

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

NEPR Received: Oct 31, 2023 8:31 PM
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IN RE:

THE PERFORMANCE OF THE PUERTO
RICO ELECTRIC POWER
AUTHORITY

CASE NO.: NEPR-MI-2019-0007

**SUBJECT: Submission of Responses to Requirements
of Information and Request for Extension to Respond to
ROI 5(c)**

**SUBMISSION OF RESPONSES TO REQUIREMENTS OF INFORMATION IN COMPLIANCE WITH
ORDER OF OCTOBER 16, 2023, AND REQUEST FOR EXTENSION OF TIME TO RESPOND TO ROI 5(C)**

TO THE PUERTO RICO ENERGY BUREAU:

COMES NOW, LUMA ENERGY SERVCO, LLC (“LUMA”), through the undersigned legal counsel and respectfully states and requests the following:

1. On April 20, 2023 (“April 20th Motion”), LUMA filed the *Submission of Performance Metrics Report for January through March 2023 and In Compliance with Orders of January 12, 2023 and April 3, 2023*, and requested that the SAIDI and SAIFI metrics be reported according to LUMA’s operation districts, as opposed to the Puerto Rico Electric Power Authority’s (“PREPA”) districts.

2. On July 20, 2023, LUMA submitted the quarterly Report on System Data for the months of April through June 2023 (“July 20th Motion”). As announced in the April 20th Motion, in its submission of data pertaining to the reliability metrics, LUMA incorporated LUMA’s districts instead of PREPA’s districts.

3. On August 16, 2023, this Honorable Puerto Rico Energy Bureau (“Energy Bureau”) issued a Resolution and Order (“August 16th Order”) whereby it determined that additional

information was required to evaluate LUMA’s July 20th Motion and the request to report the SAIDI and SAIFI metrics according to LUMA’s operation districts, rather than PREPA’s districts. This Energy Bureau ordered LUMA to respond to various requests for information included as Attachment A of the August 16th Order.

4. On September 6, 2023, LUMA filed the *Motion in Compliance with Resolution and Order of August 16, 2023, and Request for Confidential Treatment*, including responses to the requirements of information of the August 16th Order.

5. On October 16, 2023, this Energy Bureau issued additional requirements of information regarding the July 20th Motion and granted LUMA until October 31, 2023, to comply and file responsive information (“October 16th Order”). See Attachment A of the October 16th Order (requirements of information).

6. On October 20, 2023, LUMA submitted the quarterly Report on System Data for the months of June through September 2023.

7. LUMA hereby submits its responses to the requirements of information issued in Attachment A of the October 16th Order.

8. Notwithstanding, and despite LUMA’s best efforts, LUMA requires two additional weeks, until November 14th, to submit the report requested by this Energy Bureau in Requirement of Information 5 (c) (“ROI 5 (c)”)¹.

¹ In ROI 5 (c), this Energy Bureau requested the following: For

c. For the following metrics, please provide an Excel workbook with monthly invoiced DG capacity from June 2019 (or as much as is available) through present day if this differs from what LUMA has been providing already in the quarterly report:

9. In ROI 5 (c), this Energy Bureau required that LUMA prepare a report in excel workbook format with monthly invoiced DG capacity from June 2019 (or as much as is available) through present day, if it is different from what LUMA has been providing already in the quarterly reports regarding four performance metrics. ROI 5 (c) requires a report or compilation of data that LUMA does not currently prepare in the ordinary course of business. Thus, a response to ROI 5 (c) necessitates gathering information from various sources, repositories and databases and a process to convert and process the data to create a new and unique Excel workbook document. This process is complex and, as such, LUMA needs additional time beyond the timeframe set forth in the October 16th Order.

10. The request for additional time to submit a response to ROI 5 (c) is filed in good faith. Given that LUMA was working to complete its response by the original deadline set forth in the October 16th Order, it was not possible to file a request for extension at an earlier date.

11. LUMA notes, respectfully, that it has complied today with filing its responses to the rest of the Requirements of Information and that request for extension only applies to a subsection of one of thirteen Requirements of Information of the October 16th Order. It is respectfully submitted that this request for extension applicable exclusively to ROI 5 (c) should not impede review by this Energy Bureau of system data for FY2023.

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- i. "Total installed distributed generation capacity - Photovoltaic"
 - ii. "Incremental installed distributed generation capacity per month - Photovoltaic"
 - iii. "Total number of distributed generation installations - Photovoltaic"
 - iv. "Incremental number of distributed generation installations per month - Photovoltaic"

WHEREFORE, LUMA respectfully requests that this Honorable Bureau **take notice of** the aforementioned, **deem** that LUMA substantially complied with the October 16th Order and **grant** LUMA a two (2) week extension, until November 14th, to respond to ROI 5(c).

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 31st day of October 2023.

I hereby certify that I filed this motion using the electronic filing system of this Energy Bureau and that I will send an electronic copy of this motion to PREPA's General Counsel, Lionel Santa Crispín, lionel.santa@prepa.pr.gov, PREPA's counsel of record, Joannely Marrero, jmarrero@diazvaz.law Genera PR LLC, through its counsel of record Jorge Fernández-Reboredo, jfr@sbglaw.com and Alejandro López Rodríguez, alopez@sbglaw.com, and the Independent Consumer Protection Office, Hannia Rivera Diaz, hrivera@jrsp.pr.gov.



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Exhibit 1
LUMA's Responses to Requirements of Information of October 16th Order
Excel spreadsheet to be submitted via email

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-001

SUBJECT

Information Response: PREB Requests

REQUEST

Explain why the monthly average system SAIDI has increased during LUMA's tenure as System Operator (June 2021 through present) relative to PREPA's historical performance (June 2019 through May 2021).

RESPONSE:

LUMA compares its Yearly System Average Interruption Duration Index (SAIDI) value to PREPA's baseline when determining its performance. When looking at the complete performance of service restoration times, measured by SAIDI at the end of Fiscal Year 2023 (FY23), LUMA customers experienced an improvement of 2% when compared to the PREPA's baseline. Therefore, LUMA deems that the premise that SAIDI has increased is incorrect. PREPA's SAIDI baseline is 1,243, while LUMA's FY23 SAIDI was 1,218.

Additionally, it is worth noting that the use of a rolling average system SAIDI is misleading due to the seasonal impacts of weather in Puerto Rico. These seasonal impacts cause SAIDI to trend higher in some months than in others. Because of the variation in weather and other external factors experienced over the year, reliability is typically analyzed on a multi-year basis to determine meaningful trends. Evaluating performance over shorter time periods is misleading and can lead to erroneous conclusions about the state of the grid.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-002

SUBJECT

Information Response: PREB Requests

REQUEST

Provide an update on the following programs that LUMA stated were in progress to improve reliability performance during FY23, as written in LUMA's October 15 Submission²:

- a. Improved asset monitoring, including thermography via drones to identify failing equipment.
- b. Increased focus, such as how LUMA is shifting how crews carry out work so that crews can devote more time to service restoration.
- c. Onboard and deploy experienced workers for reliability work and Outage Response
- d. Onboard local line contractors
- e. Onboard and deploy contractors for reconstruction work
- f. Conduct accelerated vegetation management of top critical lines.
- g. Onboard and deploy contractor workers
- h. Install new state-of-the-art automation devices

RESPONSE :

- a. As LUMA continues its transition from reactive to a more proactive preventive maintenance orientation, the following asset monitoring programs are in effect:

Substations:

- **Visual Inspections:** LUMA continues visual inspections of substations to identify deficiencies to help drive subsequent remediation work planning and prioritization and provide visibility to asset health/risk. Key areas assessed include (1) Overhead Hazards and Unsecure Equipment, (2) Yard (for unsafe conditions to equipment and personnel caused by erosion of the substation pad, vegetation incursion reducing the effectiveness of insulating gravel, etc.), Components (for indications of imminent failure of High Voltage (HV) equipment that can cause harm to employees or the public), and Control House (for leaking roofs or equipment enclosures). In summary, it is an inspection of the entire

² LUMA Responses to August 18, 2022 Resolution and Order. Response RFI-LUMA-MI-2021-0007-220818-PREB-6 and PREB-8

substation including buses, insulators, switches, fences and security, grounding, control building integrity and climate control to assess overall condition of the facilities.

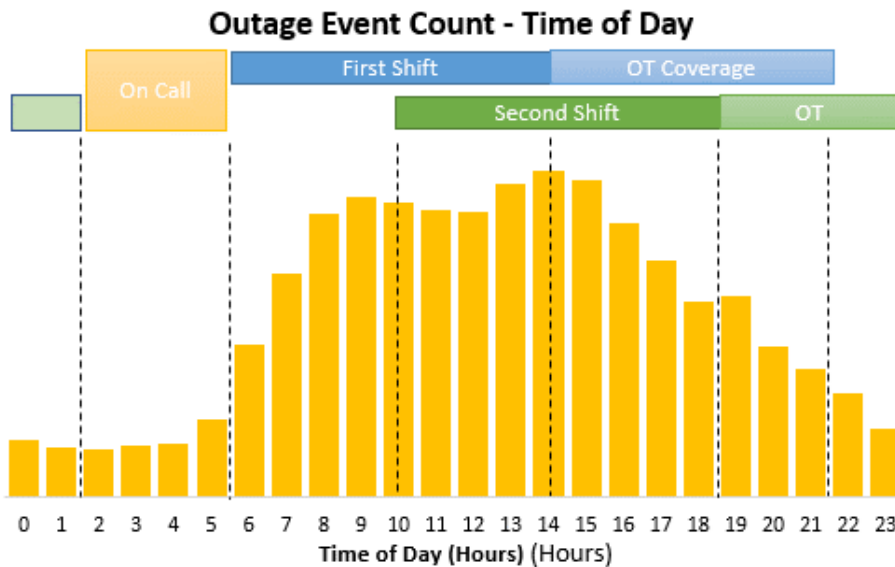
- **Transformer Testing and Oil Dissolved Gas Analysis (DGA):** LUMA has done proactive functional testing of transformers, is performed along with its oil DGA. DGA of transformer oil, measuring degradation of paper insulation, moisture, and quantity of combustible gases in oil is a strong indicator of transformer condition / health. DGA program is targeted annually, or more frequently depending on the test results. DGA results help in identifying possible problems to make important decisions to prevent failure in a transformer, like taking out of service for repairs, reducing the load, that can cause overheating or the need to process or replace the insulating oil. These actions help maximize the useful life of a transformer.
- **Breaker Testing:** LUMA continues visual inspection to monitor levels, control cabinets, general condition, and obvious problems, insulation medium testing, and functional testing.
- **Relay Testing:** LUMA has performed and continues testing of relay operation to ensure within tolerance. Also, functional test from relays to breaker to confirm true operation of the protection zone.
- **Thermography (IR Scans):** LUMA continues proactive Thermographic scan of power transformers, Load Tap Changers (LTCs), potential transformers and current transformers (tanks and connections), breakers (tanks, connections, and contacts), batteries (cell connections), and arrestors, cables, terminations, and capacitor banks for “Hot Spots” (indicator of real-time or potential future failures).
- **DC System Assessments:** LUMA continues DC system assessments, which includes visual check of fluid levels and output voltage as well as electrical testing (to ensure battery and charger are operational and no bad cells).

Transmission:

- **Visual Assessments:** Performed visual assessments on the 230, 115, and 38 kV systems to identify high risk safety and reliability issues to help drive subsequent remediation work planning and prioritization and provide visibility to asset health/risk. Included aerial and ground patrol assessments. With the occurrence of Hurricane Fiona, much of the visual assessments’ efforts were devoted to performing post-Fiona damage assessments.
- **Thermography (IR Scan):** Focusing on lines experiencing trips, looking for high-resistance connections or contacts: splices, hardware, switches, etc. In so doing, can identify equipment at or near end of life or that presents a significant safety or reliability risk.
- **Voltage Wave Signal Monitoring:** Voltage wave signal monitors were installed in most of the 230 kV Transmission Centers. This technology supports LUMA monitoring the behavior of the 230 kV system. It helps with the location of faults in the system. In addition, it is being explored to help make future maintenance and prioritization decisions within the transmission system.

Distribution:

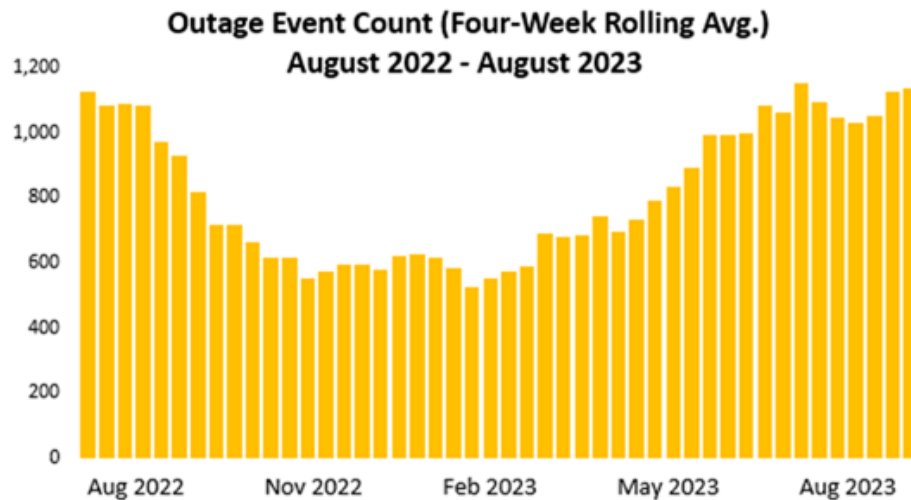
- **Visual Assessments:** Performed visual assessments on the distribution system to identify high risk safety and reliability issues to help drive subsequent remediation work planning and prioritization and provide visibility to asset health/risk. With the occurrence of Hurricane Fiona, much of the visual assessment efforts were also devoted to performing post-Fiona damage assessments.
 - **Thermography (IR Scan):** Focusing on feeders experiencing the most outages, looking for high-resistance connections or contacts. In so doing, can identify equipment at or near end of life or that presents a significant safety or reliability risk.
- b. Unplanned outage events exhibit two very consistent patterns that allow specific strategies to be deployed to maximize resource efficiency. The first consistent pattern is a daily pattern shown in the figure below. This figure shows the cumulative unplanned Distribution outages for FY23 across the full hours of a day. The pattern shows a significant decrease in outages through the night and outages increasing through the morning, peaking in the afternoon and decreasing into the evening hours.



LUMA has shifted resource into two daily shifts, the first one starting at 6:00 AM when outages start to increase and the second shift starting at 10:30 AM which allows this shift to operate under regular shift hours to 7:00 PM when outages are significantly decreasing in volume. This daily split shift allows resources to be effectively spread across the peak daily outages and allows resources to extend overtime further into the night hours. A small period of time during the night which sees the lowest number of outages is covered via crews on stand-by for call-in. LUMA has increased the number of crews that are assigned to stand-by to ensure adequate coverage through this period of time. In addition to the change in daily shifts, LUMA has also adjusted weekly shifts to have scheduled crews for outage response working across all days of the week including the weekends to ensure quicker response times during the weekends.

The second consistent pattern that is seen is the annual fluctuation in unplanned outages between the traditional storm season (June to October) and the remainder of the year. The following figure shows the rolling 4-week average of distribution system unplanned outages (weekly count) that were experienced from August 2022 to August 2023. This historical data shows a significant

decrease down to approximately 50% of the weekly event counts during the off-peak winter season compared to the peak storm season.



This pattern allows LUMA to coordinate and plan temporary qualified resources to supplement base daily outage response resources during the peak storm season. Leading into the 2023 storm season, LUMA supplemented the outage response crews with 25 additional qualified resources on a temporary basis. In addition, LUMA has been able to adjust workloads for permanent employees between the seasons to have a higher focus on planned work outside of storm season and shift resources to unplanned outages within storm season. In addition to restructuring employee shifts and number of direct resources, further development of the Incident Command Structure (ICS) has also been an important key to improving unplanned outage response. Through FY23, LUMA undertook nearly 35,000 hours of ICS training and developed proficiency in activating and operating Regional Operations Command Centers (ROCC) through conducting emergency preparedness tabletop exercises. LUMA's base of employees for daily response to unplanned outage events has increased to approximately 300 employees. LUMA has access to on-island resources (LUMA employees and contracted) that are typically working on planned work that can be re-assigned to support large outage events. In the event of a large outage event response, these resources are coordinated through the ICS structure that has been developed which ensures a focused and well executed response. LUMA has developed the ability to increase response resources assigned to large outage event responses from the regular 300 employees to an excess of 1000 employees within 24 hours' notice.

c. LUMA's has taken action throughout FY23 in order to increase the onboarding and deployment of experienced workers both for reliability work and outage responses. This effort has been multi-pronged and includes the following key efforts and programs:

- Shortly after commencement, LUMA undertook an aggressive upskilling program to bring the level of qualification of LUMA employees up to expected industry standards. Through FY23, LUMA graduated 106 lineworkers to fully qualified status. It can also be noted that the upskilling program will come to completion in November 2023 where an additional 49 lineworkers are expected to graduate to fully qualified status.
- LUMA has developed and supports a lineworker Apprenticeship program that is focused on developing and growing local talent. Traditionally, an apprenticeship program cannot deliver qualified workers for approximately 4 years as the apprentices work through the 8 stages of development from pre-apprenticeship through to the completion of Apprentice Period 7. During FY23, LUMA adjusted the program and intake process to begin hiring

workers that had electrical experience to start midway through the program at Period 4. This allows the hiring of a more experienced worker and reduces the time to graduation as a fully qualified lineworker down to 2 years. In FY23, LUMA was able to hire 14 apprentices that could be placed into Period 4 to commence their apprenticeship. LUMA is expecting the first graduations from the lineworker program to start in 2025 due in part to this acceleration effort.

- LUMA has added both Substation Technician and Underground Residential Distribution (URD) Technician programs to the apprenticeships being offered, with the URD program being the further advanced out of these two programs. Similar to the Lineworker Apprentice program, these are being designed to allow partially qualified employees to start mid-way through the program. In FY23, 20 URD apprentices were hired, of which 8 were able to start in Period 4. Through the accelerated program, 2 apprentices have already graduated as fully qualified URD Technicians.
 - Through the International Brotherhood of Electrical Workers (IBEW) union affiliation, LUMA is able to hire fully qualified lineworkers and technicians from the US mainland through the union hall. This has proven to be a very effective strategy to fill qualified resourcing gaps and help ensure that outage response and reliability focused work proceeds as needed. In FY23, LUMA had been sustaining approximately 75 qualified resources hired through this process focused operationally on outage response and critical system maintenance. Additionally, through FY23, approximately 200 resources have been sustained through this process to support enhancement work to the electric system that is focused on improving system reliability.
 - During FY23, a hiring program was developed for directly hiring fully qualified lineworkers from both the US mainland and from other areas of North and South America. By the end of FY23, the program had been fully developed and targeted recruitment had commenced in many different areas including the US, Canada, and Chile. This program is expected to start delivering the first qualified lineworkers before the end of the 2nd quarter of Fiscal Year 2024 (FY24).
- d. All requests for proposals (RFPs) that LUMA releases are open to all contractors, and everyone is encouraged to participate. During FY23, LUMA launched several RFPs including streetlights, distribution pole and reconductor, transmission pole installation and substation minor repairs. In addition, LUMA also engaged A&E, consultants, and general project management support to supplement their workforce and accelerate the reconstruction process.
- e. Please refer to ROI-LUMA-MI-2019-0007-R2-16OCT23-002, part d. LUMA also offers an onboarding process once a contractor gets selected to do a job. The contractor participates in an internal onboarding process where they learn best safety practices, invoicing requirements, environmental expectations, and applicable orientation to meet LUMA's standards. However, all contractors are responsible for their own training, safety programs and environmental training, as required by LUMA, to meet minimum industry standards.
- f. In the second quarter of FY23, LUMA began significantly increasing the number of contract vegetation maintenance resources performing clearing work on the transmission and distribution system. At the beginning of December 2022, there were 515 contract full-time equivalents (FTEs) performing vegetation work in Puerto Rico. By the end of March 2023, this number had increased to over 900 FTEs. As a result of this increase in the workforce, LUMA cleared over 700 miles of transmission and distribution lines over a four-month period. The lines cleared as part of this ramp-

up of resources included distribution feeders with known vegetation issues that have significantly impacted system reliability and contributed to vegetation-caused customer outages.

To further accelerate the vegetation work, in April 2023, LUMA submitted to FEMA an initial scope of work (ISOW) to clear all 16,000+ miles of transmission and distribution lines in Puerto Rico over approximately a three-year timeframe. This capital remediation work, based on nonrecurrent FEMA funds, will prioritize reliability across the entire system to ensure the greatest impact is realized early in the project. LUMA estimates this project will result in a 70% annual reduction of outages caused by vegetation and a 35-45% annual reduction in customer interruptions overall.

- g. LUMA has continually onboarded contractors to supplement our internal workforce with qualified personnel when needed. This includes engineering resources to conduct system analysis and develop work order packages to execute key reliability work throughout the island by internal resources and construction contractors. i.e. Transmission and distribution pole, Transmission and distribution line rebuild, Transmission and distribution substation reliability improvements, distribution automation and vegetation work.
- h. The program addresses equipment for distribution automation. By the end of FY23, LUMA has made significant progress with the installation of 1,719 devices. These efforts include the installation of technologies to serve as line segmentation and protection devices, including three phase and single phase reclosers, cutout installations and fault indicators.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-003

SUBJECT

Information Response: PREB Requests

REQUEST

Provide an update on the condition of critical equipment that LUMA identified as being in poor condition and requiring replacement. For example, in LUMA's October 15 Submission, it stated that "nearly 25 percent of the 1200 substation breakers were out of service when LUMA began operations, over a third of which have now been repaired or replaced."³

RESPONSE

LUMA has continuously worked since commencement to repair or replace equipment out of service. Out of the remaining 163 distribution feeders out of service, 120 have been restored and 43 scheduled for replacement/repair. For additional information on key activities accomplished during FY23, please refer to the Submission of LUMA's Annual Report For Fiscal Year 2023 and Report on Efficiencies, filed in case. No. NEPR-MI-2021-0004 on October 30, 2023.

³ LUMA Responses to August 18, 2022 Resolution and Order. Response RFI-LUMA-MI-2021-0007-220818-PREB-6

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-004

SUBJECT

Information Response: PREB Requests

REQUEST

Provide an update on the following programs to improve SAIFI that LUMA indicated were in progress in its October 15 Submission:⁴

- a. Transmission and distribution pole & conductor repair
- b. Transmission and distribution line rebuild
- c. Transmission and distribution substation reliability improvements.
- d. Distribution automation
- e. LUMA vegetation strategic approach
- f. Enhanced asset monitoring

RESPONSE

- a. LUMA continues the acceleration of the pole and conductor repairs. LUMA has obtained FEMA obligated funds in more than 70 projects related to Pole and conductor repairs, and currently more than 70 of these projects are in construction. LUMA has performed high level assessments of the infrastructure and based on the assessments, poles identified as critical, are being targeted first for replacement. LUMA is installing 160mph resistant wider and taller steel poles that are more resistant to hurricane force winds, mitigating and improving the current state of the grid. To date LUMA has replaced or repaired 9,700 poles.
- b. LUMA is currently designing transmission and distribution line rebuilds, however, most important reliability items are being addressed upfront through distribution automation devices, fault current indicators, fuse coordination and bringing out of service feeders to current configuration. These designs will go through a very detailed FEMA approval process, including Environmental and Historic Preservation (EHP) and environmental reviews including the detailed design level. The EHP evaluation process has taking longer than expected due to the neglected state of the grid prior to LUMA taking over. LUMA is taking steps to issue Engineering, Procurement, and Construction (EPC) request for proposals to accelerate the design, engineering, and construction process for critical lines. LUMA has also started, and its completing, system wide area planning,

⁴ LUMA Responses to August 18, 2022 Resolution and Order. Response RFI-LUMA-MI-2021-0007-2 PREB-8

identifying priorities, targets, reliability goals and looking for areas designed as worst performing feeders/lines as our current priorities.

c. In FY23, LUMA completed the following:

- Replaced 23 battery banks, 16 transmission breakers, 12 distribution breakers, and one distribution power transformer.
- Completed 20 breaker protection upgrades, three transmission line protection upgrades, and two transformer protection upgrades.
- Restored six load tap changers and more than 50 out-of-service feeder breakers.

LUMA also carried out the following miscellaneous maintenance and capital improvement projects:

- Aguirre overall protection, automation, and control – on-going
- Repairs to Bayamon TC Metalclad 1711 – phase one of two completed.
- Breaker separation for distribution transformer and turbines in Jobos TC – 80% completed.
- Sectionalizing of line 36100 in Ciales – 90% completed pending civil works.
- Maunabo TC transformer installation and breaker replacements – Engineering completed. Construction to start in FY24.
- Guanica TC – Oil breakers replaced, PAC system renovated, bus work completed, 115/13.2kV transformer energized. Pending LTC repairs to 115/38kV transformer and substation minor repairs.
- Añasco TC – Transformer repairs, bus work installation, 38kV line undergrounding and metalclad repairs. Engineering completed.
- San Juan and Palo Seco FEMA emergency generators – Engineering support provided by system planning, substation design, protection, and control teams.

d. Please see ROI-LUMA-MI-2019-0007-R2-16OCT23-002.

e. Please see ROI-LUMA-MI-2019-0007-R2-16OCT23-002.

f. Please see ROI-LUMA-MI-2019-0007-R2-16OCT23-002.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-005

SUBJECT

Information Response: PREB Requests

REQUEST

For the metrics that LUMA has been reporting related to distributed generation such as "Total installed distributed generation capacity - Photovoltaic", "Incremental installed distributed generation capacity per month - Photovoltaic", "Total number of distributed generation installations - Photovoltaic", and "Incremental number of distributed generation installations per month - Photovoltaic":

- a. Please clarify whether LUMA has been reporting invoiced or registered capacity.
- b. If LUMA is reporting registered capacity instead of invoiced capacity, explain why.
- c. For the following metrics, please provide an Excel workbook with monthly invoiced DG capacity from June 2019 (or as much as is available) through present day if this differs from what LUMA has been providing already in the quarterly report:
 - i. "Total installed distributed generation capacity - Photovoltaic"
 - ii. "Incremental installed distributed generation capacity per month - Photovoltaic"
 - iii. "Total number of distributed generation installations - Photovoltaic"
 - iv. "Incremental number of distributed generation installations per month -Photovoltaic"

RESPONSE:

- a. LUMA has been reporting registered capacity.
- b. Registered capacity contains the most accurate information of total installed distributed generation. Invoiced capacity does not include DG installations that are registered but have not been billed for the month reported. This is due to the billing cut-off date at the time of registration having already passed. These non-invoiced DG installations will show up in the following month's report (net metering will be applied retroactively). The registered DG report is a snapshot of all accounts with the Net Metering flag in CC&B (Billing system) on the last day of the reported month which provides a better picture of the total. If a bill was already sent before the net metering was activated it will not be included on the invoiced for the month reported, however, by looking at the registered amounts it would be considered a DG installation since it's already interconnected to the grid.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-006

SUBJECT

Information Response: PREB Requests

REQUEST

For the following metrics, provide an update on when LUMA expects it will have the ability to start reporting the following metrics and explain why LUMA has not been able to provide data for these metrics up to this point:

- a. Monthly peak by customer class
- b. Monthly peak by district
- c. Momentary Average Interruption Frequency Index (MAIFI)
- d. Mean time to interconnect utility-scale RPS-eligible projects

RESPONSE

- a. At this time Monthly Peak by customer class cannot be measured for the entire customer base due to limitations of the metering infrastructure. LUMA is in the process of procuring and installing Advanced Metering Infrastructure (AMI), which will help provide LUMA with the ability to automatically read meters for different customer classes and districts. Once full deployment of AMI is completed, other system enhancements will be conducted to enable LUMA to support the efforts of classification and calculation required for this metric.
- b. Please see ROI-LUMA-MI-2019-0007-R2-16OCT23-006a.
- c. Currently, LUMA does not have the technology to provide Momentary Average Interruption Frequency Index (MAIFI). Determining a meaningful MAIFI metric is highly dependent on extensive high-quality monitoring infrastructure (e.g., supervisory Control and Data Acquisition (SCADA), AMI and information systems due to short duration of a momentary interruption. Given that the extensive high-quality monitoring infrastructure and information system necessary are not in place, meaningful values for this metric cannot be determined at this time.
- d. There has been no utility – scale RPS eligible projects that have been interconnected since LUMA commenced operations. We will have data for this this metric when projects begin to be synchronized into the system in 2024.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-007

SUBJECT

Information Response: PREB Requests

REQUEST

Regarding the Overtime metric that LUMA is reporting:

- a. Explain how this metric is currently being calculated
- b. Provide LUMA's workpapers used to calculate this metric.
- c. LUMA reported a value of -1104% for December 2022.⁵ Explain what occurred this month to result in this value.

RESPONSE

- a. Calculations for the overtime metric are obtained by summing the total amount of overtime expenses and dividing that sum by the amount of total non-exempt base compensation expenses, expressed as a percentage.
- b. Please see Overtime-ROI-LUMA-MI-2019-0007-R2-16OCT23-00.xls.
- c. An adjustment was made in December 2022, based on qualifying outage event related salary and overtime expenses that were incurred in the first six months of FY23. This year-to-date adjustment occurred in December as result of dedicating financial resources to the Hurricane Fiona emergency response during Q2 of FY23. After making these adjustments, the overtime metric for July 2022 – December 2022, calculated by dividing the sum of overtime expenses by total non-exempt base compensation expenses is 27%.

⁵ See "Resumen-Metricas-Master_July2023.xlsx" as filed by LUMA in its July 20 Submission In Re: The Performance of the Puerto Rico Electric Power Authority, Case No. NEPRMI-2019-0007, July 20, 2023.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-008

SUBJECT

Information Response: PREB Requests

REQUEST

LUMA has reported an average delay in anticipated online date of RPS-eligible projects of 0 days for each month since June 2021.

- a. Please explain how LUMA has been calculating this and provide all relevant workpapers.

RESPONSE

- a. There have been no new RPS eligible projects that have come on-line since LUMA commenced operations. We will have new projects coming on-line in early 2024 and when we know the specific on-line date, we can calculate the average delay.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-009

SUBJECT

Information Response: PREB Requests

REQUEST

Explain why cash recovered on theft has decreased in FY22 and FY23 relative to FY20 and FY21.

RESPONSE

LUMA has significantly changed the theft detection and recovery process over the last 2 years to focus on theft deterrence and collection of payment when theft is detected. PREPA, as a government agency, had an adjudicative administration process which they applied to cases of energy theft. The result of these adjudicative administration cases, and the corresponding administrative fees and penalties, was being counted by PREPA in the total dollar amount of cash recovered on theft. Meanwhile, LUMA, as private operator, does not charge administrative fees and penalties or fines and therefore the total possible collection has decreased. LUMA is working with the Department of Justice to recover primarily the lost revenue and focus on overall deterrence. As cases are billed after the implementation of disconnections for nonpayment in 2024, LUMA is anticipating an increase in the billed and recovered funds related to energy irregularities or energy theft.

During FY22 and FY23, LUMA processes and procedures have been clarified and documented for LUMA field operations staff. In particular, LUMA employees completing these tasks are regular field operations staff, whereas in PREPA as separate group of employees used to complete this function. LUMA needed to establish its new processes and procedures and then train the regular low voltage field employees. More than 300 field operations employees have been trained to complete field investigations. LUMA is in the process of training customer service employees across the island to address customer questions regarding energy irregularities.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-010

SUBJECT

Information Response: PREB Requests

REQUEST

Does LUMA have a plan to increase the percent of customer calls answered and decrease call abandonment rate? If so, please provide a summary of the plan.

RESPONSE

LUMA is undertaking several initiatives to reduce overall call volume that will in turn reduce the number of abandoned calls and increase the percentage of customer calls answered. The focus is to add additional self-service functionality to our services such as the ability to report an outage without the assistance of an advisor using the Interactive Voice Response (IVR.). We will be implementing text messaging options to all our customer for transaction-based request such as outages, payment confirmation, planned outages, etc. all of which will reduce the number of interactions into the contact center that require the assistance of an advisor.

We are also working on enhancing the functionality of our web page along with our Mi LUMA App. This will include broader use of our push notifications which in turn will keep customers up to date on transactions they have processed through our website or app.

Our commitment to maintaining our average speed of answer to less than two minutes will also increase our ability to reduce abandoned calls.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-011

SUBJECT

Information Response: PREB Requests

REQUEST

Does LUMA have a plan to increase the percent of customers billed and decrease the percentage of bills estimated vs read? If so, please provide a summary of the plan.

RESPONSE

LUMA's plan to address estimated bills was developed and submitted to the Energy Bureau originally in Front End Transition under the System Remediation Plan for Billing Accuracy and Back Office (PBCS3). Since commencement of operations in June 2021, LUMA has expanded its plan and ongoing key activities to address estimated accounts, among other billing issues.

The Billing Accuracy and Back Office SRP included the launch of the CC&B Optimization efforts in January 2022 after an initial stabilization period at commencement. There are two key categories causing estimated bills: 1) a meter read is not received for a meter in the time period required, or 2) a meter read was received for a meter in the time period required but the system rejected the reading upon assessment of the meter read. These two categories have extensive and active plans in place to address them and improve performance.

First, as discussed in responses to RFI-LUMA-MI-2021-007-220818-PREB-1 and RFI-LUMA-MI-2021-0007-230112-PREB-A1, LUMA has underway a Meter Read and Replacement initiative specifically to address meters and meter reading systems to increase the number of meter reads received. This initiative is focused on capturing manual meter reading to improve reading efficiency as well as addressing meter infrastructure issues in the field. This initiative is closely coordinated with the objective to effectively replace all meters in Puerto Rico over the next 3-7 years with smart meters. LUMA is managing restrained budgets to keep costs low to customers while managing day-to-day operations for meter installations and replacements. This effort is challenged in part by global supply chain issues impacting meter inventory as well as requirements and demand for customers installing distributed generation at their sites, which require specific meter capabilities for a bi-directional meter.

A specific example of an initiative underway with the Meter Read and Replacement initiative is a pathway change in the methodology of reading commercial and industrial customers. LUMA has been assessing and implementing improvements related to these customers since commencement. In fall of 2022, LUMA conducted an assessment for non-residential customers meters to better understand the prevalence of specific meter issues. This assessment has helped inform the near term and long-term budget spend for meter improvements ahead of smart meter deployment. Another initiative key to this team has been evaluating and moving meters from a manual meter reading route to an automated meter reading Automated Meter Reading (AMR) route, where capable. LUMA identified several thousand meters in Puerto Rico which are capable of being read remotely by AMR but had been moved to a manual meter read route by the prior operator. This is suspected to have been the case due to impacts around the

island after Hurricane Maria but then had not been moved back to an automated read system. Due to the age of the systems supporting these meters these efforts took several months to complete.

Additionally, LUMA has worked diligently to bring back online substations technology for both reading and service. Since commencement of operations 50 substations have been brought back into service. The age and state of the grid significantly impacts meter reading and estimations because 95% or more of LUMA's meters are read using technology that transmits meter reads through the power lines. Power reliability and voltage issues impacts meter reading equipment for LUMA operations and thus overall improvement to grid infrastructure is necessary to improving meter reading and will take time to achieve.

Second, the CC&B Optimization effort included a specific initiative for the Meter Lifecycle subteam. This team specifically evaluated system issues impacting meter reads being evaluated and rejected by the system, resulting typically in an estimated bill. After a detailed technical assessment completed in December 2022, it was identified that the estimation algorithm had a java code error needing to be resolved from the last upgrade of the billing system in 2019. Further, the estimation algorithm steps need to be updated to address the full estimation routine available in the system to dramatically reduce the read rejections occurring.

LUMA is preparing to deploy the updated estimation algorithm into production in November 2023. The team was delayed in deployment as the billing system was being patched and significant overalls of webservices necessitated a delay in other projects until resolved. The expected outcome of this algorithm change will reduce current monthly estimates by more than 20,000 customers.

Additionally, the assessment completed through the Meter Lifecycle subteam identified several other initiatives for the billing system which are underway currently in various stages of testing and deployment. These changes represent the most significant improvements to the billing system since it was deployed in 2012 and not only will reduce the number of estimations but in the coming years and the algorithm improves its assessment will also reduce the amount of manual work to be completed by users. While the estimation algorithm fixes expected to be deployed in FY24 will have initial improvements, the changes will also continue to improve reading evaluation and acceptance as the algorithm receives and operates with improved data, which will require a full 12 months to see the changes.

A key achievement was recently met as the Meter Lifecycle team working through an initiative was able to resolve more than 1.5 million pending meter read in error exceptions in the billing system. This effort being completed has not cleared issues pending since 2018 or prior that were impeding the team from working with priority the open and outstanding issues impacting estimated bills related to this error. The remaining exceptions impacting billing are forecasted to be resolved manually over the next 12-18 months as additional staff are being hired to specifically address the root cause steps to resolve.

In coordination with Operations, Metering and Customer Experience, LUMA has key initiatives in flight or completed targeted to improve meter reading operations, such as:

- Updated Meter Reading and Billing Calendar with expanded timelines for manual meter reading to enable optimization of field resources. This change also provides more time between reading cycles and thus minimizes the number of unread meters.
- LUMA billing team has deployed the Utility Intelligence Platform which for the first time in Puerto Rico's history provides near real-time daily data for managing exceptions as they occur, reducing the number of estimating accounts and improving time to resolve issues to avoid consecutive estimations.
- See also response to docket NEPR-IN-2023-0003 Commercial Bill Estimates on C&I estimated meters for additional information regarding LUMA's plan and ongoing initiatives.

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-012

SUBJECT

Information Response: PREB Requests

REQUEST

Provide an explanation regarding why it took LUMA an average of 5 days to respond to service and outage complaints in FY23.

RESPONSE

The reporting of this metric to the PREB began in March 2022 and was included for the first time on the June 20, 2022, Quarterly Performance Metrics filing. This metric has seen a significant improvement from March 2022 until now.

LUMA is actively working on key projects to maintain the average time to complete these requests as well as find efficiencies and improvements. An additional reduction in average time to complete may be seen after deployment of smart meters and the associated technology deployments expected to occur with that project. However, other projects may impact these response times such as disconnections for nonpayment and investigations related to energy irregularities or projects such as street light improvements.

As a reminder, this metric specifically tracks service orders at the request of the customer. For additional information refer to the testimony of Melanie Jeppesen in technical conference on February 24, 2022, and June 20, 2022, Quarterly Performance Metrics filing. Customer requested service orders include orders such as connections to start service or a field visit to the customer property to inspect a meter. These averages are impacted by workforce, storms as well as customer behavior. For example, summer months may have greater volumes of requests if fuel costs, and consumption increase which tends to lead to greater customer requests. Keep in mind in June and July of 2022, fuel costs for Puerto Rico reached an all-time high which increased objections, investigations, and related customer requests.

Average Time to Complete Service Orders												
FY23												
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Days	6	7	6	5	6	4	4	4	4	3	3	3

Performance Metrics Quarterly Report

Docket ID: NEPR-MI-2019-0007

Response: ROI-LUMA-MI-2019-0007-R2-16OCT23-013

SUBJECT

Information Response: PREB Requests

REQUEST

Refer to "20230906 MI20190007 PUBLIC ROI Response LUMA-PREPA FY23.xlsx"⁶

- a. Explain and justify the adjustments that LUMA made to the reliability data, as described in cell C9 of tab "Table of Contents".
- b. Explain why the system-level SAIDI data provided on the "SAIDI_Overall System" tab has small differences from the Monthly SAIDI data provided in the July 20th Submission for certain months, such as March 2023 and June 2023, and state which source is correct.

RESPONSE

- a. LUMA submitted metrics for FY23 on July 20, 2023. For ROI-LUMA-MI-0007 of August 16 Response, submitted on September 6, 2023, we recalculated the FY23. Since LUMA submits metrics on a quarterly basis, a full recalculation for the year was done on September 6, 2023, to respond to the ROI. The reliability metrics are subject to corrections due to the improvement of data, data is reviewed and corrected as a normal basis by LUMA during the Fiscal Year. Corrections are normally related to reflect the correct customers affected, duration and cause codes of the interruption, therefore, the reliability metrics have slight difference in the numbers.
- b. When LUMA submitted the July 20th quarterly report, only the data for that quarter was reviewed and submitted for SAIDI and SAIFI. However, after further review, it was determined that data correction on prior quarters were made to accurately reflect the outage classification which impacted the overall system SAIDI by less than 0.3%.

In the future, when reporting the Q1 SAIDI and SAIFI values, we will restate, as needed, any previous values for prior fiscal year to reflect any reclassifications to improve the quality of our reporting. Classifying the corrections takes multiple weeks or even months to conclude the cause and accuracy of a reported incident and therefore, as industry standard, corrections are made to valid changes at the end of the year.

⁶ See LUMA's September 6 Motion, In Re: The Performance of the Puerto Rico Electric Power Authority, Case No. NEPRMI-2019-0007, September 6, 2023.