contributing to accelerated rate of degradation to the metrics. In some cases, the placement of assets back into service will require the procurement of long-lead high voltage equipment items that can take up to a year to receive followed by

an additional year for the installation and commissioning of this equipment.

Another item that was taken into consideration is the lengthy process and work associated with documentation for FEMA reimbursement eligibility. The start-up process to get the initial engineering done for the larger projects will take several months. Therefore, construction on large projects that will make significant reliability improvement will not start until the third or fourth quarter of the initial fiscal year. It will take months to complete the larger projects. The asset reliability will improve after completion of the larger projects. It is then that the reliability will start to improve significantly.

Q. How were targets for the Distribution Line Inspections & Targeted Corrections performance metric determined?

A. Since there is no information available from which to determine a baseline, LUMA relied upon my many years of experience in T&D at various utilities to estimate an aggressive but attainable annual percent of total circuits that will be inspected over a four-year period that will result in all of the 1,057 three-phase, main line distribution feeders being inspected. The inspections will prioritize the worst performing feeders (based on Customer Interruptions and Customer Minutes Interrupted) and critical customers as defined by Siemens IRP and LUMA's Emergency Response Plan (e.g., hospitals, police stations, water treatment plants etc.). The resulting values are the target thresholds (100% goal) for this performance metric with 10% of the total number of circuits inspected by the end of Year 1, with cumulative annual percent of 35% of the total number of circuits inspected by the end of Year 2, and a cumulative annual percent of 65% of the total number of circuits inspected by the end of Year 3. The estimated expected cumulative annual percent of the total number of circuits inspected is then reasonably varied to

establish values for the minimum, 150%, 125%, 50%, and 25% performance goals. The spreadsheet showing the estimated expected cumulative annual percent of total circuits inspected and resulting performance targets, is provided as Exhibit A, in LUMA's Revised filing in this Docket entitled LUMA's Performance Metrics Targets dated August 18, 2021.

Q. How were targets for the Transmission Line Inspections & Targeted Corrections performance metric determined?

A. Since there is no information available from which to determine a baseline, LUMA relied upon my many years of experience in T&D at various utilities to estimate an aggressive but attainable annual percent of total circuits that will be inspected over a four-year period that will result in all of the 260 transmission lines being inspected. The inspections will prioritize the worst performing feeders (based on Customer Interruptions and Customer Minutes Interrupted) and critical customers as defined by Siemens IRP and LUMA's Emergency Response Plan (e.g., hospitals, police stations, water treatment plants etc.). The resulting values are the target thresholds (100% goal) for this performance metric with 10% of the total number of circuits inspected by the end of Year 1, with cumulative annual percent of 35% of the total number of circuits inspected by the end of Year 2, and a cumulative annual percent of 65% of the total number of circuits inspected by the end of Year 3. The estimated expected cumulative annual percent of the total number of circuits inspected is then reasonably varied to establish values for the minimum, 150%, 125%, 50%, and 25% performance goals. The spreadsheet showing the estimated expected cumulative annual percent of total circuits inspected and resulting performance targets, is provided as Exhibit A, in LUMA's Revised filing in this Docket

entitled LUMA's Performance Metrics Targets dated August 18, 2021.

Q. How were targets for the T&D Substation Inspections & Targeted Corrections performance metric determined?

A. Since there is no information available from which to determine a baseline, LUMA relied upon my many years of experience in T&D at various utilities to estimate an aggressive but attainable annual percent of total T&D substations that will be inspected over a four-year period that will result in all of the 392 T&D substations being inspected. The substation inspections started with the critical substations and will be completed by region. The resulting values are the target thresholds (100% goal) for this performance metric with 10% of the total number of circuits inspected by the end of Year 1, with cumulative annual percent of 35% of the total number of circuits inspected by the end of Year 2, and a cumulative annual percent of 65% of the total number of circuits inspected by the end of Year 3. The estimated expected cumulative annual percent of the total number of circuits inspected is then reasonably varied to establish values for the minimum, 150%, 125%, 50%, and 25% performance goals. The spreadsheet showing the estimated expected cumulative annual percent of total circuits inspected and resulting performance targets, is provided as Exhibit A, in LUMA's Revised filing in this Docket entitled LUMA's Performance Metrics Targets dated August 11, 2021.

Q: Please explain why the Distribution Line Inspections & Targeted Corrections, Transmission Line Inspections & Targeted Corrections, and T&D Substation Inspections & Targeted Corrections metrics have a level of performance criticality as to be proposed as performance incentive metrics.

A: Inspections are critical to establish the initial baseline for asset condition in order to

develop the immediate short-term plan. In the case of Puerto Rico, it is even more critical due to the state of disrepair experienced on the system including multiple large scale failure events and system outages. The information captured during these Inspections provides the visibility and understanding necessary to make decisions concerning immediate actions required and prioritization. Details concerning these actions and prioritization include:

1. Distribution Feeder: Achieve 3 goals
    - System Remediation Plan – Identification of imminent failure and/or significant public safety issues (Cat. 0 and 1 Items)
    - Reliability Plan – Identification of missing lateral fusing off 3 Phase Line and identification of Vegetation Management critical SRP items (Cat. 0 and 1)
    - Hosting Capacity – Collection of data (Voltage Regulators and Reactive Device location and status (e.g., Shunt Capacitors, and normally open points on the line) required to enable LUMA to perform Hosting Capacity Studies as per Distribution Planning Guideline, NEPR-MI-2019-0011
2. Transmission Line: Achieve 2 goals
    - System Remediation Plan – Identification of imminent failure and/or significant public safety issues (Cat. 0 and 1 Items)
    - Reliability Plan – Identification of Vegetation Management critical SRP items (Cat. 0 and 1)
3. T&D Substation: Achieves 4 goals
    - Visual Inspection – Identification of imminent failure and/or significant public

safety issues (Cat. 0 and 1 Items)

- Physical/Cybersecurity – Identification of physical security issues with holes in fencing, no locks, gates open etc. Perform Cybersecurity data collection as required by Distribution Planning Guideline, NEPR-MI-2019-0011
- Reliability Plan – Identification of bird nesting, animal penetration into equipment enclosures, open Junction boxes and electrical panels
- Infrared and Ground Grid Testing – Identification of thermal hot spots on high voltage equipment and connections and performing ground grid resistivity tests

Q: Please explain how the Distribution Line Inspections & Targeted Corrections, Transmission Line Inspections & Targeted Corrections, and T&D Substation Inspections & Targeted Corrections metrics will impact reliability.

A. As identified in the answer to the previous question, inspections are a pivotal activity and an essential first step required to improve reliability. They are required to:

- Inspections establish the initial baseline and asset condition rating
- It is required to identify the most important and immediate corrective actions required from a public safety and imminent failure standpoint (Immediate Short-Term Plan)
- The data collected is necessary to formulate the long-term Operations and Maintenance and Capital Plan
- The data collected is necessary to validate the Reliability Plan and direct and prioritize the activities of Vegetation Management and Asset Repair/Replacement plan which impacts the top root causes that contribute to Customer Minutes Interrupted (Wire Down, Vegetation, Bad Weather)

Q. How does LUMA plan to achieve improvements on service interruptions?

A. The roadmap to achieve the Technical Performance Metrics targets includes a series of programs focused initially on the worst-performing main components of the system (distribution feeders, transmission lines, substations), which were selected after careful analysis of the current reality of PREPA's infrastructure and study of the root causes behind the frequent system failures. Current plans are based on best-available data and reasonable assumptions. The programs will be adapted and modified as LUMA acquires better data on system health.

The selected projects for implementation in each asset class are listed below. As LUMA engineers determine specific reliability improvement plans, they will incorporate these types of projects (tables below) as needed to optimize the improvement. LUMA engineers will also follow the Principles Applicable to the Planning of the Distribution System as laid out in the PREB resolution of December 31, 2020 in Case No. NEPR-MI-2019-0011. The cost of programs for improvement affecting the technical performance metrics are included in the Initial Budgets presented.

Selected Reliability Improvement Projects for Distribution

Pole Replacement	Vegetation Management	Recloser & FCI's	Animal Guards	Tree Wiring	Underground

Selected Projects for Improvement in Each Asset Class

Breaker Replacement	Transmission Lines Rebuild 38 kV	Transmission Pole Replacement 38 kV	Transmission Line Material Replacements 38 kV	Transmission Pole Replacement 115 kV	Transmission Line Material Replacements 115 kV

Q. What are your requests regarding the five-performance metrics proposed in this testimony as performance incentive metrics for LUMA (System Average Interruption Frequency Index (SAIFI); System Average Interruption Duration

Index (SAIDI); Distribution Line Inspections & Targeted Corrections; Transmission Line Inspections & Targeted Corrections; and T&D Substation Inspections & Targeted Corrections)?

A. I respectively request that this Energy Bureau approve the LUMA proposed Target Thresholds, Minimum Performance Levels, and the 150%, 125%, 100%, 50%, and 25% Targets for these metrics as delineated in the filing that is the subject of this testimony.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mr. Donato Cortez Jr., being first duly sworn, states the following:

The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that he would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is his direct testimony and to the best of his knowledge are true and correct.

Donato Cortez Jr.

Affidavit #: -8,432-.

Acknowledged and subscribed before me by Donato Cortez Jr., in his capacity as Vice President, Utility Transformation of LUMA Energy, whose full name is as expressed herein, of legal age, single, engineer, and resident of San Juan who is personally known to me or whom I have identified by means of his driver's license number 07770216.

In San Juan, Puerto Rico, this 17 day of August 2021.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

Direct Testimony

Exhibit A

LUMA SAIDI & SAIFI Targets

LUMA SAIFI and SAIDI Baselines and Targets

7/26/2021

FY2019/2020 Baselines from PREB Order of May 21, 2021

Baselines calculated by PREPA per the IEEE Guide for Electric Power Distribution Reliability Indices IEEE Std 1366-2012

Baselines and Targets (% Improvement)

5. System Average Interruption Frequency Index (SAIFI)							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	10.6	N/A					
Year 1	7.50%		22.50%	16.00%	7.50%	6.00%	3.75%
Year 2	20.00%		36.00%	29.00%	20.00%	15.75%	10.50%
Year 3	30.00%		45.00%	37.50%	30.00%	22.50%	15.00%

6. System Average Interruption Duration Index (SAIDI)							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	1,243	N/A					
Year 1	10.0%		30.0%	20.0%	10.0%	7.5%	5.0%
Year 2	25.0%		45.0%	35.0%	25.0%	19.0%	13.0%
Year 3	40.0%		60.0%	50.0%	40.0%	30.0%	20.0%

Baselines and Targets (Metric Value)

5. System Average Interruption Frequency Index (SAIFI)							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	10.6	N/A					
Year 1	9.8	10.4	8.2	8.9	9.8	10.0	10.2
Year 2	8.5	10.1	6.8	7.5	8.5	8.9	9.5
Year 3	7.4	9.8	5.8	6.6	7.4	8.2	9.0

6. System Average Interruption Duration Index (SAIDI)							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	1,243	N/A					
Year 1	1,119	1,212	870	994	1,119	1,150	1,181
Year 2	932	1,155	684	808	932	1,007	1,081
Year 3	746	1,118	497	622	746	870	994

Direct Testimony

Exhibit B

LUMA Inspections Baselines and Targets

LUMA Inspections Baselines and Targets

8/3/2021

No Baseline since these inspections have never been performed.

Cumulative Targets (% of total)

Total 100%

7. Distribution Line Inspections & Targeted Corrections							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	N/A	N/A					
Year 1	10%	15%	150%	125%	10%	50%	25%
Year 2	35%	15%	150%	125%	35%	50%	25%
Year 3	65%	15%	150%	125%	65%	50%	25%

Total 100%

8. Transmission Line Inspections & Targeted Corrections							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	N/A	N/A					
Year 1	10%	15%	150%	125%	10%	50%	25%
Year 2	35%	15%	150%	125%	35%	50%	25%
Year 3	65%	15%	150%	125%	65%	50%	25%

Total 100%

9. T&D Substation Inspections & Targeted Corrections							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	N/A						
Year 1	10%	15%	150%	125%	10%	50%	25%
Year 2	35%	15%	150%	125%	35%	50%	25%
Year 3	65%	15%	150%	125%	65%	50%	25%

Cumulative Targets (Metric Value)

Total 1,057

7. Distribution Line Inspections & Targeted Corrections							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	N/A	N/A					
Year 1	106	16	159	133	106	53	27
Year 2	370	56	555	463	370	185	93
Year 3	687	103	1,031	859	687	344	172

Total 260

8. Transmission Line Inspections & Targeted Corrections							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	N/A	N/A					
Year 1	26	4	39	33	26	13	7
Year 2	91	14	137	114	91	46	23
Year 3	169	25	254	211	169	85	42

Total 392

9. T&D Substation Inspections & Targeted Corrections							
	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	N/A						-
Year 1	39	6	59	49	39	20	10
Year 2	137	21	206	171	137	69	34
Year 3	255	38	383	319	255	128	64

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

IN RE:	CASE NO.: NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mr. Terry Tonsi
Director Lines East, LUMA Energy LLC
August 17, 2021

Q. Please state your name.

A. My name is Terry Tonsi.

Q. Please state your business address, title, and employer.

My business mailing address is PO Box 364267, San Juan Puerto Rico, 00936-4267. I am the Director Lines East, in the Operations Department for LUMA Energy LLC (hereinafter referred to as "LUMA" or "The Company").

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").

A. My testimony is on behalf of LUMA as part of the Commonwealth of Puerto Rico Public Service Regulatory Board Puerto Rico Energy Bureau (Energy Bureau) proceeding NEPR-AP-2020-0025, addressing Performance Targets for LUMA.

Q. Are there any exhibits attached to your testimony?

A. No

Q. What relevant training have you received for your duties at LUMA?

A. I have completed the ICS Training (100, 200, 300, 400, 700 and 800), have the Journeyman Lineman Red Seal Canada, and received the NLC Essential Skill for Supervisors Diploma.

Q. What is your professional experience?

A. I have approximately 35 years of professional experience in the electric utility industry, starting as a Power Lineman at ATCO Electric, and progressing to increased levels of responsibility, with 14 years leading and managing large groups of employees. I have held various management roles within ATCO Electric from District Manager, Regional Manager and Director of Operations. Over my career, I had extensive Utility Emergency

Management and Response training and held many emergency management roles during numerous disasters in my time at ATCO. I was the Incident Post Commander for the 2011 Slave Lake Wildfires and the 2017 Fort McMurray Wildfires. ATCO received awards from the Edison Electric Institute (EEI) for their response to these disasters. I have also, significant training and experience with Urban and Wildland Firefighting and Municipal Emergency Management over my 25-year firefighting career.

Q. Please describe your work experience prior to joining the LUMA?

A. I worked for ATCO Electric for 32 years in various management operations, operating construction, and customer service positions, serving Alberta Canada's transmission and distribution system. Of note, I served as Incident Commander for ATCO Electric during two major events (2011 Slave Lake and the 2015 Fort McMurray Wildfires). Related to these activities, I operated as a volunteer fire fighter and Captain for the Slave Lake Regional Fire Services for 25 years.

Q. Do you hold any professional licenses or certifications, if so, which?

A. I have successfully completed the ICS training (100, 200, 300, 400, 700 and 800), hold the Emergency Management Blue Card Certification, am a former Journeyman Lineman Red Seal Canada, and earned the NLC Essential Skill for Supervisors Diploma.

Q. Have you previously testified or made presentations before the Energy Bureau?

A. Yes. I have testified before the Energy Bureau as part of the System Remediation Plan Technical Conference (NEPR-MI-2020-0019) on May 14, 2021, and May 17, 2021.

Q. Which documents did you consider for your testimony?

A. I referred to the following documents for this testimony:

a. Table 2-24, Summary of Major Outage Event Performance Metrics, of the Performance Metrics Filing of February 25, 2021,

b. Annex A (Major Outage Restoration) of the Emergency Response Plan dated May 2021

c. Revised Annex IX to the Puerto Rico Transmission and Distribution System Operations and Maintenance Agreement, filed on February 25, 2021 in Case No. NEPR-AP-2020-0025,

d. LUMA's Revised Performance Metrics Targets Filing to be submitted on August 18, 2021 in Case No. NEPR-AP-2020-0025.

e. System Remediation Plan dated February 23, 2021, filed and approved in Case No. NEPR-2020-0019

Q. Did you rely on any other information for your testimony?

A. My professional experience, including my experience in connection with Operation of the Transmission and Distribution System of the Puerto Rico Electric Power Authority ("PREPA") and its operations ("T&D System").

Q. What is the subject and purpose of your Direct Testimony?

A. My testimony covers LUMA's performance targets or metrics related to Major Outage Events, as defined in Table 2-24, Summary of Major Outage Event Performance Metrics of the Performance Metrics Filing of February 25, 2021, addressing the following areas:

a. Downed Wires

b. Damage Assessment

c. Crewing

d. Estimated Time of Restoration (ETR)

e. ETR Accuracy

f. Municipality Coordination

g. Municipal Emergency Operation Center (EOC) Coordination

h. Utility Coordination

i. Safety

j. Mutual Assistance

Q. **Before addressing these specific metrics, could you provide a working definition of what constitutes a Major Outage Event?**

A. "Major Outage Event" means an event as a result of which (i) at least two hundred and five thousand (205,000) T&D Customers are interrupted for more than 15 minutes or (ii) at any point in time during the event, there are one thousand five hundred or more (≥1,500) active outage events for the T&D System, which are tracked in the Outage Management System (OMS). The major outage event is deemed ongoing so long as the interruptions/outages continue to remain above the stated cumulative amounts, in each case for a period of twenty-four hours or longer (≥24) and are caused by an act of God. If such an act of God is a storm, the storm must be designated as a named storm by the U.S. National Weather Service or a State of Emergency declared by the Government of Puerto Rico. The major outage event shall be deemed to have ended when the cumulative number of T&D customers remaining interrupted falls below ten thousand (10,000) for a continuous period of eight (8) hours. The Major Outage Event should be categorized on the following: Event categories: Events are categorized based on forecasted impact and revised post-event based

on actual impact, to be measured from the start of the operational response (after the event has passed and when it is physically safe to dispatch crews) to when less than ten thousand (10,000) for a continuous period of eight (8) hours.

The Major Outage Event should be categorized on the following:

Event categories: Events are categorized based on forecasted impact and revised post-event based on actual impact, to be measured from the start of the operational response (after the event has passed and when it is physically safe to dispatch crews) to when less than ten thousand (<10,000) T&D Customers remain interrupted for more than 8 hours as follows:

- 3 to 5 days
- 5 to 10 days
- Greater than 10 days

Q. **Please describe the Performance Metric for Downed Wires.**

A. The metric pertaining to Downed Wires addresses the response time between a reported downed wire (either when entered into the Customer Information System or through the Municipal Emergency Operations Center) and the initiation of appropriate action.

Q. **What is meant by appropriate action?**

A. Emphasizing that protecting the public is among LUMA's top priorities during a major event, taking measures to prevent the touching or crossing of downed powerlines is foremost in our restoration process. To accomplish this, appropriate action involves deploying a broad range of employees and external resources, geared towards remediating any danger a quickly as possible:

Internal Resources: Two types of crews, focused on downed wires, will be deployed:

1. Wire Guards Crews – These individuals, trained and qualified, will be charged with

keeping the public a safe distance away from the powerlines until a qualified crew can make the situation "safe."

2. Wire Down Crews – As qualified Utility Workers, these crews will make the situation safe for the public by repairing the powerline conductor, grounding the line, and / or cutting the conductor clear.

External Resources: The current T&D System can best be described as in serious disrepair (i.e., brittle) and poorly maintained (from both asset and vegetation management perspectives). With the preponderance of ever-increasing 100-year events, LUMA can anticipate, at least in the near-term, a high volume of downed lines whenever such an event occurs. In preparation for this reality, LUMA will build partnerships with various agencies (e.g., Fire Departments, Police, Municipal Public Works Departments, and US National Guard), primarily to assure the availability of resources to help safeguard the public from downed lines. As part of this outreach, LUMA will provide the necessary safety training to ensure these resources are adequately trained to execute these responsibilities.

Since we anticipate a significant number of these events in the early stages of a Major Outage, the following prioritization framework has been established, assuring that highest risk to the public is factored into the staging of these resources:

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.	

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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.

Q. What was the approach used in establishing a performance target for Downed Wire?

A. Recognizing that no two major events are identical and that their effect on the system is not uniform, LUMA established event duration as a normalizing variable as it best captures the effects of severity, complexity and accessibility in the service restoration process. Applying our experience and knowledge of industry practices, events will be categorized as:

a. 3 to 5 days with a targeted response time of 18 hours for the initiation of appropriate action,

b. 5 to 10 days with a targeted response time of 36 hours for the initiation of appropriate action, or

c. > 10 days with a targeted response time of 60 hours for the initiation of appropriate

action.

Q. What was the basis for establishing the performance metrics target for Downed Wires?

A. There is no established industry standard for responding to reported downed wire; only consensus that such an event poses significant safety risk to the public, taxes the resources of local fire and police resources, not to mention, causes disruption of reliable service to our customers. Best performing utilities certainly track this metric, initially developing a performance baseline from which to measure improvement. Thus, lacking data or any baseline performance data, the basis for these initial performance targets reflects our best estimate of current state, yet with a stretch in comparison to undocumented / unsubstantiated past performance, and intentions to drive improvement over time.

Q. How do you intend to drive improvement in connection with the Downed Wires Performance Metric?

A. Improvement will require a multi-faceted approach including the conduct of annual reviews and analyses of our performance during actual events, focus on hardening and stabilizing the T&D System (thereby reducing the number and severity of wire down events), and continuous increase in competencies related to Emergency Response. Additionally, LUMA will actively engage with (1) our customers, listening / adapting based on their feedback, and (2) comparable utilities, applying any "learnings" that derive from these comparisons.

Q. Please describe the Performance Metric used on Damage Assessment.

A. The Performance Metric pertaining to Damage Assessment, addresses the time between the beginning of a Major Outage Event (once deemed safe to conduct such an assessment)

and the completion of the preliminary damage assessment.

Q. **What is the utility of the Preliminary Damage Assessment in terms of subsequent repair / restoration activity?**

A. Preliminary Damage Assessments are among the most important activities in ensuring success in restoring power during a major outage event. Besides informing us of what is damaged, these assessments set the stage for how best to respond to the situation, driving decisions regarding (1) messaging to our customers (particularly in providing initial Global ETRs), (2) activating internal resources / contingent contractors / mutual aid agreements, and (3) staging equipment / material.

Q. **Describe the activities undertaken in connection with Damage Assessment.**

A. The following series of activities are undertaken:

1. LUMA's Operations Control Center will interrogate the T&D system through the SCADA system to determine which feeders are out of service and Relay Protection to identify what type of fault has occurred.
2. When safe to do so (typically first light after the storm passed), and in compliance with approved Damage Assessment Practices, LUMA will activate its Helicopter fleet to assess and report findings on the impacted and damaged areas, taking videos, pictures and notes as appropriate.
3. Depending on the event and accessibility considerations, LUMA may also deploy ground teams to complete / improve upon these rapid assessments.

Q. **What was the approach used in establishing a performance target for Damage Assessment?**

A. Like the approach taken for Downed Wire, LUMA established event duration as a

normalizing variable as it best captures the effects of severity, complexity and accessibility. Applying our experience and knowledge of standard industry practices, events will be categorized as:

a. 3 to 5 days with a targeted response time of 36 hours for the completion of the preliminary damage assessment,

b. 5 to 10 days with a targeted response time of 72 hours for the completion of the preliminary damage assessment, or

c. > 10 days with a targeted response time of 120 hours for the completion of the preliminary damage assessment.

Q. What was the basis for establishing the performance targets for Damage Assessment?

A. As every Major Outage Event is different, there is no established industry standard for completing preliminary damage assessments; only agreement as to their relevance in effecting timely repairs / restoration of service. As with Downed Wire, best performing utilities certainly track this metric, initially developing a performance baseline from which to measure improvement. Thus, lacking data or any baseline performance data, the basis for these initial performance targets reflects our best estimate of current state, yet with a stretch in comparison to undocumented / unsubstantiated past performance, and intentions to drive improvement over time.

Q. How do you intend to drive improvement on Damage Assessment?

A. As with Downed Wire, improvement will require a multi-faceted approach including the conduct of annual reviews and an analysis of the effectiveness of these assessments during actual events, confirming their relevance to actual restoration planning activities, and active engagement with (1) our customers, listening / adapting based on their feedback, and (2)

comparable utilities, applying any "learnings" that derive from these comparisons.

Q. Please describe the Performance Metric used for Crewing.

A. Crewing pertains to pre-mobilization of crews (internal and contract) in anticipation of a forecasted event and based on an initial prediction of damage. Specified in terms of the timeframe before an event is predicted to occur, this metric tracks the staging of materials, equipment, and personnel at the required location.

Q. What was the approach used in establishing a Performance Metric for Crewing?

A. Applying industry experience and knowledge of industry best practice, the following performance targets have been established:

a. Three days prior to a forecasted event, LUMA will complete a damage prediction,

b. Within 24 hours of the completed damage prediction, 50% of the internal and qualified contract crews will be deployed, and

c. Within 48 hours of the completed damage prediction, 80% of the internal and qualified contract crews will be on the island and mobilized.

Q. What was the basis for establishing a performance metric target for Crewing?

A. There is no established industry standard for measuring the effectiveness of Crewing (as defined above); as each Major Outage Event varies as to its impact (from event to event and even within a utility's service territory) and predictability. However, once the level of damage is predicted, the mobilization rate of crews as a percent of the level required to restore all service can certainly be measured and provides a proxy for prudence in staffing the service restoration effort. Lacking data or any baseline performance data, the basis for these initial performance targets reflects our best estimate of current capabilities coupled with actual experience in other jurisdictions, tempered by past local utility performance,

but with intentions to drive improvement over time.

Q. **How do you intend to monitor the appropriateness of the performance metrics targets on Crewing?**

A. In determining the effectiveness and appropriateness of the targets to driving the desired outcomes:

a. Perform before and after comparisons of predicted vs. actual damage, identifying the factors (and values) that are the greatest determinants of type / extent of damage.

b. Assess timeframes required to predict overall damage and any gaps between the targeted staffing levels and the actual workload at those points in time (i.e., determine the appropriateness of the 24 - and 48 - hour time and the 50% / 80% staffing levels).

c. Track / trend actual ability to flex staffing to optimum levels as the extent of damage and size / complexity of outages becomes apparent.

d. Develop a storm model to capture the insights gleaned from the above-described analyses, factoring for key weather variables, health and condition of critical assets, and current T&D system configuration.

Q. **Please describe the Performance Metrics used for Estimated Time of Restoration (ETR).**

A. The metrics pertaining to Estimated Time of Restoration (ETR) address the publication, timeliness, and update of ETRs for 90 percent of the Service Outages.

Q. **Why 90 percent?**

A. Even under the most ideal circumstances where utilities have a properly deployed Outage Management System, strong GIS connectivity, fully functional AMI, and integrated asset and work management technology platforms, nested and otherwise unknown outages are

identified throughout the restoration process. Current state reveals that our technology platforms do not measure up to this mark. Therefore, as 90 percent is appropriate from an overall industry perspective, given these technology gaps, this target represents a stretch for LUMA as it establishes a performance baseline founded on a less than adequate collection of technology platforms.

Q. What was the approach used in establishing performance metric targets for ETRs?

A. Applying industry experience, knowledge of industry best practice, and the current state of applicable IT/OT platforms, the following performance targets have been established:

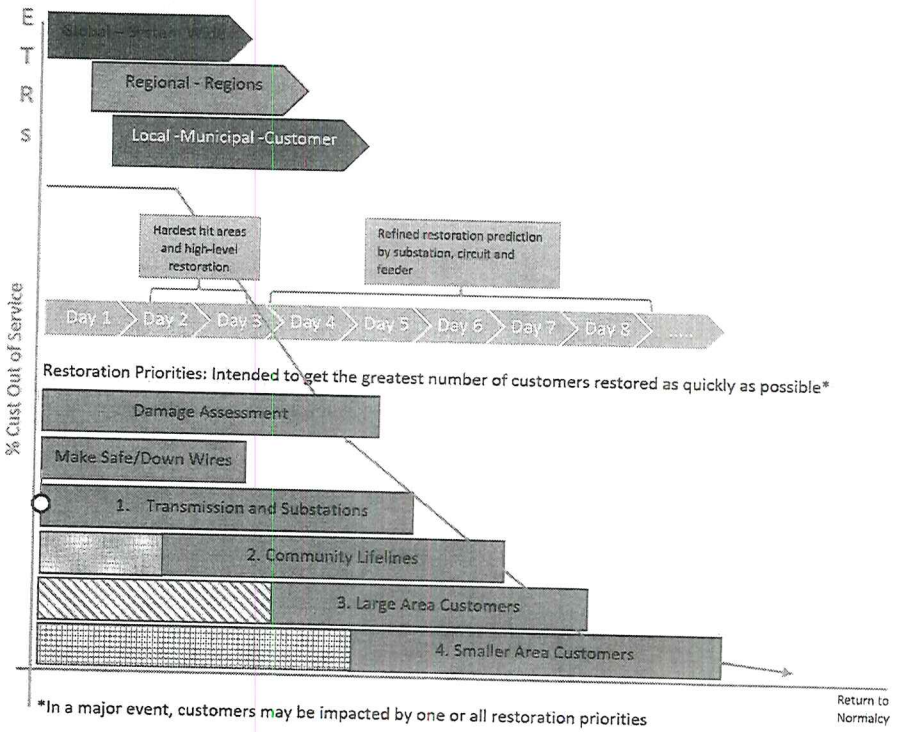
a. Regional and Municipal ETRs will be published in accordance with guidelines,

b. A Global ETR for 90% service restoration will be made available on the internet in pdf format 24 hours after the preliminary damage assessment,

c. ETRs for 90% service restoration will be made available on IVR, websites and to CSRs by municipality or region, and

d. All ETRs will be updated every 24 hours.

The following extract from Annex A (Major Outage Restoration) of the Emergency Response Plan dated May 2021 illustrates the relationship between providing ETRs, the conduct of Damage Assessments, and Make Safe / Down Wires.



Q. You refer to the current state of applicable IT/OT platforms as a caveat in developing the performance targets or ETRs. What prompted this?

A. The systems currently in use to manage Major Outages require significant improvements before they can be depended upon to portray an accurate view of a Major Outage Event. Therefore, the completeness and accuracy of any ETR will be suspect until these issues are addressed. Specific system gaps include poor GIS connectivity, inaccurate system mapping, use of antiquated "Call Taker" technology, and limited integration (if any) with the Outage Management System

Q. What is the basis for establishing these performance targets?

A. These performance targets are representative of those adopted by other utilities, and as such are viewed as a stretch, given past performance in providing timely and accurate ETRs.

Q. What measures will be taken to drive improvement in providing timely ETRs?

A. Improvement will require a multi-faceted approach including the conduct of annual reviews and analyses of our performance during actual events, and active engagement with (1) our customers, listening / adapting based on their feedback, and (2) comparable utilities, applying any "learnings" that derive from these comparisons.

Q. Please describe the Performance Metric used for ETR Accuracy.

A. Global, regional and municipal ETR accuracy for 90% service restoration will be tracked, based on completion of a thorough damage assessment.

Q. In reviewing Table 2-24, Summary of Major Outage Event Performance Metrics, of the Performance Metrics Filing of February 25, 2021 and the Revised Table 2-24 to be filed on August 18, 2021 with the Energy Bureau, there are no performance targets presented. Please explain.

A. The previously mentioned challenge regarding the adequacy of applicable IT/OT platforms severely limits our ability to provide accurate ETRs. It is also our understanding that ETRs were not previously provided as a matter of routine, nor was the ability to generate an ETR an option within past versions of the Outage Management System. While these system and cultural-related items are being addressed, we will remain steadfast in comparing projected vs. actual ETRs (once the thorough damage assessments are completed) by region and municipality to track and drive improvement, and as performance baselines are established, set targets around the accuracy of ETRs.

Q. Notwithstanding the IT/OT system limitations, what is LUMA's plan to improve upon the accuracy of ETRs?

A. As with the previous performance measures, improvement will require a multi-faceted approach including the conduct of annual reviews and analyses of our performance during

actual events, and active engagement with (1) our customers, listening / adapting based on their feedback, and (2) comparable utilities, applying any "learnings" that derive from these comparisons.

Q. Please describe the Performance Metric for Municipality Coordination.

A. This metric revolves around coordination with municipalities regarding road clearing, downed wires, critical customers, etc. and, as such, tracks attendance of the LUMA Liaison at the Regional Puerto Rico Emergency Management Bureau (PREMB) or Municipal EOC Situation Report (SITREP) meetings (presuming the Regional PREMB or Municipal EOC is activated).

Q. Recognizing that attendance at scheduled SITREP meetings is the only measurable outcome, what will be the criteria for success in this area?

A. The only valid measure of success is feedback from the Municipality regarding our responsiveness to any concerns, views regarding pre-event preparedness, and performance during the restoration process. Key communication protocols will be put in place to ensure the best possible outcome:

- Scheduled conference calls with municipal officials, including emergency managers.
- Community Liaison communications (telephonic, electronic and/or in person) with PREMB and or 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, through a community website portal that may be accessed by PREMB and or municipal emergency managers.

Q. Please describe the Performance Metric for Municipal EOC Coordination.

A. This Performance Metric revolves around coordination with municipal Puerto Rico Commonwealth and Federal EOCs, PREMB and, as such, tracks attendance at all scheduled meetings (presuming the State and Federal EOCs are activated).

Q. Recognizing that attendance at scheduled meetings is the only measurable outcome, what will be the criteria for success in this area?

A. The only valid measure of success is feedback from the Regional PREMB and or Municipal EOC. The same communication protocols will apply, recognizing that adherence to a collaboratively developed and prioritized restoration schedule will result in the most positive outcome.

Q. Please describe the Performance Metric used for Utility Coordination.

A. This performance metric monitors coordination with other utilities (e.g., communications, water, etc.), and, as such, confirms the establishment of contact points between LUMA and these organizations.

Q. Beyond establishing contact points, how will you determine success in the area of Utility Coordination?

A. Success will be largely dependent on how complaints and outage-related challenges are escalated to and addressed by the Leadership of these utilities (and when applicable, appropriate Government officials). Affected utilities will be contacted and provided updates by LUMA's EOC Liaison Officer with the goal of mitigating risks to their assets and customers. Counter to prior practice, as the event progresses through the restoration phase, input regarding restoration priorities will be sought, thus forming a collaborative and open dialogue among all parties.

Q. Please describe the Performance Metric for Safety.

A. The performance metric pertaining to Safety revolves around the recording of safety incidents in accordance with LUMA's Health, Safety, Environment and Quality Standard, with a focus on elimination of injuries while performing hazard work during storm / outage restoration.

Q. What are the success criteria for Safety, as defined above?

A. All incidents causing injury to employees and contractors will be tracked, reported, and assessed, providing full transparency to LUMA Management, the Regulator and other authorities. In driving a strong safety culture, we will be mindful of past habits regarding / eliminate the occurrence of taking shortcuts during the service restoration process, and diligent in determining cause / preventing recurrence of any safety incidents (including "near misses").

Q. Recognizing that the only mark for Safety is no incidents, what measures is LUMA taking to achieve that objective?

A. LUMA has a detailed and thorough Safety Management System where reporting and tracking incidents is mandatory and initial incident reports require immediate action. There being no distinction between Major Outage Events and normal operations when it comes to Safety, all elements of this system will apply.

Q. Please describe the metrics used for Mutual Assistance.

A. The Mutual Assistance metrics address the pre-mobilization of all sources of mutual assistance (or other pre-negotiated contracts with utility service providers), timing based on the completion of damage predictions.

Q. What was the approach used in in establishing performance measures for Mutual Assistance?

A. Applying industry experience and knowledge of industry best practice, the following performance targets have been established:

a. Consistent with the performance targets established for Crewing, three days prior to a forecasted event, LUMA will complete a damage prediction and determine the requirements for on and off island mutual aid / pre-negotiated contracts with other utility service providers,

b. Once the requirements are established, LUMA will activate / place on standby all required resources until the damage assessment is completed,

c. Requests for 40% of the committed mutual aid and other utility service provider crews will be made within 70 hours of the completed damage assessment, and

d. Requests for 80% of the committed mutual aid and other utility service provider crews will be made within 120 hours of the completed damage assessment.

Q. What was the basis for establishing performance metrics targets for Mutual Assistance?

A. The trigger points and targeted percentages of committed mutual aid resources are indicative of industry best practices and experience, tempered by our understanding of current state regarding the availability / practicality of deploying external resources during major events. Factors to consider include:

a. Relative certainty / uncertainty regarding an impending threat and timeframes required for deployment against the costs of pre-mobilization,

b. Confidence in the Damage Prediction process, likely to improve as the variables driving the Damage Predictive Model become better defined, and

c. Availability of external resources, given the realities of unpredictable and erratic

weather events.

Over time, these factors will become stabilized and provide a basis for confirming/adjusting these performance targets.

Q. What measures will be taken to achieve continual improvement in the mobilization and use of Mutual Assistance?

A. As with several of the previous performance measures, improvement will require a multi-faceted approach including the conduct of annual reviews and analyses of the effectiveness of mutual aid during actual events (after action reviews), and active engagement with (1) on and off-island contractors and utilities providing mutual aid, listening / adapting based on their feedback, and (2) comparable utilities, applying any "learnings" that derive from these comparisons. Thoroughly vetted and validated improvement initiatives will be incorporated into the Emergency Response Plan and incorporated in the Mutual Aid Agreements.

Q. Table 3, Summary of Major Outage Event Performance Metrics, in Annex IX of the Puerto Rico Transmission and Distribution System Operations and Maintenance Agreement dated June 22, 2020, and the Revised Annex IX to be submitted to the Energy Bureau on August 18, 2021, describes the performance metrics to be reported by LUMA regarding Major Outage Event performance. For those items specified in your testimony, are there any variations to requirements stated therein?

A. No

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mr. Terry Michael Tonsi, being first duly sworn, states the following: The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that he would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is his direct testimony and to the best of his knowledge are true and correct.

Terry Michael Tonsi

Affidavit No. 10,436

Acknowledged and subscribed before me by Mr. Terry Michael Tonsi, whose full name is as expressed herein, of legal age, married, business director, and resident of San Juan, Puerto Rico, in his capacity as Director Lines East of LUMA Energy, LLC, who is personally known to me.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mrs. Jessica Laird
Vice President of Customer Experience, LUMA Energy ServCo LLC
August 3, 2021

Q. Please state your name.

A. My name is Jessica Laird.

Q. Please state business mailing address, title, and employer.

A. My business mailing address is PO Box 363508 San Juan, Puerto Rico 00936-3508. I am the Vice President, in the Customer Experience Department for LUMA Energy.

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").

A. My testimony is on behalf of the LUMA as part of the Commonwealth of Puerto Rico Public Service Regulatory Aboard Puerto Rico Energy Bureau (Energy Bureau) proceeding NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. Are there any exhibits attached to your testimony?

A. Yes, there are 4 exhibits attached to my testimony:

a. Exhibit A: Motion for Partial Reconsideration of Resolution and Order of April 8 2021, submitted April 28, 2021 in Docket NEPR-MI-2019-0007.

b. Exhibit B: JD Power Survey Results for PREPA, conducted in Q4 of 2020 and Q1 of 2021.

c. Exhibit C: JD Power Targets Table 2-4 and 2-5 as provided in LUMA's Performance Metrics Targets Revised Filing of August 18, 2021.

d. Exhibit D: Performance Metrics Workpapers – Contact Center Metric Baselines tab.

Q. What is your educational background?

A. I hold a Bachelor of Commerce with Distinction from the University of Alberta.

Q. What is your professional experience?

A. I have approximately 20 years of professional experience in Customer Experience, Regulatory, and Retail Services within the electric utility industry. In 2019, I joined LUMA's Customer Experience department as a Director in the Customer Experience Division.

Q. Please describe your work experience prior to joining LUMA?

A. I have worked for more than 20 years in the Canadian utility industry largely in customer service roles. I have worked in both regulated and deregulated utilities on both the Transmission and Distribution and retail sides of the utility industry. Prior to joining LUMA my most recent role at ATCO was setting up and operating ATCO Energy, ATCO's energy retail arm as Sr. Manager, Home & Energy Retail Operations. My experience includes operating contact centers, voice of the customer programs, back office and billing operations, credit and collections operations, regulatory committees, customer self-serve tools and online retail sales. I have significant experience in customer experience improvement, process development and improvement, contract governance, and operational analytics and Key Performance Indicator reporting.

Q. Do you hold any professional licenses, if so, which?

A. No

Q. Have you previously testified or made presentations before the Energy Bureau?

A. Yes - I have testified before the Energy Bureau in the 4 proceeding as follows:

a. NEPR-MI-2021-0004 – LUMA's Initial Budgets

b. NEPR-MI-2020-0019 – Review of Puerto Rico Electric Power Authority's System Remediation Plan,

c. NEPR-MI-2019-0007 – The Performance of the Puerto Rico Power Authority, and

d. NEPR-MI-2021-0008 – Review of LUMA Model Bill.

Q. Which documents did you consider for your testimony?

A. I considered the following documents:

a. Original Performance Metrics Filing filed in Docket NEPR-AP-2020-0025 submitted on February 25, 2021,

b. Revised Performance Metrics Filing Docket NEPR-AP-2020-0025 to be filed on August 18, 2021,

c. PREB Resolution and Order issued May 21, 2021 in NEPR-MI-2019-0007, and

d. J.D. Power Survey (See Exhibit B)

Q. What is the subject and purpose of your Direct Testimony?

A. My testimony is in support of LUMA's Performance Metrics Targets on metrics related to Customer Satisfaction.

a. Residential and Commercial Customer Satisfaction

b. Average Speed of Answer

c. Abandonment Rate

d. Major Outage Events – Communication Metrics

Q. Please describe the methodology for Residential and Commercial Customer Satisfaction.

A. J.D. Power Electric Utility Residential Customer Satisfaction Study$_{SM}$ provides the electric industry with important insights into the evolving needs and demands of residential and commercial electric utility customers. The J.D. Power survey is a standard methodology. The customer information was taken from the PREPA Oracle CC&B system and used by

J.D. Power to survey a statistically significant sample size via email (residential n=4008; commercial n=163).

To measure customer satisfaction, critical experience factors are examined using an index model. The study measures overall customer satisfaction of residential and commercial customers based on performance in six factors and three sub-factors:

Power Quality & Reliability; **Price**; **Billing & Payment**; **Corporate Citizenship**; **Communications**; and **Customer Care**.

For the residential survey, the following three sub-factors were examined within **Customer Care: Phone**; **Digital**; and **In-Person**.

The key objectives of this study are to:

- Quantify the factors that drive overall satisfaction among residential customers
- Analyze the relative performance of the major electric utility companies in the United States in terms of how well they satisfy their residential customers
- Capture a nationwide footprint of electric utility performance by including as many utilities as possible
- Provide actionable information by developing insights about the needs of electric consumers

Q. **How was the data used to calculate the baseline for JD Power Residential and Commercial Customer Satisfaction metrics?**

A. The data was used at face value as the survey is standardized. There is no previous data from the Puerto Rico Electric Power Authority of the Puerto Rico Energy Bureau to compare.

Q. **What considerations were made upon analyzing the baseline data to determine the target for the JD Power Customer Satisfaction metrics?**

A. PREPA had never previously measured Customer Satisfaction (CSAT), therefore, a baseline had to be set during the front-end transition period. J.D. Power was able to complete 2 quarters of residential survey results and 1 half of business survey results within the front-end transition period. Given the strong response to both surveys, LUMA was able to use the results to set the CSAT baseline.

Q. What are your recommendations on the JD Power Residential and Commercial Customer Satisfaction metric?

A. As explained in section 4.2 of the LUMA's Performance Metric Target Revised Filing, Customer Satisfaction rankings have become a standard method for energy regulators to measure utility performance within the electric utility market over the last 10 years. J.D. Power performs standardized Customer Satisfaction surveys for many electric utilities in North America. When compared to the other utilities participating in the J.D. Power Electric Utility Customer Satisfaction Survey, PREPA was ranked by its customers as the worst performing utility. Other operational indicators such as reliability metrics, price, wait times, and billing accuracy indicate that PREPA was not performing at the same level as it's comparable utilities therefore the poor CSAT results are indicative of performance. I recommend the J.D. Power CSAT results gathered during front end transition be taken at face value and used to set the baseline.

The target CSAT number (See Exhibit C) were developed based on the following:

- A review of the LIPA CSAT numbers after the LIPA agreement was implemented showed a slow improvement over time of the scores in the J.D. Power survey. It is important to note that the LIPA utility was in significantly better condition than the PREPA utility.

- The CSAT scores broken out by category show that of the 6 categories in the CSAT survey, Price and Quality & Reliability are 2 of the lowest scores and both will take time to create significant improvements.

Q. Please describe the Average Speed of Answer Performance Metric.

A. It consists of the average wait time from the moment the customer enters the Automated Call Distribution (ACD) queue to the time the call is answered by an agent.

Q. What data analysis, if any, was examined to develop the Average Speed of Answer Performance Metric?

A. We reviewed the Average Speed of Answer data from the three separate contact center platforms (PREPA, Insight & Telecontacto). PREPA's data is extracted from their Avaya contact center platform. Please see Appendix B for sample of the reports used. We review this data daily, weekly, and monthly.

Upon analysis of the data provided for the three separate contact centers, it was discovered that the third-party vendors were not reporting the total time in queue as calls were routed to sit in the PREPA contact center queue for ten minutes prior to rolling over into the third-party contact center queues. The time reported by the third parties included only the amount of time spent in their queue (ex. if a customer waited ten minutes in the PREPA queue and then two minutes in the Telecontacto queue their ASA should be twelve minutes, however, the reports showed only two minutes). Due to the discrepancy in data and the siloed reporting, the baseline was set based on the PREPA contact center data and subject matter experience.

After June 1st, 2021, it was discovered that PREPA's call center (and subsequently the third-party service providers) provided a limited number (500) of trunks for calls received

at their call center. This essentially means that once all trunks were full, customers would receive a busy signal and not get through to the Interactive Voice Response (IVR). Effectively, in any given day, there was a cap on the total number of calls PREPA could receive. As of June 1st, 2021, LUMA has transitioned to a cloud-based call center platform which has removed that limitation, in effect drastically increasing the number of calls received daily.

Q. Describe the methodology to calculate the baseline for Average Speed of Answer Performance Metric.

A. It considers the Total Automatic Call Distributor (ACD) wait seconds / total answered calls. An ACD is a telephony system that automatically distributes incoming phone calls to available agents, based on data entered by the caller into an Interactive Voice Response (IVR) and skills-based routing, using skills associated with agents.

LUMA's baseline data derives from FY2019 – March 2020. When assessing whether to use FY2019 or FY2020 data, we determined that the FY2020 does not support a reliable baseline because current data is only available for a period of 6 month, reported ASA varies significantly from month to month due to COVID and onboarding new outsource vendors, and there is a lack of visibility into three separate call routing systems and overflow which prevents LUMA from accurately calculating baseline ASA.

Q. How did LUMA determine the targets for Average Speed of Answer?

A. Starting with the baseline, LUMA calculated a reasonable year over year improvement that accounted for hiring, learning curve, training, ramp up, turn over, process improvement and other standard operational changes. LUMA will not be suggesting a change to the targets even with the discovery of the limiting trunks prior to June 1st, 2021. The proposed

targets are set in Table 2-6 of LUMA's Revised Performance Metrics Targets filing, and is 9.0 for Year 1, 6.4 for Year 2 and 5.8 for Year 3.

Q. What actions will be taken to achieve performance metric targets for Average Speed of Answer?

A. Per Section 3 of the LUMA's Performance Metrics Targets Revised Filing, LUMA plans to achieve ASA targets by developing a robust call forecast model, staffing to meet forecast requirements and making full use of the implemented cloud-based contact center technology.

Q. Please describe the methodology for the Abandonment Rate Performance Metric.

A. The abandonment rate calculation is an industry standard calculation. Abandonment Rate is equal to calls offered minus calls answered divided by call offered times 100.

Q. What data analysis, if any, did you examine to develop the baseline for the Abandonment Rate Performance Metric?

A. LUMA reviewed the Abandonment Rate data from the three separate contact center platforms (PREPA, Insight & Telecontacto). LUMA also reviewed industry standard abandonment rates across utility contact centers.

LUMA's baseline was calculated using FY2019 to March 2020 data. Upon further analysis, LUMA determined that using FY2020 data would not support a reliable baseline due to the facts that the current data is only available for a period of 6 months, reported abandonment varies significantly from month to month due to COVID and onboarding new outsource vendors, and there is a lack of visibility into three separate call routing systems and overflow presents us from accurately calculating baseline abandonment.

Q. How was the data used to calculate the baseline for the Abandonment Rate

Performance Metric?

A. Due to the siloed approach to data collection between the three PREPA contact centers, LUMA set the baseline using the PREPA contact center data and based on subject matter experience and the significantly under industry standard results. As a result, LUMA reduced the abandonment rate by 2% to achieve an immediate improvement.

Q. How did LUMA determine the target for Abandonment Rate?

A. Starting with the baseline, LUMA calculated a reasonable year over year improvement that accounted for hiring, learning curve, training, ramp up, turn over, process improvement and other standard operational changes. LUMA will not be suggesting a change to the targets even with the discovery of the limiting trunks prior to June 1st. The proposed targets are set in Table 2-8 of LUMA's Revised Performance Metrics Targets filing, and is 40% for Year 1, 32% for Year 2 and 29% for Year 3.

Q. What actions will be taken to achieve performance metric targets for Abandonment Rate?

A. Per Section 3 of the Revised Filing, LUMA plans to achieve abandonment rate by developing a new workforce management team to use a workforce management system ensuring staffing levels are accurate in order to reduce abandoned calls. This team will follow standard industry practices to forecast call volumes and peaks and staff appropriately improving overall performance and meeting call volume demands.

Q. How did LUMA select the Major Outage Events: Communication metrics?

A. In the event of a major outage, LUMA's responsibility is to be transparent with our customers and provide clear streams of communication in emergency situations. Our emergency response team has agreed that the following metrics are an accurate

representation of how LUMA should be measured in major outage events. These metrics include: Call Answer Rates, Web Availability, PREB & P3A Reporting, Customer Communications and Outgoing Message on Telephone Line are essential.

Q. Describe the Communications Major Outage Event Performance Metric.

A. It assesses the utility's ability to receive and to disseminate information about the outage event and about the recovery process. It considers web availability, PREB and Administrator (P3A) Reporting, customer Communications and outgoing message on telephone line. The descriptions are found in Tables 2-24 and 2-25 of LUMA's Performance Metrics Targets Revised filing.

Q. What are your recommendations on the Customer Service Performance Metrics?

A. I recommend that the Puerto Rico Energy Bureau approve the Customer Service Performance Metrics on Residential and Commercial Customer Satisfaction, Average Speed of Answer, Abandonment Rate, and Major Outage Events – Communication Metrics as proposed in LUMA's Performance Metrics Targets Revised Filing.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mrs. Jessica Lillian Emma Laird, being first duly sworn, states the following: The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that she would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is her direct testimony and to the best of her knowledge are true and correct.

Jessica Lillian Emma Laird

Affidavit No. -8,433-

Acknowledged and subscribed before me by Ms. Jessica Lillian Emma Laird, whose full name is as expressed herein, of legal age, married, business executive, and resident of San Juan, Puerto Rico, in her capacity as Vice President of Customer Experience of LUMA Energy, LLC, who is personally known to me.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

Direct Testimony

Exhibit A

Motion for Partial Reconsideration of Resolution and Order of April 8. 2021, submitted April 28, 2021 in Docket NEPR-MI-2019-0007.

Direct Testimony

Exhibit B

JD Power Survey Results for PREPA

Summary:

Residential Q4 2020: 395

- Price → 276
- Corporate Citizenship → 279
- Quality & Reliability → 323
- Communication → 330
- Customer Care → 600
- Billing & Payment → 652

Residential Q1 2021: 405

- Price → 275
- Corporate Citizenship → 285
- Quality & Reliability → 339
- Communication →353
- Customer Care → 607
- Billing & Payment → 637

Commercial Wave 2 2020: 345

- Price →226
- Corporate Citizenship → 239
- Quality & Reliability → 293
- Communication →250
- Customer Care → 535
- Billing & Payment → 597

Direct Testimony

Exhibit C

Table 2-4. J.D. Power Customer Satisfaction Survey (Residential Customers)

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	N/A						
Baseline	398						
Year 1	427	398	450	439	427	415	405
Year 2	455	427	480	468	455	440	430
Year 3	484	455	500	492	484	470	460

Table 2-5. J.D. Power Customer Satisfaction Survey (Business Customers)

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	N/A						
Baseline	345						
Year 1	380	345	415	400	380	370	355
Year 2	414	380	450	432	414	400	390
Year 3	449	414	475	462	449	435	425

Direct Testimony

Exhibit D

Performance Metrics Workpapers – Contact Center Metric Baselines tab.

See excel workbook

Contact Center Metric Baselines

Average Speed of Answer

Metric Schedule							
	Target Threshold (min)	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	10						
Year 1	9	9.7	4.5	6.8	9	9.3	9.6
Year 2	6.4	7.1	3.2	4.8	6.4	6.7	7
Year 3	5.8	6.4	2.9	4.4	5.8	6.1	6.3

Abandon Rate

Metric Schedule							
	Target Threshold (min)	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	50.00%						
Year 1	40.00%	45.00%	20.00%	30.00%	40.00%	41.00%	42.00%
Year 2	32.00%	35.00%	16.00%	24.00%	32.00%	33.00%	34.00%
Year 3	29.00%	34.00%	14.50%	22.00%	29.00%	31.00%	33.00%

Customer PREB Complaint Rate

Metric Schedule							
	Target Threshold (min)	Minimum Performance Level	150%	125%	100%	50%	25%
Baseline	11.10%						
Year 1	10.80%	11.55%	10.30%	10.55%	10.80%	11.05%	11.30%
Year 2	10.60%	11.35%	10.10%	10.35%	10.60%	10.85%	11.10%
Year 3	10.10%	10.85%	9.60%	9.85%	10.10%	10.35%	10.60%

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Ms. Melanie J. Jeppesen
Director of Billing Services, LUMA Energy ServCo LLC
August 17, 2021

Q. Please state your name.

A. My name is Melanie J. Jeppesen.

Q. Please state your business address, title, and employer

A. My business mailing address is PO Box 363508 San Juan, Puerto Rico 00936-3508. I am the Director of Billing Services, in the Customer Experience department for LUMA Energy LLC.

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau (the "Energy Bureau").

A. My testimony is on behalf of the LUMA as part of the Commonwealth of Puerto Rico Public Service Regulatory Aboard Puerto Rico Energy Bureau (Energy Bureau) proceeding NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. Are there any exhibits attached to your testimony?

A. Yes, there are two exhibits attached to my testimony:

a. Exhibit A: LUMA's Performance Metrics Targets Filing to be submitted on August 18, 2021 ("LUMA's Performance Metrics Targets Revised Filing"), Table 2-7, and

b. Exhibit B: PREB Complaints Baseline Data

Q. What is your educational background?

A. I received a Bachelor of Science degree in Interdisciplinary Sciences from South Dakota School of Mines & Technology with a focus on Science, Technology & Society in 2009.

Q. What is your professional experience?

A. I have approximately 10 years of professional experience in the regulated utility industry. In 2021, I joined LUMA Energy's Customer Experience department as a Director of

Billing Services. I have worked in both the regulated utility and for private businesses including a financial services company and a small manufacturing start-up company.

Q. Please describe your work experience prior to joining LUMA?

A. Prior to moving to Puerto Rico to work for LUMA Energy, I served as the Director for Customer and Community Solutions for Black Hills Energy in Colorado serving both gas and electric customers. In my experience with Black Hills Energy, I also worked as a Special Projects Manager in Colorado supporting Operations, Customer Service, Community Affairs, Governmental Affairs, Legal, Finance and Environmental Services on project management. Prior to working as a Specials Project Manager, I was the Manager of Customer Operations for Black Hills Energy in South Dakota. In my role as Manager of Customer Operations I oversaw two departments with both regulated and non-regulated business functions, including customer service. My first role with Black Hills Energy was as a Rates and Regulatory Analyst in our corporate office where I supported revenue requirement adjustment clause filings, rate review filings, annual reports and other filings.

Q. Do you hold any professional licenses, if so, which?

A. No.

Q. Have you previously testified or made presentations before the Energy Bureau?

A. Yes. I appeared before the Energy Bureau regarding LUMA's Model Bill during two technical conferences in Case No. NEPR-MI-0008. I was available for questions during technical conferences regarding net metering in Case No. NEPR-MI-2019-0016.

Q. Which documents did you consider for your testimony?

A. Several documents were considered for my testimony, these include the original

a. Performance Metric filing of February 25, 2021, LUMA's Performance Metrics

Targets Revised filing to be submitted on August 18, 2021, in this proceeding, Case No. NEPR-AP-2020-0025, and

b. The Resolutions and Order issued by the Puerto Rico Energy Bureau on April 8, 2021, May 21, 2021, and July 2, 2021, in Case No. NEPR-MI-2019-0007, and LUMA's motion filed February 5, 2021, in Case No. NEPR MI 2019 0007, and the revised Exhibit 2 to the February 5th submissions, filed on February 8, 2021 Case No. NEPR MI 2019 0007.

Q. What is the subject and purpose of your Direct Testimony?

A. My testimony is in support of LUMA's Performance Metric Targets on Customer Complaint Rate. This metric measures the total number of initial customer complaints registered with the Puerto Rico Energy Bureau.

Q. Describe the baseline for the Customer Complaint Rate Performance Metric.

A. The Baseline Performance Level initially reviewed historical data for the Puerto Rico Electric Power Authority as well as the number of complaints filed with the Puerto Rico Energy Bureau. The proposed baseline is based on the total number of complaints received by the Puerto Rico Energy Bureau under from May 2019 to February 2020, annualized, as the baseline as it is the most normal period of operations for PREPA in the last 4 years.

Q. Please describe the methodology for the Performance Metric Customer Complaint Rate.

A. The annual value is calculated by taking the total number of initial complaints divided by the total utility customer population and then multiplying by 100,000. Utilizing complaints before the Puerto Rico Energy Bureau is an appropriate metric since these are formal complaints that customers have filed.

Q. What data, if any, was examined to develop the performance metric on Customer Complaint Rate?

A. LUMA looked at the number of complaints received by PREB from 2017-2020. After reviewing data from March 2020 through February 2021, we determined that this period was not a strong depiction of operations at PREPA compared to the historical data reviewed over the last four years. The time from May 2019 – February 2020 was selected as it represents the most normal period of operations since hurricane María, and prior to the onset of the pandemic. LUMA also reviewed the total number of complaints filed under Act 57 and considered complaints filed with the Office of Consumer Protection.

Q. What is the baseline proposed by LUMA on Customer Complaint Rate?

LUMA is proposing a baseline calculation of 11.1. This represents the calculation of the metric using the data from May 2019-Febriery 2020, annualized for 12 months, with the baseline set at 155 PREB complaints annually, or 11.1.

Q. How was the data used to calculate the baseline for Customer Complaint Rate?

A. LUMA used the total number of complaints received by the Puerto Rico Energy Bureau for billing with the classification of NEPR-QR, from May 2019 to February 2020 as the baseline as it is the most normal period of operations for PREPA in the last 4 years, resulting in a baseline of 11.1.

Q. What conclusions were made upon analyzing the baseline data to determine the target?

A. LUMA determined that FY2020 does not support a reliable baseline because current data is not available and due to the lack of visibility into response rate prevents us from accurately calculating baseline service level.

Upon reviewing the data LUMA determined the specific measurement in this category relates to complaints filed by customers with the Puerto Rico Energy Bureau with the classification of NEPR-QR. LUMA proposes these specific formal complaints are to be measured for the Customer Complaint Rate. LUMA proposes the initial administrative claims filed through Act 57-2014, as amended, not be considered in this metric. The initial claims filed internally with PREPA/LUMA through Act 57 are less formal in nature and include items to be resolved through processes such as a review of a customer's usage information, an inspection of a customer meter or similar measures. These complaints are almost all resolved in working through the process with the customer and do not meet the threshold of a formal complaint. Puerto Rico specifically provides a customer of an electric utility in Puerto Rico to object to the current charges on their bill through a specific regulated process. These claims in total filed under Act 57 are not included in the base of the PREB complaints and are rather tracked separate and apart from other customer formal complaints with the Puerto Rico Energy Bureau. While some Act 57 claims may become formal complaints, these are a small portion of the total. Additionally, LUMA has determined the baseline metric for Customer Complaint Rate to not include complaints customers bring to the Office of Consumer Protection regarding LUMA related topics. Complaints filed through the Office of Consumer Protection topics represent a range that LUMA has not been able to match with PREB complaints. The Office of Consumer Protection assists customers with bill inquiries, valid billing issues and other topics but those issues vary in terms of their formality or the validity of a complaint. A bill inquiry for example may provide service to a customer in explaining a month of higher usage but it does not represent a complaint metric for measurement. While these represent a customer

involved contact, they are not all complaints.

Q. Please explain why LUMA is proposing a baseline that differs from the recommended baseline by the Puerto Rico Energy Bureau?

A. LUMA reviewed the proposed baseline by the Energy Bureau in the Resolution and Order of May 21, 2021, Case No. NEPR-MI-2019-0007, and is concerned the proposed baseline includes customer high bill claims or inquires and not just formal complaints. In the July 2, 2021, Resolution and Order in Case No. NEPR-MI-2019-0007, the Energy Bureau informed it considered 12,340 Claims to calculate the Customer Complaint Rate baseline. LUMA considers that said number is not appropriate because the data submitted by PREPA includes inquiries in addition to complaints. LUMA understands that to reasonably improve Customer Complaint Rate, the Performance Metric should only consider Act 57 claims that become formal complaints with PREB which allows for a more accurate calculation of formal complaints.

Q. What is the target proposed by LUMA for Customer Complaint Rate?

A. The target threshold is found in Table 2-7 of LUMA's Performance Metrics Targets Revised Filing of August 18, 2021, which for the First Year is 10.80, 10.60 for year 2 and 10.10 for Year 3 as set in Revised OMA Annex IX. The Minimum Performance Level in the early years are worse than the baseline to account for the possible scenario of a temporary increase in customer complaints due to the strong possibility of bill consumption actually increasing as metering, meter data, and billing accuracy improves (meters typically under register when not working properly).

Q. How does LUMA plan to achieve the targets for Customer Complaint Rate?

A. The Customer Complaint Rate metric is a measure of LUMA's ability to resolve customer

complaints or issues without a customer feeling they need the formal involvement of the Puerto Rico Energy Bureau. The foundation for avoiding a customer complaint has two main points: 1) Improve the operating conditions of the utility and its processes, and 2) change the way in which customer issues are addressed.

First, the transformation of the transmission and distribution infrastructure in Puerto Rico will, over time, reduce customer issues that have resulted in formal PREB complaints. Infrastructure investments such as reliability and integrity projects are important. Similarly, investments in new metering and meter communication infrastructure will reduce complaints such as those related to estimated billing. The improvement related to processes and procedures such as for the efficiency around processing net metering applications or connecting new services for customers. The improvements involved in transforming the electrical grid will reduce complaints over time.

Secondly, LUMA will work to resolve customer issues through first contact resolution and through understanding the customer issues and addressing them before they escalate. The Billing Services team handling complaints will work to resolve the underlying issue a customer is experiencing. The outcome of the goal is reduced complaints. The motivation of addressing customer concerns is to not just to reduce how people perceive the utility service but also to reduce the cost involved with serving customers.

Q. In brief, what are your recommendations?

A. I recommend implementing the Customer Complaint Rate baseline and target as presented in LUMA's Performance Metrics Targets Revised Filing.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Ms. Melanie Jeppesen, being first duly sworn, states the following:
The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that she would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is her direct testimony and to the best of her knowledge are true and correct.

Melanie Joy Jeppesen

Affidavit No. - 8,434 -

Acknowledged and subscribed before me by Ms. Melanie Joy Jeppesen, whose full name is Melanie Joy Jeppesen as expressed herein, of legal age, single, business director, and resident of San Juan Puerto Rico, in her capacity as Director of Billing Services, who is personally known to me.

Public Notary

EDWIN E. RIVERA PÉREZ
ABOGADO-NOTARIO

Direct Testimony

Exhibit A

Table 2-7. Customer Complaint Rate

	Target Threshold	Minimum Performance Level	150%	125%	100%	50%	25%
PREB Order	841						
Baseline	11.10%						
Year 1	10.80%	11.55%	10.30%	10.55%	10.80%	11.05%	11.30%
Year 2	10.60%	11.35%	10.10%	10.35%	10.60%	10.85%	11.10%
Year 3	10.10%	10.85%	9.60%	9.85%	10.10%	10.35%	10.60%

Note that the Minimum Performance Level in the early years are worse than the baseline to account for the possible scenario of a temporary increase in customer complaints due to the strong possibility of bill consumption actually increasing as metering, meter data, and billing accuracy improves (meters typically under register when not working properly).

Direct Testimony

Exhibit B

PREB Complaints Baseline Data

PREB Complaints

	May 2019 - February 2020	Monthly	Annualized
Total Complaints	129	12.9	154.8
Total Complaints against PREPA	122	12.2	146.4
Total Customer Utility Customer Population			1,400,000
			0.000110571
		Customer Complaint Rate	11.1

Docket Number	Date of First File	
NEPR-QR-2019-0002	11-Feb-19	
NEPR-QR-2019-0008	11-Feb-19	
NEPR-QR-2019-0010	11-Feb-19	
NEPR-QR-2019-0011	11-Feb-19	
NEPR-QR-2019-0012	11-Feb-19	
NEPR-QR-2019-0013	11-Feb-19	
NEPR-QR-2019-0016	20-Feb-19	
NEPR-QR-2019-0001	22-Feb-19	
NEPR-QR-2019-0023	26-Feb-19	
NEPR-QR-2019-0040	7-Mar-19	
NEPR-QR-2019-0041	7-Mar-19	
NEPR-QR-2019-0042	7-Mar-19	
NEPR-QR-2019-0043	7-Mar-19	
NEPR-QR-2019-0015	11-Mar-19	
NEPR-QR-2019-0028	20-Mar-19	
NEPR-QR-2019-0029	20-Mar-19	
NEPR-QR-2019-0034	21-Mar-19	
NEPR-QR-2019-0038	21-Mar-19	
NEPR-QR-2019-0003	29-Mar-19	
NEPR-QR-2019-0004	29-Mar-19	
NEPR-QR-2019-0005	29-Mar-19	
NEPR-QR-2019-0007	3-Apr-19	
NEPR-QR-2019-0009	5-Apr-19	
NEPR-QR-2019-0014	5-Apr-19	
NEPR-QR-2019-0024	2-May-19	
NEPR-QR-2019-0025	2-May-19	
NEPR-QR-2019-0026	2-May-19	
NEPR-QR-2019-0027	2-May-19	
NEPR-QR-2019-0006	8-May-19	
NEPR-QR-2019-0033	8-May-19	
NEPR-QR-2019-0035	9-May-19	
NEPR-QR-2019-0054	9-May-19	vs. Sunnova Energy Corpo
NEPR-QR-2019-0055	9-May-19	
NEPR-QR-2019-0039	16-May-19	
NEPR-QR-2019-0044	16-May-19	
NEPR-QR-2019-0046	11-Jun-19	
NEPR-QR-2019-0047	11-Jun-19	vs. Sunnova Energy Corpo
NEPR-QR-2019-0048	11-Jun-19	
NEPR-QR-2019-0049	17-Jun-19	
NEPR-QR-2019-0050	17-Jun-19	
NEPR-QR-2019-0052	17-Jun-19	
NEPR-QR-2019-0053	8-Jul-19	
NEPR-QR-2019-0056	22-Jul-19	
NEPR-QR-2019-0057	22-Jul-19	
NEPR-QR-2019-0058	22-Jul-19	
NEPR-QR-2019-0059	22-Jul-19	
NEPR-QR-2019-0060	22-Jul-19	
NEPR-QR-2019-0061	22-Jul-19	
NEPR-QR-2019-0062	22-Jul-19	
NEPR-QR-2019-0063	22-Jul-19	
NEPR-QR-2019-0064	22-Jul-19	
NEPR-QR-2019-0065	23-Jul-19	
NEPR-QR-2019-0066	23-Jul-19	
NEPR-QR-2019-0067	23-Jul-19	
NEPR-QR-2019-0068	23-Jul-19	

Docket Number	Date of First File	
NEPR-QR-2020-0002	4-Jun-20	
NEPR-QR-2020-0003	4-Jun-20	
NEPR-QR-2020-0004	4-Jun-20	
NEPR-QR-2020-0005	4-Jun-20	
NEPR-QR-2020-0006	4-Jun-20	
NEPR-QR-2020-0007	4-Jun-20	
NEPR-QR-2020-0008	4-Jun-20	
NEPR-QR-2020-0009	4-Jun-20	
NEPR-QR-2020-0010	4-Jun-20	
NEPR-QR-2020-0011	4-Jun-20	
NEPR-QR-2020-0012	15-Sep-20	
NEPR-QR-2020-0013	11-Mar-20	
NEPR-QR-2020-0014	15-Oct-20	vs. Sunnova Energy Corp.
NEPR-QR-2020-0015	16-Jun-20	
NEPR-QR-2020-0016	16-Jun-20	vs. Sunnova Energy Corp.
NEPR-QR-2020-0021	8-Jun-20	
NEPR-QR-2020-0024	11-Aug-20	
NEPR-QR-2020-0025	11-Aug-20	
NEPR-QR-2020-0026	11-Aug-20	
NEPR-QR-2020-0027	11-Aug-20	
NEPR-QR-2020-0028	8-Jun-20	
NEPR-QR-2020-0029	6-Aug-20	
NEPR-QR-2020-0030	11-Aug-20	vs. Sunnova Energy Corp.
NEPR-QR-2020-0034	4-Sep-20	
NEPR-QR-2020-0035	4-Sep-20	
NEPR-QR-2020-0036	4-Sep-20	
NEPR-QR-2020-0039	18-Sep-20	
NEPR-QR-2020-0040	18-Sep-20	
NEPR-QR-2020-0041	18-Sep-20	
NEPR-QR-2020-0042	15-Oct-20	
NEPR-QR-2020-0043	15-Oct-20	Vs. Sunnova Energy Corp.
NEPR-QR-2020-0044	28-Oct-20	Vs. Sunnova Energy Corp.
NEPR-QR-2020-0045	6-Nov-20	
NEPR-QR-2020-0046	28-Oct-20	
NEPR-QR-2020-0047	27-Oct-20	
NEPR-QR-2020-0048	28-Oct-20	
NEPR-QR-2020-0049	24-Nov-20	
NEPR-QR-2020-0050	24-Nov-20	vs. Sunnova Energy Corp.
NEPR-QR-2020-0051	24-Nov-20	
NEPR-QR-2020-0052	24-Nov-20	
NEPR-QR-2020-0053	24-Nov-20	
NEPR-QR-2020-0054	24-Nov-20	
NEPR-QR-2020-0055	24-Nov-20	
NEPR-QR-2020-0056	24-Nov-20	
NEPR-QR-2020-0057	24-Nov-20	vs. Sunnova Energy Corp.
NEPR-QR-2020-0058	24-Nov-20	
NEPR-QR-2020-0059	20-Nov-20	
NEPR-QR-2020-0060	16-Dec-20	vs. Sunnova Energy Corp.
NEPR-QR-2020-0061	29-Dec-20	
NEPR-QR-2020-0062	16-Dec-20	
NEPR-QR-2020-0063	4-Jan-21	vs. Autoridad de Acueductos y Alcantarillados de Puerto Rico
NEPR-QR-2020-0064	5-Jan-21	vs. Sunnova Energy Corp.
NEPR-QR-2020-0065	5-Jan-21	
NEPR-QR-2020-0066	5-Jan-21	
NEPR-QR-2020-0067	5-Jan-21	

NEPR-QR-2019-0069	12-Aug-19	Vs. Sunnova Energy Corpc NEPR-QR-2020-0068	19-Jan-21
NEPR-QR-2019-0070	19-Aug-19		
NEPR-QR-2019-0071	19-Aug-19		
NEPR-QR-2019-0072	19-Aug-19		
NEPR-QR-2019-0073	19-Aug-19		
NEPR-QR-2019-0074	19-Aug-19		
NEPR-QR-2019-0075	19-Aug-19		
NEPR-QR-2019-0076	19-Aug-19		
NEPR-QR-2019-0077	19-Aug-19		
NEPR-QR-2019-0078	22-Aug-19		
NEPR-QR-2019-0079	22-Aug-19		
NEPR-QR-2019-0080	22-Aug-19		
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NEPR-QR-2019-0082	22-Aug-19		
NEPR-QR-2019-0083	22-Aug-19		
NEPR-QR-2019-0086	22-Aug-19		
NEPR-QR-2019-0149	27-Aug-19		
NEPR-QR-2019-0090	10-Sep-19		
NEPR-QR-2019-0091	10-Sep-19		
NEPR-QR-2019-0092	10-Sep-19		
NEPR-QR-2019-0093	10-Sep-19		
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NEPR-QR-2019-0110	1-Oct-19		
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NEPR-QR-2019-0129	21-Oct-19		
NEPR-QR-2019-0130	22-Oct-19		
NEPR-QR-2019-0131	22-Oct-19	Vs. Sunnova Energy Corporation	
NEPR-QR-2019-0084	30-Oct-19		
NEPR-QR-2019-0085	30-Oct-19	Vs. Sunnova Energy Corporation / Code Green Solar PR LLC	

NEPR-QR-2019-0132	6-Nov-19	
NEPR-QR-2019-0133	6-Nov-19	
NEPR-QR-2019-0134	6-Nov-19	
NEPR-QR-2019-0135	6-Nov-19	
NEPR-QR-2019-0136	6-Nov-19	
NEPR-QR-2019-0120	8-Nov-19	
NEPR-QR-2019-0137	8-Nov-19	and Smart Power Solutions
NEPR-QR-2019-0139	8-Nov-19	
NEPR-QR-2019-0140	8-Nov-19	
NEPR-QR-2019-0141	8-Nov-19	
NEPR-QR-2019-0142	8-Nov-19	
NEPR-QR-2019-0156	10-Nov-19	
NEPR-QR-2019-0138	14-Nov-19	
NEPR-QR-2019-0143	21-Nov-19	
NEPR-QR-2019-0144	21-Nov-19	
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NEPR-QR-2019-0150	26-Nov-19	
NEPR-QR-2019-0151	27-Nov-19	
NEPR-QR-2019-0152	27-Nov-19	
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NEPR-QR-2019-0155	3-Dec-19	
NEPR-QR-2019-0157	3-Dec-19	
NEPR-QR-2019-0158	3-Dec-19	
NEPR-QR-2019-0159	3-Dec-19	
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NEPR-QR-2019-0162	9-Dec-19	
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NEPR-QR-2019-0164	4-Feb-20	
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NEPR-QR-2019-0171	4-Feb-20	
NEPR-QR-2019-0172	11-Feb-20	
NEPR-QR-2019-0173	11-Feb-20	
NEPR-QR-2019-0174	11-Feb-20	
NEPR-QR-2019-0175	11-Feb-20	
NEPR-QR-2019-0176	12-Feb-20	
NEPR-QR-2019-0177	12-Feb-20	
NEPR-QR-2019-0183	18-Feb-20	
NEPR-QR-2019-0179	5-Mar-20	sunnova Energy
NEPR-QR-2019-0182	5-Mar-20	
NEPR-QR-2019-0180	27-May-20	
NEPR-QR-2019-0181	27-May-20	
NEPR-QR-2019-0184	27-May-20	
NEPR-QR-2019-0185	27-May-20	
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NEPR-QR-2019-0199	28-May-20	
NEPR-QR-2019-0200	28-May-20	
NEPR-QR-2019-0201	28-May-20	
NEPR-QR-2019-0202	28-May-20	
NEPR-QR-2019-0203	28-May-20	
NEPR-QR-2019-0204	28-May-20	
NEPR-QR-2019-0205	28-May-20	

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

IN RE:	**CASE NO.:** NEPR-AP-2020-0025
PERFORMANCE TARGETS FOR LUMA ENERGY SERVCO, LLC	

Direct Testimony of
Mario Hurtado
Chief Regulatory Officer,
LUMA Energy LLC, LUMA Energy ServCo, LLC
August 18, 2021

Q. Please state your name.

A. My name is Mario Hurtado.

Q. Please state your title and employer.

A. I am Chief Regulatory Officer at LUMA Energy LLC and LUMA Energy ServCo.

Q. On whose behalf are you testifying before the Puerto Rico Energy Bureau?

A. My testimony is on behalf of LUMA as part of the Puerto Rico Energy Bureau ("Energy Bureau") proceeding Case No. NEPR-AP-2020-0025, the Performance Targets for LUMA Energy ServCo, LLC.

Q. Please state your educational background.

A. I received a Bachelor of Arts degree in Political Science from Columbia University in 1990.

Q. Please state your professional experience.

A. I have over 25 years of professional experience in the development and management of large electric utility and energy businesses throughout the United States and Latin America. In 2020, I joined LUMA Energy as Vice President for Regulatory.

Q. Please describe your work experience prior to joining LUMA.

A. Prior to joining LUMA, I was an advisor to Quanta Services, focused on the Request for Proposals for Operation & Maintenance of the Puerto Rico Transmission and Distribution System.

Q. Do you hold any professional licenses? If so, which?

A. No.

Q. Have you previously made presentations before the Energy Bureau?

A. Yes. I have appeared before this honorable Energy Bureau in several pre-filing technical conferences, since January 2021, including the Performance of the Puerto Rico Electric Power Authority, Case No. NEPR-MI-2019-0007; System Operation Principles, Case No. NEPR-MI-2021-0001; Performance Targets for LUMA Energy ServCo, NEPR-AP-2020-0025; System Remediation Plan, Case No. NEPR-MI-2020-0019; Initial Budgets, Case No. NEPR-MI-2021-0004, Emergency Response Plan, Case No. NEPR-MI-2019-0006, Physical Security, Case No. NEPR-MI-2020-0018, and Data Security Plan, NEPR-MI-2020-0017.

Q. Have you previously testified before the Energy Bureau?

A. Yes. I have provided testimony under oath in Technical Conferences in several proceedings, including: Initial Budgets, Case No. NEPR-MI-2021-0004, System Operation Principles, Case No. NEPR-MI-2021-0001; System Remediation Plan, Case No. NEPR-MI-2020-0019, Review of LUMA's Terms of Service p, Case No. NEPR-MI-2021-0007, LUMA's Model Bill, NEPR-MI-2021-0008, Vegetation Management Plan, Case No. NEPR-MI-2019-0005, PREPA's 10 Year Plan, Case No. NEPR-MI-2020-0021.

Q. Are there any exhibits attached to your testimony?

A. No.

Q. Did you review any documents in preparation for your testimony? If so, which documents?

A. Yes. I reviewed the following documents:

a. Revised Annex IX to the Puerto Rico Transmission and Distribution System Operations and Maintenance Agreement, filed on February 25, 2021 in Case No. NEPR-AP-2020-0025,

b. LUMA's Revised Performance Metrics Targets Filing to be submitted on August 18, 2021 in in Case No. NEPR-AP-2020-0025.

c. The Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement ("OMA") of June 22, 2020,

d. The Limited Waiver executed on June 1, 2021.

Q. Did you rely on anything else in preparation for your testimony?

A. I also relied upon my personal knowledge and experience, including my experience as Vice President, Regulatory for LUMA.

Q. What is the subject and purpose of your Direct Testimony?

A. I am testifying in support of and to request approval by this Energy Bureau of LUMA's Revised Performance Metrics Targets and the revised Annex IX to the OMA that was submitted to the Energy Bureau on August 18, 2021.

Q. What are the proposed Performance Metrics Targets that LUMA is requesting that the Energy Bureau approve?

A. Pursuant to Section 4.2(f) of the OMA, LUMA proposes a set of metrics originally adopted in Annex IX to the OMA, and that have been revised as per the OMA, for measuring and reporting LUMA's performance as the Operator of the Transmission & Distribution System and for determining the incentive fee that LUMA is eligible to receive each applicable Contract Year. LUMA will be entitled to earn the incentive fee for any given Contract Year if it achieves or exceeds the Performance Metrics Targets.

LUMA's Performance Metrics Targets include minimum performance levels and target thresholds. Incentives are paid only when performance exceeds minimum performance levels.

Q. How were Performance Metrics Targets included in the OMA?

A. The mechanism of Performance Metrics, targets and incentives, and its conceptualization in the OMA, was part of the competitive procurement process. Annex IX of the OMA was developed during an 18-month negotiation period led by the Puerto Rico Private Public Partnership Authority (P3 Authority) and its Partnership Committee. The evaluation of proposals included the comments made by proponents to customer service, technical, and operational and financial performance metrics to improve the Transmission & Distribution System. As is stated in the Partnership Committee Report for the Puerto Rico Public-Private Partnership for the Electric Power Transmission and Distribution System dated May 15, 2020, LUMA's approach was considered by the Partnership Committee as more favorable and aligned with Puerto Rico's goals.

Q. Describe the process followed to revise Annex IX to the OMA to submit with PREB LUMA's Performance Metrics Targets.

A. Revisions to Annex IX to the OMA were made in according to Section 4.2 of the OMA, which directs that during the Front-End Transition Period, LUMA was required to establish a planning team with PREPA and the P3 Authority to prepare, with the input of said planning team, "a revised Annex IX (Performance Metrics), including (i) proposed baseline, target and minimum performance levels for certain Performance Metrics, (ii) Key Performance Metrics and (iii) Major Outage Event Performance Metrics, together

with an explanation of the basis for each of the foregoing." Together, LUMA refers to those metrics as Performance Metrics.

As required under the OMA, and after having concluded an iterative review process with the P3 Authority's advisors during the months of December 2020 and January 2021, LUMA submitted the Performance Metrics to the P3 Authority on February 5, 2021 for the P3 Authority's final review and comments. The comments and suggestions of the P3 Authority's advisors and the P3 Authority were discussed and addressed in the Performance Metrics Targets filing submitted to the Energy Bureau on February 25, 2021, that includes a revised Annex IX as Section 2.0 ("Performance Metrics Targets"). We labeled the revised filing with this Energy Bureau as LUMA's Performance Metrics Targets.

Following these OMA requirements, LUMA's Performance Metrics Targets are the product of LUMA's efforts as part of the Front-End Transition Services to review PREPA's processes, data, and baseline performance on certain performance metrics. The process included active participation by LUMA's subject matter experts, as well as discussions with stakeholders who provided feedback on processes and regulatory requirements, among others.

LUMA's Revised Performance Metrics Targets Filing was also reviewed and submitted on August 18, 2021, to consider the Energy Bureau's determinations in Case Number NEPR-MI-2019-0007, setting performance benchmarks and baselines for the Puerto Rico Electric Power Authority. The revisions included in LUMA's Revised Performance Metrics Targets filing and the Revised Annex IX to the OMA incorporate, for several of the Performance Metrics, data and observations obtained by LUMA towards the end of

the Front End Transition Period and during the period of two months after assuming operations of the T&D System on June 1, 2021. The Revised Performance Metrics Targets Filing incorporates revisions to baselines for several of the Performance Metrics, including some to accommodate information that LUMA has obtained and analyzed since June 1, 2021.

Q. What are the components of LUMA's proposed Performance Metrics Targets?

A. In compliance with Section 4.2(f) of the OMA, LUMA's proposed Performance Metrics Targets include (i) the proposed baseline, target and minimum performance levels for certain Performance Metrics; (ii) Key Performance Metrics; (iii) Major Outage Event Performance Metrics; and (iv) an explanation of the basis for each of the foregoing, all as defined in Revised Annex IX to the OMA.

The proposed Performance Metrics Targets are linked to the execution of improvement programs and other plans to achieve targeted performance consistent with statutory and regulatory policy and goals. It is important to note that, assuming sufficient funding, attaining the proposed Performance Metrics Targets will be under LUMA's control as Operator of the Transmission & Distribution System. The metrics and targets were set to result in tangible benefits to customers.

LUMA is presenting metrics, including the corresponding objectives, descriptions, calculations, baselines and targets, for which there is enough data to set baseline performance utilizing recognized industry practices and standards.

Q. What areas are going to be measured by the proposed Performance Metrics Targets?

A. The areas which are going to be measured pursuant to the proposed Performance Metrics are: Customer Service; Technical, Safety & Regulatory; and Financial Performance. Each one of those areas has an established performance goal under the proposed Performance Metrics.

LUMA's other witnesses in this proceeding, will further address and explain in detail each of the above-mentioned areas and the proposed Performance Metrics Targets in their respective testimonies filed separately in this proceeding before the Energy Bureau.

Q. What are the performance goals set forth in the proposed Performance Metrics Targets?

A. There are different goals for each one of the areas to be measured. In terms of Customer Satisfaction, the goal is to achieve a high-level of customer service across all customer classes. For Technical, Safety & Regulatory, the goal is to operate a safe and reliable electric grid while remaining compliant with applicable safety, regulations. Finally, as to Financial Performance, the goal is to meet the approved Operating Budget, Capital Budget: Federally Funded and Capital Budget: Non-Federally Funded.

Q. Please describe the Major Outage Event Performance Metrics.

A. The OMA outlines technical metrics to establish targets for acceptable performance in providing reliable electric service during normal conditions. These metrics expressly characterize major outage events as abnormal and exclude utility performance during these major outage events. As such, the Performance Metrics are not intended to, cannot and do not provide any quantitative measurement of utility performance during a major outage event. In addition, following industry standards, some metrics explicitly exclude data from time periods characterized as abnormal, extraordinary or emergencies.

The OMA also includes Major Outage Event Performance Metrics and a Major Outage Event Scorecard (MOE Scorecard) that will be used as a tool to specifically measure utility performance during each Major Outage Event. The use of the MOE Scorecard is consistent with the OMA's intent to provide transparency on the utility's performance during emergencies and to assist in learning from emergency events and improving emergency preparation and response.

The MOE Scorecard assigns metrics and points into three categories: Preparation, Operational Response and Communications. The three categories are intended to capture the key activities associated with a Major Outage Event.

The Preparation metrics focus on utility activities in anticipation of a significant outage event. The second category, Operational Response, evaluates the utility's performance during the response to a Major Outage Event. The third category, Communications, assesses the utility's performance disseminating information about the MOE and the response.

Abner Gómez and Terry Tonsi, witnesses for LUMA in this proceeding, further address and explain in detail each of the above-mentioned categories in their respective testimonies filed in this proceeding.

Q. What process did LUMA follow to adopt the Major Outage Event Performance Metrics as proposed?

A. LUMA looked at other utilities best-practices to identify areas which were aligned with its objectives. Specifically, we reviewed the State of New York Public Service Commission's scorecard for reporting on emergency response for electric utilities. The

three categories and metrics are generally aligned with the NY PSC scorecard methodology.

The MOE Performance Metrics are intended to be more procedural and binary than the typical Performance Metrics that apply during most of the year. Given that LUMA is stepping into the operation of a severely debilitated grid and that the emergency response capabilities are being built from the ground up, it was important to set goals and measures that reflect this reality. It is extremely difficult to pre-set a priori numerical targets for the important activities that have been established in the MOE Performance Metrics without any baseline data. Nevertheless, the proposed MOE metrics establish specific time frames based on event categorization for Downed Wires and Damage Assessment. In addition, time frames are established for Crewing, ETR reporting, Mutual Assistance and Outgoing Message.

Q. Explain the methodology used to assign base points and the effective weight allocated to those points in the proposed Major Outage Event Performance Metrics.

A. The effective weight looks at what is more important in an emergency and that is how the weight for each metric is assigned. The assignment of base points and weighting is consistent with the NY PSC scorecard and LUMA's subject matter experts on emergency response for electric utilities.

Q. What are the purposes of the Performance Metric Targets that LUMA proposes?

A. The targets submitted as part of the Performance Metrics Targets filings will be used to, among other things, measure LUMA's performance in accordance with Energy Bureau Regulation 9137, Regulation for Performance Incentive Mechanisms ("Regulation

9137"), and the OMA, and will be the basis to determine the Incentive Fee for each Contract Year as defined in Section 7.1 and as set forth in Annex VIII (Service Fee) of the OMA and calculated as set forth in Annex X (*Calculation of Incentive Fee*) of the OMA. LUMA's Revised Performance Metrics Targets are also in accordance with the Initial Budgets in NEPR-MI-2021-0004. In addition, per the OMA, Budgets "shall be designed to be adequate in both scope and amounts to reasonably assure that [LUMA] is able to carry out the related O&M Services in accordance with the Contract Standards and have a reasonable opportunity to earn the Incentive Fee for achieving the Performance Metrics." (Section 7.4 of the OMA)

Q. What types of data measurements are considered in LUMA's proposed Performance Metrics Targets submission?

A. In order for data measurements to be useful as Performance Metrics they should: (1) utilize recorded information that indicates performance, (2) be subject to improvement through actions under the control of the utility, and (3) align with public policy objectives.

Q. What characteristics does LUMA propose the Performance Metrics should possess?

A. Several characteristics should be considered when establishing Performance Metrics including: (1) clear, unambiguous, objective quantification; (2) an accurate baseline; (3) indication of the degree to which progress is being made; (4) relation to the current state of the system; (5) alignment with public policy and the customer's needs; and (6) focus to efficiently effect change. Since characteristics 1 and 2 above are not available for emergency response activities, LUMA has proposed more procedural and reporting targets for the MOE Performance Metrics.

Q. How long are the proposed Performance Metrics Targets set to apply?

A. Due to the significant gaps identified in data collection, data quality, record-keeping and processes as historically applied, LUMA proposes that this set of Performance Metrics apply for an initial period of three years of operation. However, LUMA proposes that LUMA and PREB may also consider whether adjustments to the Performance Metrics are appropriate prior to the fourth Contract Year based on business, operational or other considerations. Any adjustments will be dealt with in accordance with OMA Section 7.1(d) (Service Fee — Amendments to Performance Metrics). LUMA and the Energy Bureau may evaluate the effectiveness and appropriateness of each metric for measuring the desired performance and resetting baselines, targets, minimum performance levels and metric timelines, in accordance with Section 3.2 of Regulation 9137 and OMA Section 7.1(d). Any revisions to the Performance Metrics are subject to PREB's review, modification and approval.

Q. What is envisioned to happen to the Performance Metrics Targets after the initial three- year period?

A. The set of Performance Metrics and the Target Performance Levels for the fourth Contract Year will be evaluated during the third Contract Year to determine reasonability for subsequent years. Beginning in the fourth Contract Year, Performance Metrics and the Target Performance Levels will be reevaluated on an annual basis. At this time, it will be determined whether additional metrics should be included, base points reallocated, and Target Performance Levels modified. These revisions to the Performance Metrics are subject to PREB's review, modification and approval.

Q. What purposes, if any, would be served by revising metrics, targets and minimum performance levels?

A. It would allow for performance metrics to evolve as public policy evolves, data collection capabilities improve across the Transmission & Distribution System and the condition of the Transmission & Distribution System improves. As LUMA takes over operations and makes improvements to the Transmission & Distribution System and organization, deferred Performance Metrics and additional Performance Metrics should be implemented and considered over time. As the organization evolves, some Performance Metrics should change accordingly and periodic revisions would accommodate this evolution.

Q. Is it in the public interest for the Energy Bureau to approve the proposed Performance Metrics Targets?

A. Yes, since the performance of PREPA was well below industry standards. LUMA believes that the collection of performance metrics detailed in the filing before this Energy Bureau are strong indicators of performance for a utility and are designed to bring performance in line over time with industry standards. The ultimate goal of these performance metrics is to align LUMA's performance with improved results for customers and achievement of the goals of energy public policy.

The Performance Metrics Targets are an important method for LUMA to demonstrate measurable performance related to these goals and are aligned with the public interest.

Q. How do the proposed Performance Metrics Targets protect the public interest?

A. Establishing a robust set of Performance Metrics will enable transparency, reverse negative performance trends and will further align LUMA with public policy. This will

also advance the specific key goals drawn from Puerto Rico energy public policy that are reflected in LUMA's strategic framework: Prioritize Safety; Improve Customer Satisfaction; System Rebuild and Resiliency; Operational Excellence; and Sustainable Energy Transformation.

Q. Does this complete your testimony?

A. Yes.

ATTESTATION

Affiant, Mr. Mario Hurtado, being first duly sworn, states the following:

The prepared Direct Testimony constitutes my direct testimony in the above-styled case before the Puerto Rico Energy Bureau. Affiant states that he would give the answers set forth in the Direct Testimony if asked the questions that are included in the Direct Testimony. Affiant further states that, facts and statements provided herein is his direct testimony and to the best of his knowledge are true and correct.

Mario Hurtado

Chief Regulatory Officer

Affidavit No. 347

Acknowledged and subscribed before me by Mario Hurtado, whose full name is as described herein, of legal age, married, business executive, and resident of San Juan, Puerto Rico, in his capacity as Chief Regulatory Officer for LUMA Energy LLC, who is personally known to me.

In San Juan, Puerto Rico, today, August 18, 2021.

Notary Public