

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

IN RE: REVIEW OF THE PUERTO RICO
ELECTRIC POWER AUTHORITY'S SYSTEM
REMEDiation PLAN

CASE NO.: NEPR-MI-2020-0019

SUBJECT: Determination on LUMA's
Proposed System Remediation Plan.

RESOLUTION AND ORDER

I. Introduction

Puerto Rico experiences the consequences of an inherently deficient electric system, which have been exacerbated after the impact of hurricanes Irma and María. The planning, design, and operation of an isolated electrical system imposes on the Puerto Rico Electric Power Authority ("PREPA"), and Puerto Rico, significant challenges with respect to power system stability and reliability. Act 120-2018¹ establishes the legal framework for the transformation of the electric power system in Puerto Rico.² It empowers PREPA to sell its assets related to electric power generation and transfer or delegate any of its operations, functions, or services.³

Any agreement arising from Act 120-2018 shall be entered into pursuant to the legal and administrative framework established in Act 29-2009⁴, which regulates Public-Private Partnerships. Thus, for such purposes, Act 120-2018 establishes the process that shall apply to any transaction that establishes a Public-Private Partnership for any PREPA function, services, or facility. In addition, Act 120-2018 empowers PREPA and the Puerto Rico Public-Private Partnerships Authority ("P3A") to carry out the processes through which such transactions shall be executed.⁵

After conducting a competitive process under Act 120-2018 and Act 29-2009, the P3A selected a third-party operator to operate and maintain PREPA's Transmission and Distribution System ("T&D System") for a certain period of time while PREPA retains the ownership of the T&D System assets. On June 17, 2020, the Energy Bureau of the Puerto Rico

¹ Known as the *Puerto Rico Electric Power System Transformation Act*, as amended ("Act 120-2018").

² See, generally, Statements of Motives, Act-120-2018, pp. 3-5.

³ *Id.*

⁴ Known as *Public-Private Partnership Act*, as amended ("Act 29-2009").

⁵ *Id.*



Public Service Regulatory Board ("Energy Bureau") issued a Certificate of Energy Compliance for the then proposed T&D System operation and management agreement.⁶ The Energy Bureau clarified through the Certificate of Energy Compliance and subsequent orders, that any language depriving or restricting the Energy Bureau's jurisdiction is not binding to the Energy Bureau.

Pursuant to the provisions of Act 57-2014,⁷ the Energy Bureau is the independent regulator with jurisdiction over PREPA and other electric service companies. Act 57-2014 states as public policy that all consumers have the right to reliable and stable electric service.⁸ Act 17-2019⁹ reinforced the foregoing public policy by declaring that "(t)he electric power system should be reliable and accessible, promote industrial, commercial, and community development, improve the quality of life at just and reasonable cost, and promote the economic development of the Island."¹⁰ In the aftermath of the destruction caused by hurricanes Irma and María, it is of the utmost importance that PREPA transforms the power grid and its operations to provide a more reliable and stable service to its customers.

On June 22, 2020, the Puerto Rico Electric Power of Puerto Rico ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3A"), LUMA Energy, LLC¹¹ as ManagementCo, and LUMA Energy ServCo, LLC¹² as ServCo (collectively, "LUMA") entered into an Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement ("OMA")¹³ under which PREPA transferred operational control of the T&D System to LUMA. Under the OMA, PREPA continues as owner of the T&D System, P3A serves as Administrator, and LUMA serves as operator of the T&D System. Effectively, LUMA assumes, as PREPA's agent, both the operational and regulatory responsibilities once performed by PREPA. As a certified electric service company, the operator of T&D, and agent for PREPA, LUMA is subject to the jurisdiction of the Energy Bureau and all applicable statutory and regulatory requirements.

Section 4.1(d) of the OMA requires LUMA, with PREPA's participation, to develop a System Remediation Plan ("SRP") to remediate, repair, replace, and stabilize equipment,

⁶ See Resolution and Order, In re Certificate of Energy Compliance, Case No.: NEPR-AP-2020-0002, June 17, 2020 ("Certificate of Energy Compliance").

⁷ Known as the *Puerto Rico Energy Transformation and RELIEF Act*, as amended.

⁸ See Act 57-2014, Article 1.2(l).

⁹ Known as the *Puerto Rico Energy Public Policy Act*.

¹⁰ Id., Statement of Motives, p. 2.

¹¹ See In re: Request for Certification LUMA Energy, LLC, Case No. NEPR-CT-2020-0008.

¹² See In re: Request for Certification LUMA Energy ServCo, LLC, Case No. NEPR-CT-2020-0007.

¹³ Available at <https://www.p3.pr.gov/wp-content/uploads/2020/06/executed-consolidated-om-agreement-td.pdf>. (Accessed May 28, 2021).



systems, practices, and services in order to provide its services, subject to the Energy Bureau's approval. Specifically, Section 4.1(d) of the OMA provides:

"(d) Transition to Standard of Performance.

(i) The Parties acknowledge and agree that (A) certain components of the T&D System and the manner in which the T&D System is operated do not currently meet the standards of performance required under this Agreement, including the fact that certain matters related to the T&D System or T&D System Sites and certain general operating and administrative practices may not comply with Contract Standards, and (B) a period of review, planning, remediation, repair and replacement will be required to enable Operator to achieve the Contract Standards.

(ii) In light of such circumstances, promptly (and in any event within thirty (30) days) following the Effective Date, the Parties shall establish a planning team composed of representatives of each of the Parties, and ManagementCo, with input from such team, shall (A) review the current state of the T&D System, including the control, monitoring and information equipment, systems, practices, services (including related hardware, Information Systems and Software) and general operating and administrative practices used in connection therewith, (B) develop a plan (taking into account the Capital Budgets and any Federally Funded Capital Improvements) to remediate, repair, replace and stabilize such equipment, systems, practices and services, as may be needed, to enable Operator to perform the O&M Services in compliance with the Contract Standards as soon as reasonably possible and at a reasonable cost to Owner (such plan, the "System Remediation Plan") and (C) submit such System Remediation Plan to Administrator for its review and approval, acting reasonably. The System Remediation Plan shall detail the scope, resources, timelines, milestones, costs estimate and achievement criteria for each activity or project required to enable Operator to perform the O&M Services in compliance with Contract Standards, including the deadlines by which each such activity or project shall be fully implemented. The Parties acknowledge and agree that any prior studies or reports of Owner relating to the remediation, repair, replacement, and stabilization of the T&D System may be considered for purposes of preparing the System Remediation Plan, but the findings of such studies or reports shall not limit the Parties' discretion to develop the System Remediation Plan.

Within thirty (30) days following its receipt of such proposed System Remediation Plan, Administrator, acting reasonably, shall provide ManagementCo comments on the appropriateness of the proposed System Remediation Plan and recommend any changes or modifications it believes are necessary or appropriate. If Administrator does not respond within such thirty (30) day period, Administrator shall be deemed to have no objection to such proposed System Remediation Plan being submitted by ManagementCo



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to the Energy Bureau. The Parties agree that, within thirty (30) days following receipt of Administrator's comments, if any, or the end of Administrator's review period described in the immediately preceding sentence, if Administrator has no comments, Operator shall submit for Energy Bureau review the proposed System Remediation Plan, incorporating or rejecting any of the modifications or changes suggested by Administrator, together with an explanation of any of Administrator's comments, as ManagementCo shall reasonably deem appropriate in its sole discretion. The Energy Bureau shall review and approve, deny or propose modifications to the proposed System Remediation Plan. Operator shall be required to respond promptly to any changes or modifications from the Energy Bureau to the System Remediation Plan and submit any updates to the proposed System Remediation Plan to the Energy Bureau for its approval. If the Energy Bureau does not respond within ninety (90) days after receipt of the proposed System Remediation Plan or any update thereto, ManagementCo may proceed for purposes of this Agreement as if the Energy Bureau had approved such System Remediation Plan."¹⁴

II. Procedural Background

On December 31, 2020, the Energy Bureau issued a Resolution and Order ("December 31 Resolution")¹⁵ through which it commenced this proceeding and directed that any filing by LUMA and PREPA under Section 4.1(d) of the OMA must be aligned with: (i) the Integrated Resource Plan approved by the Energy Bureau¹⁶; (ii) the Distribution Planning Principles established by the Energy Bureau under Case No. NEPR-MI-2019-0011;¹⁷ (iii) the outcome of Case No. NEPR-MI-2020-0016¹⁸; (iv) applicable energy public policy; and (v) the principles established in the December 31 Resolution. The Energy Bureau also ordered PREPA and LUMA representatives to attend a Pre-Filing Technical Conference held remotely on January 12, 2021 to clarify PREPA and LUMA's questions regarding the filing.

¹⁴ See Section 4.1(d) of the OMA.

¹⁵ See In Re: Review of the Puerto Rico Electric Power Authority's System Remediation Plan, Case No. NEPR-MI-2020-0019, December 31, 2020.

¹⁶ See In re: Review of the Puerto Rico Electric Power Authority's Integrated Resource Plan, Case No. CEPR-AP-2018-0001, Final Resolution and Order, August 24, 2020.

¹⁷ See In Re: Process for the Adoption of Distribution Resource Planning Regulation, Case No. NEPR-MI-2019-0011.

¹⁸ See In Re: Optimization Proceeding of Minigrid Transmission and Distribution Investments, Case No. NEPR-MI-2020-0016.



On January 11, 2021, the Energy Bureau issued a Resolution *Nunc Pro Tunc*, with the purpose to clarify that the information to be handled under the instant case, all proceedings and filings are deemed public unless the Energy Bureau determines otherwise.

On January 14, 2021, LUMA filed before the Energy Bureau a document titled *Motion in Compliance with Order Submitting LUMA's Presentation Given on January 12, 2021, at the Pre-Filing Technical Conference*. During the Pre-Filing Technical Conference, the Energy Bureau issued a bench order directing LUMA to file a copy of the electronic presentation projected on screen.

On February 24, 2021, LUMA filed before the Energy Bureau two documents: the first one titled *LUMA's Submittal and Request for Approval of System Remediation Plan* ("System Remediation Plan Petition") in compliance with Section 6.22(a)(2) of Act 57-2014, which included, as Exhibit 1, the System Remediation Plan ("System Remediation Plan") proposed by LUMA for the Energy Bureau's review and approval. LUMA request the Energy Bureau to approve the System Remediation Plan in its entirety; and the second document titled *Request to Submit Portions of Section 6 of the System Remediation Plan Confidentially, and Memorandum of Law in Support Thereof* ("February 24 Request for Confidential Treatment").¹⁹

On April 6, 2021, the Energy Bureau issued a Resolution and Order ("April 6 Resolution") determining that the System Remediation Plan Petition lacked an in-depth discussion of key matters, supporting data, analysis, and assessments necessary for the Energy Bureau's adequate evaluation and therefore was incomplete. Consequently, the Energy Bureau ordered LUMA to, on or before ten (10) days from the notification of the April 6 Resolution: (i) provide the information identified in Attachment A of the April 6 Resolution; and (ii) modify Exhibit 1 of the System Remediation Plan Petition accordingly.²⁰

On April 16, 2021, LUMA filed a document titled *Motion in Compliance with Resolution and Order of April 6, 2021 and Submitting Responses to Requests for Information* ("April 16 Motion in Compliance"), submitting its responses to the seventeen Requests for Information included in Attachment A to the April 6 Resolution.²¹ Also, LUMA informed that within the

¹⁹ See Resolution and Order, issued by the Energy Bureau on April 23, 2021, denying in part LUMA's requests for confidential designation and treatment for some portions of Section 6 of the System Remediation Plan, made as part of the February 24 Request for Confidential Treatment.

²⁰ The Energy Bureau established that it would commence the evaluation process of the February 24 Petition once LUMA filed the information identified in Attachment A of the April 6 Resolution and determined the same was complete.

²¹ See Exhibit A, *Motion in Compliance with Resolution and Order of April 6, 2021 and Submitting Responses to Requests for Information*, April 16, 2021.



next ten days, it would submit a separate memorandum of law in support of its request to file some of the attachments under seal of confidentiality.²²

On April 19, 2021, LUMA filed a document titled *Motion Submitting Corrected Attachment 3 to LUMA's Responses to SRP Requests for Information* ("Supplemental Motion"). In the Supplemental Motion, LUMA states that the response contained in Attachment 3 of the System Remediation Plan Request for Information No. 12²³ of the April 16 Motion in Compliance has an involuntary formatting mistake that misplaced contents of the third and fourth comments. Therefore, LUMA submitted a corrected version of the referred Attachment 3.²⁴

On April 23, 2021, the Energy Bureau issued a Resolution and Order ("April 23 Order") through which it determined that the System Remediation Plan Petition, as clarified by the April 16 Motion in Compliance and the Supplemental Motion was complete. Therefore, the Energy Bureau commenced its evaluation of LUMA's System Remediation Plan Petition. Also, the Energy Bureau established the preliminary Procedural Calendar for the instant case, in which, it scheduled a Virtual Technical Conference for May 14 and May 17, 2021. The Energy Bureau also scheduled Public Hearings to be held on May 19-20, 2021 and provided for the opportunity for comments from the general public to be filed by May 26, 2021.

On April 26, 2021, LUMA submitted a document titled *Memorandum of Law in Support of Request for Confidential Treatment of Portions of LUMA's Responses to Requests for Information on SRP* ("April 26 Request of Confidential Treatment"). As part of the Request of Confidential Treatment, LUMA asked for confidential designation and treatment of several attachments or portions thereof, of the Responses to System Remediation Plan Requests for Information.²⁵

On April 27, 2021, LUMA submitted a document titled *Motion for Partial Reconsideration and Submitting Revised Public Version of System Remediation Plan in Compliance with Order* ("April 27 Motion for Partial Reconsideration"). LUMA requested partial reconsideration of a portion of April 23 Order regarding the request for confidential

²² See *Memorandum of Law in Support of Request for Confidential Treatment of Portions of LUMA's Responses to Requests for Information on SRP*, April 26, 2021.

²³ Attachment 3 (table titled "SRP Program Briefs-OMA Provisions, Energy Laws, and Public Policies, and Program Briefs." See RFI-LUMA-20-0019-210406-PREB-012 Attachment 3). At pages 15, 16, 23 through 25, and 30, the table included as Attachment 3 to LUMA's response to SRP request for information number 12, has an involuntary formatting mistake that misplaced contents of the third and fourth comments.

²⁴ See Supplemental Motion ¶¶ 3 and 4.

²⁵ See Resolution and Order, May 6, 2021. The Energy Bureau granted confidential designation to LUMA's April 26 Request of Confidential Treatment.



treatment of information included in Section 6 of LUMA's System Remediation Plan ("System Remediation Plan Section 6").²⁶

On April 28, 2021, LUMA submitted a document titled *Motion Submitting Summary of LUMA's System Remediation Plan in the Spanish Language*, in compliance with the Energy Bureau April 23 Order.

On May 8, 2021, LUMA filed a document titled *Motion Submitting Revised Redacted Public Version of System Remediation Plan and Redacted Public Versions of Attachments to Responses to Requests for Information in Compliance with Order* ("May 8 Motion"). LUMA filed the May 8 Motion in compliance with the Energy Bureau May 6, 2021 Resolution and Order on confidentiality.²⁷

On May 10, 2021, the Energy Bureau issued a Resolution and Order establishing the agenda for the Technical Conference scheduled for May 14 and 17, 2021. Also, on May 10, 2021 LUMA filed a document titled *Motion Submitting Presentation for Technical Conference* ("May 10 Motion").

On May 12, 2021, LUMA filed a document titled *Request for Clarification of Agenda for Technical Conference*. Specifically, LUMA requested clarification on the "load prioritization" topic, scheduled on the afternoon of May 14, 2021.

On May 13, 2021 the Energy Bureau issued a Resolution and Order, through which it amended the agenda for the Technical Conference.

On May 14, 2021 and May 17, 2021, the Energy Bureau held the Technical Conference as scheduled. At the Technical Conference, LUMA made a presentation regarding the proposed System Remediation Plan, responded to questions from the Energy Bureau and its consultants. As part of the discussion, the Energy Bureau issued a series of bench orders to require additional information to be provided by LUMA.

On May 20, 2021, LUMA filed before the Energy Bureau a document titled *Motion in Compliance with Order Submitting Additional Information and Supplemental Responses to Questions Posed in Technical Conference and Submitting Clarification* ("May 20 Motion in Compliance"). Through the May 20 Motion in Compliance, LUMA submitted additional information or supplemental written responses to the bench orders issued as part of the Technical Conference.

On May 25, 2021, the Puerto Rico Institute of Competitiveness and Economic Sustainability ("ICSE"), filed before the Energy Bureau a document titled *Motion Requesting Extension of Time to File Comments* ("May 25, Request"), where ICSE seeks an extension of

²⁶ See Resolution and Order, May 6, 2021, pp. 9-12.

²⁷ *Id.*



time of fourteen (14) days of the May 26, 2021 deadline. In the April 23 Order, the Energy Bureau established the preliminary Procedural Calendar for the instant case, which included May 26, 2021 as the deadline for the public to file their comments.

On May 27, 2021, the Energy Bureau issued a Resolution partially granting ICSE request for extension of time until June 3, 2021 to file its comments.

On June 1, 2021, LUMA filed before the Energy Bureau a document titled *Memorandum of Law in Support of Request for Confidential Treatment of Luma's Motion Submitting Additional Information Requested in Technical Conference, Supplemental Responses to Questions and Clarifications*. ("June 1 Request of Confidential Treatment").

On June 2, 2021, the Energy Bureau issued a Resolution and Order ("June 2 Order") through which it stated that the System Remediation Plan Petition is pending a final determination from the Energy Bureau, and therefore ordered LUMA to, on or before June 4, 2021, at 12:00 p.m., file a copy of the waiver signed by the parties to the OMA regarding the System Remediation Plan as a condition precedent to the commencement of operations.

On June 4, 2021, LUMA filed before the Energy Bureau a document titled *Motion in Compliance with Request for Information of June 2, 2021 and Submitting Executed Copy of Limited Waiver* ("June 4 Motion in Compliance"). Through the June 4 Motion in Compliance, LUMA states that on June 1, 2021, the LUMA, PREPA and the P3A executed a limited waiver in connection with the Transaction Documents²⁸. LUMA states that the "Parties stipulated in the Limited Waiver that the documentary conditions precedents that had not been satisfied, 'do not impede [LUMA] from providing O&M Services pursuant to the Supplemental Terms Agreement'".²⁹ Further, LUMA states that "[g]iven that on or before June 1, 2021 PREPA did not exit Title III and considering that most of the conditions precedents set in the OMA were met and select conditions precedents were waived, the Interim Service Commencement Date occurred on June 1, 2021."³⁰

On June 11, 2021, the Energy Bureau issued a Resolution and Order ("June 11 Resolution") granting confidential designation and treatment for several documents submitted as part of the May 20 Motion in Compliance. The Energy Bureau also determined to designate as public information other documents submitted as part of the May 20 Motion in Compliance and ordered LUMA to submit revised redacted versions of its responses in compliance with the June 11 Resolution.

²⁸ The OMA and the Supplemental Terms Agreement.

²⁹ June 4 Motion in Compliance, p. 4.

³⁰ *Id.* (Citations in the original omitted.)



III. Analysis of LUMA's System Remediation Plan Petition

A. Scope

In developing the System Remediation Plan, LUMA evaluated and recognized the current state of PREPA's electric power system. As stated in the System Remediation Plan Petition, LUMA prepared the System Remediation Plan through a focused effort to identify and implement specific programs to remediate the deficiencies in the current electric power system that pose the highest risk to employees, customers and to the public, and to the continuity and reliability of electric service, and which stand in the way of Puerto Rico having a safe, reliable, and resilient electric power system, that meets threshold legal and regulatory requirements.³¹

LUMA used a sequential process in developing the System Remediation Plan, focused on identifying classes of projects most suited to remediate and improve safety and reliability performance of the PREPA power system. LUMA first completed a Gap Assessment to better understand and document both, the current condition of physical power system assets and to also understand management policies, practices, and procedures in place at PREPA that affect system performance. As described in its System Remediation Plan Petition, the gap assessment evaluated the organizational health, asset condition, performance data and systems operations conditions, in addition to reviewing regulatory and contractual requirements affecting system operation and performance.³²

LUMA's process was designed to remediate issues identified through the gap assessment, identify and plan for infrastructure repair and hardening projects, identify operational and customer satisfaction improvements, while also meeting legal and regulatory requirements and imperatives. LUMA indicates in its System Remediation Plan Petition that its primary goals in developing the System Remediation Plan were to "(a) Prioritize safety by reforming utility activities to support a strong safety culture focused on employee safety and the safety of the people of Puerto Rico; (b) improve customer satisfaction by transforming operations to deliver a positive customer experience and deliver reliable electricity at reasonable prices; (c) rebuild and make the system more resilient by effectively deploying federal funding to restore the grid and improve the resiliency of vulnerable infrastructure; (d) introduce operational excellence by enabling employees to pursue it through new systems, processes and training; and (e) advance sustainable energy transformation by modernizing the grid and the utility to enable such transformation."³³

³¹ System Remediation Plan Petition, p. 5.

³² System Remediation Plan Petition, p. 7.

³³ System Remediation Plan Petition, pp. 8-9.



B. Analysis and Discussion

1. LUMA's Gap Analysis and Identification of System Remediation Plan Initiatives

In developing its System Remediation Plan, LUMA first completed a Gap Assessment to identify both, spending and business process deficits under PREPA business operations, and to assist LUMA in developing capital spending and operations initiatives that LUMA believes are needed to remediate the PREPA system, and to transition to providing industry standard levels of service reliability and performance.³⁴

In assessing the state of the PREPA organization, and assets that support the functioning of the transmission and distribution system, LUMA indicated that it reviewed all relevant functions within PREPA, recording observations, identifying gaps, and evaluating organizational health and maturity using a qualitative rating system.³⁵ LUMA applied a maturity rating system to assess how PREPA currently operates and maintains the T&D system, focusing primarily on areas required to manage, operate and maintain the grid.³⁶

In evaluating asset condition, LUMA indicated that it leveraged reports and studies previously developed examining the state of PREPA's system post-hurricane, and reports assessing rebuild and reconstruction activities.³⁷ LUMA also completed multiple confirmatory inspections of the T&D system, which involved examining a sample of key assets including critical substations, transmission lines and poorly performing distribution circuits.³⁸ LUMA stated that its inspection work allowed it to verify and supplement findings contained in the other reports that were examined and contributed to the development of asset remediation initiatives included in the System Remediation Plan.³⁹

LUMA stated that the goals and objectives of the Gap Assessment were to develop improved understanding of PREPA's business processes, controls, communications, and safety protocols, technologies and tools, and to assess the current organization's capabilities across general management and specific business functions. Additional goals of the Gap Assessment were to assess condition of PREPA's transmission and distribution assets,

³⁴ See, in general, April 16 Motion in Compliance, RFI-LUMA-MI-21-0019-210416-PREB-001, Attachment 1 (Redacted).

³⁵ Exhibit 1, System Remediation Plan Petition, p. 31.

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*



including supporting physical infrastructure and temporary restoration work completed post-hurricane.⁴⁰ LUMA indicates that its Gap Assessment was designed to review and assess major departmental functions, records, observations related to PREPA's business operations and planning activities. The Gap Assessment reviewed major departments including PREPA Operations, Utility Transformation, Capital Programs, Customer Service, Information Technology and Operations Technology ("IT/OT"), Financial Management, Regulatory Compliance and Human Resources.⁴¹

For each major department and for a range of functions within each department, LUMA assigned Maturity Scores ranging from 1 to 5, with lower ratings indicating the organization does not recognize basic elements that need to be fulfilled, work is performed informally or on an ad hoc basis, and processes are undocumented or undefined.⁴² The specific ratings and rating titles assigned by LUMA include:

- Unfocused: 1
- Aware: 2
- Developing: 3
- Competent: 4
- Excellent: 5

In the General Management Gap Assessment, LUMA examined 456 management sub-focus areas. Of those, 213 were rated at a level of 1, Unfocused; 180 were rated at a level of 2, Aware; and 60 were rated at a level of 3, Developing. Only 3 management sub-focus areas were rated as 4, Competent, and none were rated as 5, Excellent.⁴³

Similarly, LUMA examined 308 Core Business sub-focus areas. Of those, 191 were rated at a level of 1, Unfocused; 78 were rated at a level of 2, Aware; and 36 were rated at a level of 3, Developing. Only 2 Core Business sub-focus areas were rated as 4, Competent; and one was rated as 5, Excellent.⁴⁴

LUMA's Gap Assessment also examined asset condition of the transmission, distribution and supporting infrastructure assets. LUMA also graded asset condition on a 5-point scale, using the following categories:

⁴⁰ Exhibit 1, May 10 Motion, Slide 19.

⁴¹ See, in general, April 16 Motion in Compliance, RFI-LUMA-MI-21-0019-210416-PREB-001, Attachment 1 (Redacted).

⁴² Exhibit 1, System Remediation Plan Petition, p. 32.

⁴³ Exhibit 1, May 10 Motion, slide 31.

⁴⁴ *Id.*



- End of Life or Not Operational: 0
- Major Safety, Reliability or Unit Output Issues: 1
- Deficiencies Noted, or Components Out of Service: 2
- System Maintained with General Operations on Routine Basis: 3
- System Like New (Replace or Refurbished in Last 5 Years): 4

As part of its assessment, LUMA found substantial safety, maintenance and reliability gaps across the transmission and distribution system assets and found infrastructure and organizational systems that are in significant need of improvement. These gaps, and a finding of generally poor asset condition was further confirmed through damage assessments completed by PREPA and by Puerto Rico Central Office of Recovery, Reconstruction, and Resiliency ("COR3") following hurricanes Irma and Maria, and by asset inspections completed by the engineering firm Sargent and Lundy under contract with PREPA. Further confirmation was found through spot inspections of distribution and substation facilities completed by LUMA during its preparation of the System Remediation Plan.

Using its Gap Assessment as foundation, LUMA developed the System Remediation Plan by identifying over 600 programs and capital expenditure categories, with a focus in identifying those categories driven by addressing gaps and capability shortcomings identified through the gap assessment process.⁴⁵

2. Prioritization of System Remediation Initiatives

In the System Remediation Plan, LUMA described the process it followed to develop a comprehensive approach to recovery and transformation of Puerto Rico's electric grid; recovery, to restore the grid to a well-functioning state and to begin the transformation and re-design of the grid to meet Puerto Rico's emerging energy goals and requirements. LUMA described its findings that certain components of the transmission and distribution system, and the manner in which it was operated by PREPA, do not meet standards of performance required under the OMA, or do not meet industry standard levels of safety, reliability and resiliency.

LUMA indicated that it designed the System Remediation Plan as a focused effort to implement specific programs to remediate the gaps and deficiencies found in its gap assessment and its review of other work and studies, and that such remediation efforts are focused on deficiencies that pose the highest risk to employees, customers, and the public and to the continuity of electric service. According to LUMA, the System Remediation Plan has been developed to improve the safety, reliability, and resilience of the Puerto Rico power

⁴⁵ Exhibit 1, System Remediation Plan Petition, p. 1.



system, and to also meet threshold legal and regulatory requirements.⁴⁶ LUMA followed a sequential process in developing System Remediation Plan initiatives, and in prioritizing and sequencing planned implementation of each initiative or category of initiatives. The sequencing was designed to prioritize System Remediation Plan initiatives that have the highest risk of negative consequences, if not addressed, and System Remediation Plan initiatives that have the most consequential negative consequences if not addressed.⁴⁷

In Phase 1,⁴⁸ the assessment analysis, LUMA examined the condition of the electric system's physical assets and the utility's management practices. Areas in need of significant improvement, or gaps, were identified. In making its determination, LUMA performed a review, utilizing subject matter experts, conducting interviews, examining existing utility data, and reviewing studies performed by others.⁴⁹

Phase 2⁵⁰ consisted of analysis, in which LUMA compared the information gathered in Phase 1 to industry standards, explored root causes and developed potential solutions. In developing solutions, LUMA explained that it sought to comply with public policy, address the concerns identified in the gap assessment, repair, replace and harden infrastructure as identified and prioritized and improve customer satisfaction.

A key focus of LUMA's approach was to identify both, processes and business practices, and equipment needs to ensure worker and public safety.⁵¹ LUMA indicated that System Remediation Plan initiatives were developed to meet one or more of the following objectives: (i) Remediate concerns identified through the gap assessment; (ii) carry out infrastructure recovery projects (repair, replacement, hardening); (iii) achieve operational and customer satisfaction improvements; and (iv) meet regulatory imperatives, such as the Integrated Resource Plan, for transforming Puerto Rico's electric system.⁵² LUMA applied a utility-wide risk-based screening approach to delineate between initiatives qualifying for the System Remediation Plan vs. non-System Remediation Plan initiatives.⁵³

⁴⁶ See System Remediation Plan Petition, pp. 4–5.

⁴⁷ See System Remediation Plan Petition, Appendix G.

⁴⁸ Exhibit 1, System Remediation Plan Petition, p. 21.

⁴⁹ *Id.*, pp. 21–22.

⁵⁰ *Id.*, p. 23.

⁵¹ System Remediation Plan Petition, p. 8.

⁵² Exhibit 1, System Remediation Plan Petition, p. 23.

⁵³ *Id.*, p. 39.



Projects and initiatives identified as having the highest risk were classified as System Remediation Plan, by evaluating (a) the likelihood of failure occurring if the deficiency is not addressed; and (b) the potential for significant adverse consequences or impacts of the failure.⁵⁴ This is a key step in prioritizing among examined initiatives, to ensure that the most critical remediation needs are given higher priority through inclusion in the System Remediation Plan.

The third phase of LUMA's process consisted of Phase 3 Planning.⁵⁵ In this phase, LUMA used a strategic planning framework for recovery and transformation of the Puerto Rico grid to prioritize and sequence the System Remediation Plan initiatives to enhance value to customers, within annual budget constraints. LUMA stated that its prioritization of System Remediation Plan initiatives is designed to achieve a mission to recover and transform the transmission and distribution system to deliver customer-centric, reliable, safe, and sustainable electricity at reasonable prices.⁵⁶ LUMA further stated that it applied a multi-factor evaluation framework to sequence and prioritize System Remediation Plan initiatives to achieve a series of goals, which include:

- Prioritize public and worker safety and support a strong safety culture.
- Improve customer satisfaction by transforming operations to deliver a positive customer experience.
- Rebuild and make the power system more resilient by effectively deploying federal funding to restore the grid and improve the resiliency of vulnerable infrastructure.
- Introduce operational excellence by enabling employees to pursue it through new systems, processes, and training.
- Advance Sustainable energy transformation by modernizing the grid and modernizing the utility to enable effective use of modern technology.⁵⁷

In its System Remediation Plan Petition, LUMA emphasizes its view that, given the current state of the Puerto Rico electrical system, it is not financially or operationally feasible to address all deficiencies within a one or two-year period.⁵⁸ Instead, LUMA considers that constraints on funding and/or timely deployment of resources must be recognized, and that both System Remediation Plan and non-System Remediation Plan initiatives must be

⁵⁴ System Remediation Plan Petition, p. 7.

⁵⁵ Exhibit 1, System Remediation Plan Petition, p. 24.

⁵⁶ System Remediation Plan Petition, p. 8.

⁵⁷ *Id.*, pp. 8-9.

⁵⁸ *Id.*, 13.



balanced.⁵⁹ LUMA states that in developing the System Remediation Plan, it had to necessarily evaluate trade-offs between near-term risk mitigation and long-term performance, and that its System Remediation Plan is designed to maximize total benefit to customers within a reasonable timeframe and at a reasonable cost.⁶⁰ In its System Remediation Plan Petition, LUMA states it will review and update the System Remediation Plan on an annual basis, based on ongoing improvements in source data and information, and based upon implementation experience.⁶¹

Upon thorough review and analysis of the System Remediation Plan Petition, the Energy Bureau **FINDS** that the three-phase process described by LUMA to identify needs, develop, and prioritize the programs necessary to achieve system remediation and transformation, and the approach to develop its System Remediation Plan, are appropriate.

The Energy Bureau **FINDS** that the prioritization and sequencing methods used by LUMA to identify high-risk/high-impact initiatives are sound and helped to create a System Remediation Plan that caters to the near-term needs of the electric system.

The Energy Bureau expects that additional and improved information will become available as LUMA moves to implement the System Remediation Plan. Therefore, the Energy Bureau **ORDERS** LUMA to submit periodic reports to address any issues that arise during System Remediation Plan implementation as well as the progress of the remediation work.

3. High Priority Activities

LUMA's System Remediation Plan includes a range of high priority activities and capital spending programs designed to repair and remediate the Puerto Rico power system and to reform energy business practice. Many of these activities and programs are categorized for inclusion in the Enabling Portfolio, which means they are necessary to establish the necessary organizational infrastructure to enable the successful execution of operational and capital work.⁶² According to LUMA, these activities and programs have urgent need to repair damaged facilities and to improve reliability and resiliency. Some of the key high priority activities and programs include:

⁵⁹ *Id.*

⁶⁰ *Id.*, p. 14.

⁶¹ *Id.*

⁶² Exhibit 1, System Remediation Plan Petition, p. 28 and p. 53.



a. Safety Initiatives

i. Public and Workforce

1) Personal Protective Equipment (PPE) and Worker's Safety

LUMA's Gap Assessment revealed worker safety gaps and deficits in a range of areas. Through the System Remediation Plan Petition, LUMA proposes both programmatic changes and expenditures designed to address those gaps.⁶³ For example, LUMA's Gap Assessment found that PREPA's T&D Operations tooling system is well below prudent utility safety, Occupational Safety and Health Administration ("OSHA") and IEEE⁶⁴ standards, which leaves both employees and the public at risk of injury or fatality.⁶⁵ LUMA concluded that PREPA lacks both an adequate tool maintenance program and a dielectric insulated tool program, which are basic requirements to be OSHA compliant and to ensure worker safety.⁶⁶

LUMA's System Remediation Plan expenditures seek to procure critical safety equipment, personal protective equipment, and associated supplies such as automatic external defibrillators, portable eye wash, lone worker/confined space entry monitors and audiometric testing equipment.⁶⁷ LUMA indicates there are current gaps in safety equipment availability, and that procuring those items will critically improve employee's current state of work-related injuries.⁶⁸ LUMA's budget includes expenditures for approximately 1,100 field-based employees who require safe PPE and tooling for approximately 80 fleet units.⁶⁹ PPE needs, which are funded in the Initial Budgets, include fire retardant clothing, rubber gloves, potential indicators, metering testing equipment, live line sticks and rubber goods, ground chains, jacks, grips, tampers, and jackhammers. LUMA's program targets worn-out and failed tools.⁷⁰

LUMA's System Remediation Plan expenditures include funding for safety training for its workers. LUMA indicates that under the remediated state, all field workers will have training in use of safety equipment and will have access to lifesaving safety equipment when

⁶³ Exhibit 1, System Remediation Plan Petition, p. 197.

⁶⁴ Stands for Institute of Electrical and Electronics Engineers.

⁶⁵ Exhibit 1, System Remediation Plan Petition, p. 197.

⁶⁶ Exhibit 1, SRP Petition, p. 197.

⁶⁷ *Id.*, pp. 311.

⁶⁸ Exhibit 1, System Remediation Plan Petition, p. 200.

⁶⁹ *Id.*, p. 197.

⁷⁰ *Id.*, pp. 197-202.



conducting work.⁷¹ LUMA states it intends to be industry-leading in deployment of safety equipment.⁷²

The Energy Bureau **FINDS** that LUMA's planned focus on employee and public safety is appropriate and that its proposed System Remediation Plan spending on PPE and other safety-related equipment, and on employee safety training, is reasonable and appropriate.

2) Deteriorated Infrastructure noncompliant with current Safety Codes and Standards

LUMA identifies the need to prioritize the remediation of high-risk assets in the electric distribution system, for those instances where an electric facility poses a safety risk, initial restoration will be limited to remediating that facility to a safe state.⁷³ Field visits performed by LUMA found numerous instances where facilities were operating outside the requirements of national safety codes and standards.⁷⁴

The Energy Bureau **FINDS** that this approach is consistent with the need to bring the system into a safe state. The Energy Bureau notes that on those instances where electric distribution poles will need to be replaced, LUMA shall consider replacements that will allow for future voltage conversion and appropriate space for third-party attachments.⁷⁵

3) Vegetation Management – Facility Clearances

Puerto Rico enjoys a tropical climate where vegetation grows year-round. Lack of a proactive vegetation management plan has adversely affected the reliability of the electric service. PREPA has addressed vegetation issues as they arose. To that effect, PREPA used protection equipment to isolate faults created by contact with vegetation. This reactive remedial approach does not prevent customer interruptions, since it is applied only after the interruption occurred. Instead of preventing faults from occurring, PREPA relied on protection equipment to isolate faults. This is not considered a best practice.

Electric utility best practices call for the employment of preventive measures to ensure adherence to proper conductor clearances. Vegetation management is considered a main preventive measure to maintain these conductor clearances.

⁷¹ *Id.*, p. 311.

⁷² *Id.*, p. 311.

⁷³ Exhibit 1, May 10 Motion, slide 42.

⁷⁴ See Exhibit 1, Petition, pp. 36-38.

⁷⁵ Joint use of electric distribution poles can provide a steady revenue source for the utility, where third parties will rent pole space to attach its facilities, *e.g.*, 5G small cell communications infrastructure.



LUMA has developed a Vegetation Management Plan⁷⁶ designed to reclaim rights of way and to reduce vegetation encroachment and vegetation induced outages on the distribution and transmission system. Vegetation Management expenditures make up the largest proportion of the Enabling Portfolio, with estimated total of \$320.7 million over the next ten years.⁷⁷ In aggregate, over 90 percent of Vegetation Management expenditures are categorized as System Remediation Plan expenditures. The Vegetation Management plan includes \$50 million of System Remediation Plan expenditures in FY2022, and \$60 million of System Remediation Plan expenditures in each of the 2023 and 2024 fiscal years.⁷⁸ Vegetation management has been an area of chronic under-spending in PREPA operations, with cash budgeted for maintaining vegetation often having been allocated to other functions, and as such, overgrown vegetation has been a widely recognized high incidence cause of power outages on the island.⁷⁹

In LUMA's Gap Assessment, its review of PREPA vegetation management found several significant gaps, including absence of a centralized vegetation management function, deferred vegetation maintenance with work scheduled primarily to perform reactive or corrective maintenance, ineffective pruning practices, and lack of specialized or adequately maintained equipment.⁸⁰ LUMA stated that it engaged a team of industry-leading subject matter experts, and utilized available Light Detection and Ranging ("LIDAR") data, publicly available imagery, system maps, PREPA employee and contractor knowledge and existing outage data to develop its Vegetation Management Plan.⁸¹

LUMA indicates it is dedicated to having an industry-leading Vegetation Management Plan and that budgeted expenditures will be utilized to maintain vegetation and to reclaim rights-of-way.⁸² LUMA's plan utilizes Integrated Vegetation Management, which is a structured decision-making process that emphasizes continuous improvement and

⁷⁶ LUMA filed its Vegetation Management Plan under Case No. NEPR-MI-2019-0005 for the consideration of the Energy Bureau on April 11, 2021. *See* Petition Submitting LUMA's Vegetation Management Plan to the Honorable Puerto Rico Energy Bureau, Case No. NEPR-MI-2019-0005, April 11, 2021.

⁷⁷ Exhibit 1, System Remediation Plan Petition, Table 6-11, p. 182.

⁷⁸ *Id.*, Table 6-12.

⁷⁹ *Id.*, p. 185.

⁸⁰ Exhibit 1, System Remediation Plan Petition, p. 185.

⁸¹ *See* Petition Submitting LUMA's Vegetation Management Plan to the Honorable Puerto Rico Energy Bureau, Case No. NEPR-MI-2019-0005, April 11, 2021, p. 4.

⁸² Exhibit 1, System Remediation Plan Petition, Table 6-11, p. 185.



refinement and adjustment of processes to meet current and new conditions.⁸³ LUMA indicates it will apply an integrated approach that optimizes vegetation inspection, maintenance and trimming intervals and that systematically identifies and removes high risk trees and vegetation.⁸⁴

LUMA also indicates it will initially focus on reestablishing and clearing rights of way and will determine the viability of using selective application of herbicides, as a supplemental activity, in compliance with Puerto Rico and federal law.⁸⁵ The LUMA plan includes reactive rapid response, to identify and remediate the “worst of the worst” conditions on the transmission and distribution system that present risks to safety and reliability, reclamation of overgrown rights of way, and establishment of routine preventive vegetation maintenance.⁸⁶

LUMA describes a remediated state for Vegetation Management occurring when a centralized vegetation management team is in place and procedures and practices are implemented that eliminate public endangerment and promote a safe and efficient work environment. Remediation also will be achieved through re-establishment of maintainable tree-conductor clearances on the T&D system, reclamation of rights of way that are currently overgrown and out of control and pose risk to public safety, service reliability and system capacity.⁸⁷

The Energy Bureau has reviewed LUMA’s vegetation management proposed expenditure levels and activities in the System Remediation Plan and **FINDS** that it will result in improved vegetation management and will address a critical reliability issue on the island.⁸⁸

⁸³ *Id.*, p. 185.

⁸⁴ *Id.*

⁸⁵ *Id.*

⁸⁶ Exhibit 1, System Remediation Plan Petition, p. 186.

⁸⁷ *Id.*

⁸⁸ The Energy Bureau’s final determination on the actual Vegetation Management Plan is pending under Case No. NEPR-MI-2019-0005. As such, this finding shall not be deemed, interpreted or construed as an approval or determination of the actual Vegetation Management Plan.



ii. Safety Codes Standard Compliance

1) Transmission and Distribution System

Under the Distribution Portfolio, LUMA seeks to repair distribution poles and conductors to restore the system and improve reliability and resiliency in line with current codes and standards.⁸⁹ This restoration will be prioritized in accordance with the health of the assets as identified by the field inspections.⁹⁰

To achieve the remediated state, LUMA will identify all distribution lines to be repaired and replaced to meet current codes and standards. Achieving compliance with design standards will address over-voltages arising from improper grounding. LUMA also points to identifying opportunities to deploy automatic reclosers⁹¹ to clear intermittent faults that are currently cleared by fuses that need to be reset/replace by a truck roll.

Further, as part of the identified System Remediation Plan activities, LUMA proposes a program under the Transmission Portfolio dedicated to inspecting transmission facilities to identify the required repairs and replacements that will ensure compliance with codes and standards, and check for line clearances.⁹²

2) Compliance and Studies – Substations

Under the Substations Portfolio⁹³ LUMA identifies an effort to bring substation facilities to compliance with safety codes. Most of this effort in the Compliance and Studies program⁹⁴ is considered a remediation activity. Activities include a protection and coordination study on the whole the T&D System; transmission lines, transmission substations, and distribution substation grounding; and developing and implementing procedures to ensure that transmission lines and substations comply with codes and regulations.⁹⁵

⁸⁹ Exhibit 1, System Remediation Plan Petition, p.81.

⁹⁰ See, generally, *Id.*

⁹¹ *Id.*, p.96.

⁹² *Id.*, p.101.

⁹³ *Id.*, p.125.

⁹⁴ *Id.*, Table 6-8.

⁹⁵ *Id.*, p.126.



3) T&D Vehicle Fleet

LUMA's Fleet Management System Remediation Plan initiatives move toward a remediated state that includes compliance with Puerto Rico's Department of Transportation and Public Works ("DTOP"), Puerto Rico Public Safety Commission ("CSP") and federal requirements, including the United States Department of Transportation ("US DOT") as well as OSHA and American National Standards Institute ("ANSI") regulations or standards.⁹⁶ Remediation also includes performance of all applicable inspection and maintenance in accordance with vehicle manufacturer recommendations, full implementation of inspection and maintenance records collections and storage procedures, completion of training and qualifications for mechanics and fleet management personnel, and capital investment to meet safety and performance expectations for the vehicle fleet.

LUMA's Gap Assessment examined the inventory, management, and maintenance for fleet vehicles used for data collection, operation, maintenance and repair of the power grid.⁹⁷ LUMA indicated that, upon service commencement it will be charged with overall management of approximately 3,725 vehicles and four aircrafts.⁹⁸ This includes 632 Bucket Trucks or Digger Derrick Trucks, and 509 pieces of Heavy Equipment, and over 2,000 smaller vehicles.⁹⁹ There are also 25 land maintenance sites across the island, and one air maintenance and repair shop at Luis Muñoz Marín International Airport.¹⁰⁰

LUMA's Gap Assessment concluded that the existing vehicle fleet is primarily comprises aging and deteriorating assets and facilities, with 90 percent of existing vehicles beyond industry standard expected life of 6-7 years for trucks, and 10 years for heavy duty vehicles.¹⁰¹ Moreover, LUMA concluded that current fleet management and maintenance lack necessary processes and controls needed to comply with the CSP/US DOT, OSHA and/or ANSI requirements, and there is no evidence of plans to put such processes and controls in place.¹⁰² LUMA further found that maintenance and inventory management practices, processes and procedures are inadequate, outdated and require major overhauls. LUMA also determined that short and long-range fleet capital lifecycle planning is ineffective and that

⁹⁶ *Id.*, p. 191.

⁹⁷ *Id.*

⁹⁸ *Id.*, p. 190.

⁹⁹ *Id.*, p. 190.

¹⁰⁰ *Id.*, p. 190.

¹⁰¹ *Id.*, p. 191.

¹⁰² *Id.*, p. 191.



fleet management training is inadequate.¹⁰³ Fleet inspections are also not current, which has led to inaccurate data describing the actual state of fleet vehicles.¹⁰⁴ Finally, PREPA has reported an urgent need for more trained mechanics, with mechanic staffing levels at 70 percent capacity of comparable North American utilities.¹⁰⁵

Updating and remediating the Transmission and Distribution fleet is a key part of LUMA's planned Emergency Preparedness plan and is also additionally needed to implement improved maintenance and repair activities for the T&D system. Upon review of LUMA's analysis, the Energy Bureau **CONCURS** with the inclusion of Fleet Management initiatives as key System Remediation Plan activities.

4) Pole Conditions

LUMA identified numerous occasions where the current condition of electric distribution poles falls outside the requirements of the safety codes and standards.¹⁰⁶ Under the Distribution Portfolio, LUMA seeks to repair distribution poles and conductors to restore the system and improve reliability and resiliency in line with current codes and standards.¹⁰⁷ This restoration will be prioritized in accordance with the health of the asset.¹⁰⁸ System Remediation Plan activities that specifically address the electric distribution poles include inspecting and treating poles, performing ground rod inspections and minor repair/replacements, and inspecting and replacing anchors/guys.¹⁰⁹

The Energy Bureau **FINDS** that the activities identified to remedy noncompliance with safety codes and standards are adequately prioritized and address the most pressing needs of the T&D System.

b. Disaster Restoration – Mutual Aid Assistance

It is common knowledge that PREPA had a difficult time enlisting mutual aid resources to assist with restoration efforts after Hurricanes Irma and Maria in 2017. The Gap

¹⁰³ *Id.*

¹⁰⁴ *Id.*

¹⁰⁵ *Id.*, p. 191.

¹⁰⁶ Exhibit 1, System Remediation Plan Petition, pp. 36-38.

¹⁰⁷ *Id.*, p. 81.

¹⁰⁸ *Id.*, p. 82.

¹⁰⁹ *Id.*, p. 81.



Assessment conducted by LUMA found issue with the existing mutual aid measures.¹¹⁰ LUMA testified during the Technical Conference¹¹¹ that Mutual Aid agreements were already established with utilities belonging to the American Public Power Association ("APPA") and that LUMA had protocols in place to coordinate mutual aid requirements directly with the APPA.¹¹² LUMA also explained the sequence they are to follow when seeking restoration assistance after a disaster: the operator will first reach out to local contractors that have been qualified for restoration work, they will then activate agreements with utilities having mutual aid arrangements, and last, they will reach out to resources from their parent companies at Quanta Services and ATCO Ltd. who shall also be subject to timely competitive bidding process as any contractor.¹¹³

LUMA explained that mutual aid labor cost is predetermined, and it is not marked up for profit.¹¹⁴ The essence of mutual aid is for utilities who are members of APPA to assist each other confront a difficult situation and not to profit from disaster.¹¹⁵

The Energy Bureau **FINDS** that this multipronged approach to seek restoration assistance after a disaster is adequate.

c. System Characterization – Field Inspections

The monies obligated towards the reconstruction of the electric grid are significant¹¹⁶ and if coherently utilized they will comprehensively transform the electric system of the Island. To effectively use these available resources, it is imperative to have knowledge on

¹¹⁰ See April 16 Motion in Compliance, RFI-LUMA-MI-20-0019-210406-PREB-001 Attachment 1.

¹¹¹ Technical Conference Recording, May 17, 2021, afternoon session, 2:08:05, <https://youtu.be/fDtYo-3lynU?t=7681>.

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ FEMA funding available to PREPA under DR-4339 amounts to \$9.459B after deducting private insurance payments and 10% state matching requirement. See Federal Emergency Management Agency ("FEMA"), *Puerto Rico Hurricane Maria (DR-4339-PR)*, <https://www.fema.gov/disaster/4339>. (Accessed May 29, 2021). CDBG-DR assignments made available to the Puerto Rico Department of Housing ("PRDOH") by the US Department of Housing and Urban Development ("HUD") are planned to be used to cover the FEMA state matching requirement, increasing the federal funding destined to rebuild the electric infrastructure to \$10.5B. See <https://cdbg-dr.pr.gov/pareo-de-partidas-no-federales>. (Accessed May 29, 2021). In addition, the PRDOH Community Energy and Water Resilience Installations Programs makes available \$300M for homeowner and tenants to install energy and water resilience facilities. See <https://cdbg-dr.pr.gov/en/download/community-energy-and-water-resilience-installations-program>. (Accessed May 29, 2021).

and understand the current state of the system. LUMA states that “it is fundamental to know what we have out there, because in reality, we do not even have updated drawings to start with”.¹¹⁷ LUMA also states that no single-line-diagrams exists.¹¹⁸

Damage assessments were performed after hurricanes Irma and Maria to estimate repair/restoration costs; however, these assessments were mainly based on sampling techniques.¹¹⁹ Detailed, system-wide field inspections are required to fully characterize the current state of the electric system and support the holistic formulation of the rebuild efforts.

LUMA states that, upon commencing operations, they will carry out a comprehensive system-wide inspection program to measure the health of all assets.¹²⁰ In addition to measuring the health of the assets, documenting its characteristics, and updating/creating the information found in the utility databases, LUMA also states that they will inquire about backup generation that may be required by code for essential service facilities to employ, as part of its planning efforts.¹²¹ The Energy Bureau deems prudent for LUMA to have visibility of the required emergency power system installations that serve essential electrical systems, like those found in health facilities.

Noting that a major reason for not knowing the current state of the grid is the aftermath of hurricanes Irma and María, where numerous utilities assisted with restoration efforts, the Energy Bureau **ORDERS** LUMA to file with the Energy Bureau, **on or before July 15, 2021**, copies of the final drafts of the two procurement plans it is developing. LUMA must include copies of a detailed timeline and implementation work to complete these long overdue field inspections and a detailed description of the funding source (*e.g.*, federal funding or ratepayer monies) to be used for such purposes.

i. Distribution Streetlights

LUMA estimates that approximately 50,000 streetlights are a physical safety hazard that require hazard mitigation to reach remediation.¹²² A major component of the distribution streetlight program activities consist of completing a field audit of these

¹¹⁷ Technical Conference Recording, May 17, 2021, afternoon session, 1:34:10-1:34:29, <https://youtu.be/fDtYo-3lynU?t=5649>.

¹¹⁸ Technical Conference Recording, May 17, 2021, afternoon session, 1:48:15-1:49:04, <https://youtu.be/fDtYo-3lynU?t=6495>.

¹¹⁹ Exhibit 1, System Remediation Plan Petition, p. 2.

¹²⁰ *Id.*

¹²¹ Technical Conference Recording, May 17, 2021, afternoon session, 49:45-51:42, <https://youtu.be/fDtYo-3lynU?t=2984>.

¹²² Exhibit 1, System Remediation Plan Petition, p.56.



facilities to assign each one with a unique indicator asset tag and entrance into the LUMA's GIS system.¹²³ Entrance into the GIS system will also provide LUMA with an opportunity to develop a plan for smart lighting that could result in energy efficiency gains.¹²⁴ This program also seeks to finish the full LED conversion by 2030.¹²⁵

ii. Electric Distribution Lines

LUMA estimates from previous damage assessments based on sampling, that 20% of the facilities comprising overhead and underground distribution lines require safety and hazard mitigation.¹²⁶ High risk assets categorized as 0 or 1 will be pursued as System Remediation Plan work.¹²⁷ The Distribution Lines Inspection program will identify which assets pose a high risk in order to include them in the remediation work.¹²⁸ As proposed, LUMA deems that more inspection effort will be carried out as part of System Remediation Plan activities when compared with rebuild and repair activities, which are proposed as Non-System Remediation Plan.¹²⁹

This approach is consistent with the need to have the system characterized before a moderate risk rebuild/repair plan can be finalized.¹³⁰ During the Technical Conference, LUMA highlighted the need to update the Outage Management System ("OMS") maps to enable safe switching operations and isolate pertinent areas of a circuit.¹³¹

LUMA is working to characterize the hosting capacity of distribution circuits under the Energy Bureau Case No. NEPR-MI-2019-0011;¹³² this characterization relies in knowing the features of the distribution circuits being considered. The Energy Bureau **ORDERS** LUMA to coordinate the Distribution Lines Inspection Program with the hosting capacity

¹²³ *Id.*

¹²⁴ *Id.*, p. 57,

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ *Id.*, pp. 82-83.

¹²⁸ *Id.*, p. 82.

¹²⁹ *Id.* p. 86.

¹³⁰ *Id.* p. 81.

¹³¹ Technical Conference Recording, May 17, 2021, afternoon session, 1:55:30-1:55:53.

¹³² In Re: Process for the Adoption of Regulation for Distribution Resource Planning, Case No. NEPR-MI-2019-0011.



characterization efforts to ensure these activities proceed in the most efficient manner possible.

iii. Electric Distribution Poles

LUMA estimates that 20% of all electric distribution poles are identified as high risk with a score of 0 or 1.¹³³ The conditions of these poles have not been documented and is unknown at this time.¹³⁴ They are not currently being tested, which falls outside best utility practices.¹³⁵ Some unfinished feeders have also been identified.¹³⁶ Pole hardware is often damaged or broken.¹³⁷ Accounting for these poles is also deficient.¹³⁸

Since many of the distribution poles are used by third parties (*i.e.*, telecommunications and cable providers) to locate their infrastructure, the successful implementation of a distribution pole joint use program could also mitigate infrastructure wind-driven damage by avoiding the unnecessary installation of additional poles to accommodate facilities that could be attached to PREPA's poles, if adequately coordinated. Such a program will require a full audit of existing assets, the digitization of this data, a proactive maintenance program, some of these efforts may be or are already addressed by the proposed programs.

iv. Electric Transmission Facilities

As part of the System Remediation Plan Petition, LUMA included a Transmission Portfolio program dedicated to inspecting transmission line facilities, including conductors, towers, structures, guys/anchors, and check line clearances.¹³⁹ It is expected that, in addition to capture asset health and identify the need to remedy those instances where high risk issues are identified, this data will also support Bulk Electric System power flow modeling efforts that will facilitate transmission contingency planning in accordance with industry reliability standards.

¹³³ Exhibit 1, System Remediation Plan Petition, p. 90.

¹³⁴ *Id.*, p. 89.

¹³⁵ Technical Conference Recording, May 17, 2021, afternoon session, 1:24:10-1:28:46.

¹³⁶ *Id.*

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ Exhibit 1, System Remediation Plan Petition, p. 100.



The Energy Bureau **FINDS** that the identified activities related to the T&D System characterization, are adequately prioritized and address the most pressing needs of the system.

4. Hardening and Increased Resilience Initiatives

LUMA's review of asset condition of transmission, distribution, and substation facilities built upon previous studies available in Puerto Rico post-hurricane, including inspection work completed by Sargent & Lundy, the Grid Modernization report prepared by COR3, analysis completed Siemens PTI, and studies completed by the U.S. Department of Energy.¹⁴⁰ LUMA indicated that three reports completed by Sargent & Lundy on behalf of PREPA provided the most useful information on which to gauge asset health¹⁴¹. The Sargent & Lundy studies involved inspections of portions of the PREPA transmission and distribution system, including 52 of 226 transmission lines, 21 of 1,155 distribution feeders, and 85 of 339 substations.¹⁴²

In addition to those studies, LUMA reviewed available data regarding the condition of PREPA's T&D system, including outage data, that LUMA utilized to identify the worst-performing feeders.¹⁴³ LUMA also completed confirmatory site visits to verify Sargent & Lundy findings.¹⁴⁴

LUMA stated that, in completing its inspections of a sample of facilities, consideration was given to 1) ensuring the inspections provided a realistic view of the system, 2) addressing known problem areas, such as worst performing feeders and problematic substations, 3) linking observed conditions with underlying causal analysis, and 4) validating Sargent & Lundy inspections.¹⁴⁵ LUMA's confirmatory site visits occurred across the system, including substations and transmission centers, electric transmission lines, electric distribution feeders, system technologies and facilities, and telecommunication

¹⁴⁰ Exhibit 1, System Remediation Plan Petition, p. 2.

¹⁴¹ *Id.*, p. 34. LUMA refers to the following Sargent & Lundy reports: "T&D condition assessment report: Independent Engineering Report, PREPA Transmission and Distribution System", June 2019; "Conceptual Transmission and Distribution 10-Year Capital Investment Plan for Reliability", October 2019; "Transmission and Distribution Roadmap", May 2020.

¹⁴² *Id.*, p. 34.

¹⁴³ *Id.*, pp. 34-35.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*



systems and networks.¹⁴⁶ LUMA's confirmatory inspections covered 20 distribution feeders, 24 substations and portions of the 230 kV transmission system via aerial inspection.¹⁴⁷

Based on the studies LUMA reviewed and on its own inspections, LUMA's Gap Assessment indicated that a significant portion of the T&D System requires some sort of remediation.¹⁴⁸ LUMA also concluded there is abundant evidence of hurricane damage to the transmission and distribution system, but there is also significant damage as a result of decades of inadequate and deferred maintenance.¹⁴⁹ Further, LUMA states that there is limited evidence that critical system assets have been inspected, tested and repaired, and there are no indications that PREPA would put in place those types of standard practices in the foreseeable future.¹⁵⁰

a. Transmission System Remediation

According to LUMA, 37 percent of the 1,453 transmission structures (*i.e.*, at the 230 kV, 115 kV and 38 kV levels) inspected by Sargent & Lundy require some level of remediation.¹⁵¹ LUMA's Gap Assessment identified a variety of gaps and remediation needs, including: transmission infrastructure corrosion, replacement or reinforcement of anchors, replacement of safety hazard poles/structures and associated hardware, among others.¹⁵²

i. Energy Control Center

LUMA has identified that the Energy Control Center and its backup facilities have fallen into disrepair.¹⁵³ New facilities are sought to house these capabilities and the upgrades proposed to the Energy Management System ("EMS"). LUMA proposes to replace the obsolete and unsupported EMS and implement an Advanced Distribution Management System ("ADMS").¹⁵⁴ It is expected that the data gathered through the field inspections will enable the full utilization of the EMS/ADMS capabilities, and that these capabilities will

¹⁴⁶ *Id.*, pp. 34-35.

¹⁴⁷ *Id.*, p. 35.

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*, p. 35.

¹⁵⁰ *Id.*, p. 35.

¹⁵¹ Exhibit 1, System Remediation Plan Petition, p. 35.

¹⁵² *See, generally*, Exhibit 1, System Remediation Plan Petition, pp. 100-101.

¹⁵³ Exhibit 1, System Remediation Plan Petition, p. 159.

¹⁵⁴ *Id.*



facilitate the integration of firm distributed renewable generation and demand side management measures.¹⁵⁵

Increased system visibility and automation strengthens the resilience of the grid against future weather events. LUMA plans to seek Stafford Act section 406 funding for automation activities, such as Advanced Metering Infrastructure (“AMI”) to support the situational awareness that is required to fully utilize the functionalities of the EMS LUMA is planning to replace.¹⁵⁶

ii. IT OT Telecom Systems and Network

The IT OT Telecom Systems and Network program supports a core capability that any electric utility seeking to facilitate the employment of distributed energy resources must fully develop.¹⁵⁷ LUMA has found that the system situational awareness is deficient.¹⁵⁸

Strategically deployed sensors can help remedy this deficiency, however without adequate network capabilities that feature redundancy, these sensors become useless.¹⁵⁹ LUMA has prioritized the buildup of the network during the system remediation phase¹⁶⁰ over other programs under the Transmission portfolio, which is consistent with the technology sequencing sought for these foundational system capabilities.¹⁶¹

The Energy Bureau **FINDS** that the activities under the Transmission System Remediation and the IT OT Telecom Systems and Network programs have been adequately prioritized as part of the System Remediation Plan.

b. Distribution System Remediation

Based on its Gap Assessment and previous inspection work completed by Sargent & Lundy, LUMA identified substantial System Remediation Plan distribution system initiatives and investments.¹⁶² At the Technical Conference, LUMA acknowledged that it still has things

¹⁵⁵ Technical Conference Recording, May 17, 2021, afternoon session, 20:36:25:50.

¹⁵⁶ Technical Conference Recording, May 17, 2021, afternoon session, 27:55-29:01.

¹⁵⁷ Exhibit 1, Petition, p. 178.

¹⁵⁸ Exhibit 1, Petition, p. 39.

¹⁵⁹ Technical Conference Recording, May 14 afternoon 2:42:29-2:44:47.

¹⁶⁰ *Id.*, p. 100.

¹⁶¹ *Id.*

¹⁶² Exhibit 1, System Remediation Plan Petition, pp. 80-99.



to learn about the underlying asset condition of PREPA's transmission and distribution system, and that such learning is unlikely to occur before Service Commencement, since LUMA will gain much greater visibility once it assumes the operation and planning of the system.¹⁶³ LUMA testified that it plans to complete comprehensive inspection of the distribution and substation system, over a four-year period, and that results from its inspections will result in adjustments to the System Remediation Plan implementation, as needed to prioritize worker and public safety, and to improve reliability and resiliency on the system.¹⁶⁴ In addition to the comprehensive inspection program, LUMA also testified that it will complete drive-by visual inspections and will train its personnel to recognize visible safety or reliability issues, and to flag and document such issues as they carry out daily work activities.¹⁶⁵ LUMA is also developing plans to complete field inspections and inventory of the distribution feeder system pursuant to the Energy Bureau's determinations in Case No. NEPR-MI-2019-0011.

LUMA has projected \$237 million of expenditures for the distribution system in FY2022.¹⁶⁶ Seventy percent, or \$166 million, of those expenditures are categorized as System Remediation Plan items and \$199 million of those expenditures will be eligible for federal funding.¹⁶⁷ For FY2023, LUMA anticipates \$352 million of total distribution expenditures, with \$238 million categorized as System Remediation Plan and \$311 million will be eligible for federal funding.¹⁶⁸ For FY2024, LUMA projects \$518 million of distribution expenditures, with \$278 million categorized as System Remediation Plan and \$477 million of those expenditures will be eligible for federal funding.¹⁶⁹

The Energy Bureau **FINDS** that the activities under the Distribution System Remediation have been adequately prioritized as part of the System Remediation Plan and **ORDERS** LUMA to adequately coordinate the same with the Energy Bureau determination under Case No. NEPR-MI-2019-0011 and to explore options for accelerating that timeframe, including utilization of federal funding to support such acceleration.

¹⁶³ Technical Conference Recording, May 14, 2021, morning session, 1:55:43-2:05:49. <https://youtu.be/MQfX8wd39iA?t=6945>.

¹⁶⁴ *Id.*

¹⁶⁵ Technical Conference Recording, May 14, 2021, morning session, 2:08:30-2:12:09.

¹⁶⁶ Exhibit 1, System Remediation Plan Petition, p. 51 (Table 6-2).

¹⁶⁷ *Id.*

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*



c. Substation Remediation

As part of the 80 substations inspected through the FEMA funding process, damage was found to 72 percent of equipment at the substations.¹⁷⁰ LUMA's confirmatory inspections found damage and repair needs at each substation inspected.¹⁷¹ LUMA estimates that approximately 30 percent of distribution substations require safety and hazard mitigation to reach remediation.¹⁷²

LUMA's System Remediation Plan includes inspection, repair, and rebuilding of damaged substations. The substations will be brought up to current codes and standards and industry best practice, to improve long-term reliability.¹⁷³ It will also look for opportunities to consolidate facilities on those areas that are prone to flooding. At transmission and distribution substations, the program includes installation of gas insulated switchgear and replacement of electromechanical and electronic relays, along with repair and rebuilding of flood-damaged substations following the hurricanes.¹⁷⁴

The System Remediation Plan contains investment in transmission substation security, which includes replacement of existing equipment and installation of new security technology and hardware to deter, detect, and delay security incidents.¹⁷⁵ Also, the System Remediation Plan contains Distribution Studies focused on eliminating major cascading outages caused by lack of proper coordination of protective devices, and implementing new procedures and standards to ensure the distribution system complies with regulations and with Prudent Utility Practice.¹⁷⁶ The System Remediation Plan contains initiatives to inspect and repair inadequate grounding at substations and throughout the distribution network, to improve safety and reliability, and repair and hardening, including increased site elevation at 18 substations that experienced flooding and extensive damage from Hurricane María.¹⁷⁷

The System Remediation Plan also includes investments in substation modernization by replacing electromechanical relays with microprocessor-based relays to enable smart

¹⁷⁰ *Id.*, p. 35.

¹⁷¹ RFI-LUMA-MI-21-0004-210405-PREB-005b Attachment 3.

¹⁷² Exhibit 1, System Remediation Plan Petition, p. 133.

¹⁷³ *Id.*, p. 134.

¹⁷⁴ *Id.*, pp. 133-135.

¹⁷⁵ *Id.*, p. 138.

¹⁷⁶ *Id.*, p. 142.

¹⁷⁷ *Id.*, p. 128.



data collection, and deployment of high voltage GIS systems.¹⁷⁸ Equipment replacement initiatives include installing new control buildings, where necessary, Protection and Control systems, SCADA system upgrades, new cabling, and replacement of high voltage equipment such as switchgear, breakers and disconnects, as needed.¹⁷⁹

Similar to the Distribution System, LUMA has testified that specific System Remediation Plan initiatives will be adjusted as more detailed information becomes available through completion of comprehensive substation inspections.¹⁸⁰

During the Technical Conference, IEM representatives testified that projects to increase resilience against future disasters were being evaluated for potential Stafford Act Section 406 eligibility.¹⁸¹ This Stafford Act Section 406 funding would be an additional FEMA assignment to the already obligated \$9.459 billions of Public Assistance section 428 funds resulting from DR-4339. Opportunities to employ this additional funding source occur during the permanent work design phase, where hardening opportunities can be identified. IEM is assisting LUMA engineers with these efforts.¹⁸²

In the System Remediation Plan, LUMA projects total substation expenditures of \$114.8 million in FY2022, with \$63.7 million allocated to System Remediation Plan and \$89.1 million of those expenditures will be eligible for federal funding. LUMA projects \$108 million of total substation expenditures in FY2023, with \$73.8 million designated as System Remediation Plan. In FY2024, LUMA projects total substation expenditures of \$106.9 million, including \$72.6 million categorized as System Remediation Plan.¹⁸³ For FY2023 and FY2024, LUMA projects that \$80.1 million and \$80.6 millions of substation expenditures, respectively, will be eligible for federal funding support.

The Energy Bureau **FINDS** that the activities under the Substation Remediation program properly focus on system remediation and repair for critical substation facilities and reflect appropriate sequencing and prioritization of investment and remediation activities.

¹⁷⁸ *Id.*, p. 134.

¹⁷⁹ *Id.*, pp. 125-130.

¹⁸⁰ Technical Conference Recording, May 14, 2021, morning session, 2:12:10-2:14:38.

¹⁸¹ Technical Conference Recording, May 17, 2021, afternoon session, 20:30-22:02,

¹⁸² *Id.*, 26:38-28:00.

¹⁸³ See LUMA Initial Budgets Filing, Sectio~1.xls, Table 5.4 Imp Port Summary, Line 4.



5. Reliability Improvements

a. Vegetation Management

LUMA proposes an aggressive vegetation management initiative during the system remediation phase.¹⁸⁴ LUMA anticipates that these activities will have an immediate favorable impact on system reliability.¹⁸⁵ LUMA's Vegetation Management program is based on a proactive approach to consistently comply with the clearances established by codes and standards.¹⁸⁶

b. Control Capabilities

The cornerstone of LUMA's remediation proposal is the replacement of the Energy Management System that will feature ADMS capabilities and the repair/restoration of the utility telecommunications backbone.¹⁸⁷ The visibility provided by these capabilities will enable the adequate coordination of protection schemes that could isolate faults before they become widespread outages.¹⁸⁸

c. Distribution Automation

Failures on the distribution system are typically responsible for over 90 percent of electric power interruptions, both in terms of the duration and frequency of outages.¹⁸⁹ Sectionalizing schemes, where portions of a distribution circuit are isolated to contain a fault and prevent further disruption, are proven to have a favorable reliability impact.¹⁹⁰ LUMA identifies the need to deploy distribution automation technologies to increase system reliability, these activities have been categorized as Non-System Remediation Plan.¹⁹¹

¹⁸⁴ See Exhibit 1, System Remediation Plan Petition, p. 185-186.

¹⁸⁵ *Id.*, 187.

¹⁸⁶ *Id.*, 186.

¹⁸⁷ Technical Conference Recording, May 14, 2021, afternoon session, 2:51:00-2:52:07.

¹⁸⁸ *Id.*

¹⁸⁹ See Joseph Eto, "How Reliable Is Transmission Compared to Distribution and What Do Power Interruptions Really Cost Customers," paper presented at National Association of Regulatory Utility Commissioners Winter Committee Meeting, Washington, DC, February 14-17, 2016.

¹⁹⁰ Exhibit 1, System Remediation Plan Petition, p. 34.

¹⁹¹ Technical Conference Recording, May 17, 2021, afternoon session, 27:46 – 29:40.



The Energy Bureau **FINDS** the prioritization of the foregoing Reliability Improvement programs is consistent with addressing pressing system needs, especially when DA functionalities are fully realized when they ride on a robust communications network – a foundational system capability being addressed during the remediation phase.¹⁹²

6. Customer Service

Under LUMA's Customer Service Portfolio¹⁹³, five main programs are identified: Distribution Streetlighting, Billing Accuracy & Back Office, Standardized Metering & Meter Shop Setup, Modernize Customer Service Technology, and Streetlight Billing.

a. Distribution Streetlighting

This encompasses a “program [which] deals with upgrading and replacing distribution streetlights that are a physical safety hazard and are scheduled for repair or replacement based on their criticality. Along with increasing the number of distribution streetlights in service, this process will also include Light Emitting Diode (“LED”) replacements and GIS data entry of all streetlights.”¹⁹⁴

In the System Remediation Plan filing, LUMA estimates that 70 percent of Puerto Rico's approximate 500,000 streetlights are damaged due to the recent natural disasters/hurricanes.¹⁹⁵ And approximately 15% of those damaged streetlights are identified by LUMA as physical safety hazard requiring hazard mitigation to reach remediation.¹⁹⁶ LUMA stated that field inspections will categorize risk levels and prioritize remediation efforts by their safety severity.¹⁹⁷ Highest risk assets will be entered into a remediation plan within 60 days of identification.¹⁹⁸

At the Technical Workshop, LUMA acknowledged that PREPA has made substantial progress in replacing streetlight luminaries and committed to reconcile its System

¹⁹² See Exhibit 1, System Remediation Plan Petition, pp. 259-272; IT OT Telecom Systems and Network under Hardening and Increased Resilience Initiatives.

¹⁹³ Exhibit 1, System Remediation Plan Petition, p. 54.

¹⁹⁴ *Id.*

¹⁹⁵ *Id.*, p. 56.

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*, p. 56.



Remediation Plan estimate with reports PREPA has filed with the Energy Bureau.¹⁹⁹ LUMA acknowledged that its information may be stale. LUMA also testified that hurricane damage to the streetlights goes beyond luminary replacement, and that there is also wiring and other sources of damage, and that it will be conducting field examination to assess the extent of damage and remaining repair costs. LUMA committed to reconcile its program costs with progress already completed by PREPA during System Remediation Plan implementation.²⁰⁰

This program is expected to have a positive direct impact on public safety, customer experience, electricity prices, federal funding utilization, grid infrastructure restoration, and modernization of the grid.²⁰¹ Modernization of the grid and sustainable energy practices will be achieved through smart sensors capable of regulating light intensity based on the presence of traffic or the amount of natural light, remote control, and monitoring, among other advanced technological capabilities.²⁰²

b. Billing Accuracy and Back-Office

This program consists of “updates to bill print and delivery and other back-office systems to ensure LUMA has the ability to continue to produce customer invoices.”²⁰³ LUMA estimates that current delayed invoicing due to outdated technology cost approximately \$12.5 millions in delayed revenue for each day that invoices are delayed.²⁰⁴ LUMA subcategorizes this initiative into: Bill Print & Delivery Outsourcing, Removing Redundant Bill Printing & Envelope Equipment, Use of Resources for Back Office Processing of Service Order Paperwork and Manual Data Entry/Update of CC&B, Use of Resources to Work Down of Estimated, Unbilled, & Other Billing Exception-Related Accounts, Customer Experience Metrics Dashboards, Agent Work Routing Technology for Back Office (Work Queue Assignment), and General Technology Billing.²⁰⁵

According to LUMA’s assessment, the current state of customer billing printing function is outdated and running on unsupported technological solutions, centralized in PREPA’s main office, with no contingency plan if system disruption at PREPA’s facility occurs.

¹⁹⁹ Technical Conference Recording, May 14, 2021, morning session, 2:56:34 – 3:07:10.

²⁰⁰ *Id.*

²⁰¹ *Id.*, Table 2-5, p. 57.

²⁰² *Id.*, Table 2-5, p. 57.

²⁰³ *Id.*, p. 54.

²⁰⁴ *Id.*, p. 55.

²⁰⁵ *Id.*, pp. 61-63.



The system costs approximately \$8.5 millions per year.²⁰⁶ LUMA proposes a Bill Print & Delivery Outsourcing program which would reduce operational costs and risk. The third-party vendor will provide a more comprehensive solution, while also addressing disaster recovery and mitigation plans.²⁰⁷ The current bill printing solution machinery housed in the NEOS building will be liberated and remodeled.²⁰⁸

Service orders are another area where LUMA has identified an opportunity for operational efficiencies. According to LUMA, current service orders are handled on paper, and manually entered into a system, in a decentralized manner, prone to errors and inefficiencies.²⁰⁹ LUMA expects to increase efficiencies through a two-pronged method, beginning with generating lists across many service order types for field team completion and subsequent manual entry, followed by a more long-term digital solution with less dependence on manual intensive processes and paperwork.²¹⁰

Billing exceptions are additional bills handled separately due to several reasons, such as billing system processing errors, consumption of active meters without an account, and claims. LUMA has identified a large amount of billing-related backlog, of approximately 10% of PREPA's 1.47 million customers, which its states are far greater than the manner in which well-functioning utilities operate (1-2%). LUMA will assign additional resources for root cause analysis and process improvements.²¹¹

c. Standardized Metering & Meter Shop Setup

This program is "targeted at establishing a location for standardized meter testing for LUMA and the provision of appropriate internal and external meter testing equipment.²¹² Enhanced procedures are also included, along with operational support for the new facility and equipment."²¹³

²⁰⁶ *Id.*, p. 61.

²⁰⁷ *Id.*, p. 63.

²⁰⁸ *Id.*, p. 61.

²⁰⁹ *Id.*, p. 64.

²¹⁰ *Id.*

²¹¹ *Id.*, p. 62.

²¹² *Id.*, p. 69.

²¹³ *Id.*, p. 69.



d. Modernize Customer Service Technology

This program is focused primarily on “remediating the telephony technology through the development and implementation of a new cloud-based contact center platform.”²¹⁴ LUMA contends this system will allow better high call volume handling and emergency reporting by customers.²¹⁵

e. Streetlight Billing

This program considers all approximate 500,000 streetlights and associated billing services.²¹⁶ Through this program, LUMA proposes to audit all streetlights on a regular cycle and assigning it an individual indicator/asset tag. Upon individually identifying streetlights, LUMA proposes to update its Customer Care and Billing (“CC&B”) system to reflect more accurately customer billing of streetlights, and the adequate communication channels for any corrections to the street lighting system.²¹⁷

The Energy Bureau **FINDS** that the programs proposed under the Customer Service Portfolio have been adequately prioritized, considering the near-term favorable impact the activities in these programs will have on customers.

IV. Conclusion

Upon review of LUMA’s System Remediation Plan Petition, the Energy Bureau **DETERMINES** that LUMA has developed a reasonable approach to identify and prioritize both, physical asset deficiencies and business process deficiencies, and has developed initiatives designed to remediate those systems.

Therefore, the Energy Bureau **CONDITIONALLY APPROVES** the System Remediation Plan. Accordingly, the Energy Bureau **ORDERS** LUMA to file reports with the Energy Bureau every two months²¹⁸, starting on September 15, 2021, regarding the progress of the System Remediation Plan implementation. These reports, at a minimum, shall include the following:

1. Actual spending amounts, broken down by spending initiative/portfolio, and reflecting in detail any variances from the System Remediation Plan;

²¹⁴ *Id.*, p. 72.

²¹⁵ *Id.*, pp. 72-75.

²¹⁶ *Id.*, p. 76.

²¹⁷ *Id.*, p. 77.

²¹⁸ The Energy Bureau may alter the frequency and/or content of the reports, at its discretion.



2. A detail timeline per portfolio with sufficient detail to allow the Energy Bureau to assess project status for System Remediation Plan capital expenditures and operational initiatives; and
3. Any capital expenditure or operational initiatives that are behind schedule, compared to the initial System Remediation Plan timeframe and a detail explanation as to the cause of the delay and the corrective actions implemented to prevent further delays, as applicable.

The Energy Bureau recognizes that the System Remediation Plan may require revisions in the future, as new or updated information becomes available, and/or as new priorities arises due to new assessments or unforeseeable events. Consequently, consistent with the aforementioned conditions, the Energy Bureau **ORDERS** LUMA to file, for Energy Bureau's review and approval, any future proposed modifications (*e.g.*, decrease, abandonment and/or expansions of initiatives) to the conditionally approved System Remediation Plan, prior to the implementation of such modifications. Such proposal shall include the rationale and justification for the proposed change, a detail explanation and analysis of the impact of such modifications to other initiatives and the overall System Remediation Plan goals.

The Energy Bureau **INFORMS** that it will establish a calendar for compliance monitoring hearings as part of this process at a later date.

The Energy Bureau **WARNS** LUMA that noncompliance with this Resolution and Order may result in the imposition of fines under Act 57-2014 and the applicable Energy Bureau's regulations and/or any other appropriate administrative sanctions, as deemed appropriate by the Energy Bureau.

Be it notified and published.



Edison Avilés Deliz
Chairman

Ángel R. Rivera de la Cruz
Associate Commissioner

Lillian Mateo Santos
Associate Commissioner

Ferdinand A. Ramos Soegaard
Associate Commissioner

Sylvia B. Ugarte Araujo
Associate Commissioner

CERTIFICATION

I hereby certify that the majority of the members of the Puerto Rico Energy Bureau has so agreed on June 22, 2021. I also certify that on June 23, 2021 a copy of this Resolution and Order was notified by electronic mail to the following: agraitfe@agraitlawpr.com, kbolanos@diazvaz.law, jmarrero@diazvaz.law and margarita.mercado@us.dlapiper.com. I also certify that today, June 23, 2021, I have proceeded with the filing of the Resolution and Order issued by the Puerto Rico Energy Bureau.

For the record, I sign this in San Juan, Puerto Rico, today June 23, 2021.


Sonia Seda Gaztambide
Clerk

