

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

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<b>Received:</b>
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IN RE: REVIEW OF PUERTO RICO  
ELECTRIC POWER AUTHORITY'S  
COMPREHENSIVE VEGETATION  
MANAGEMENT PROGRAM

CASE NO. NEPR-MI-2019-0005

SUBJECT: Motion in Compliance with Directive of  
Resolution and Order of February 27, 2023 in Case  
NEPR-MI-2021-0004 on Vegetation Management

**MOTION IN COMPLIANCE WITH DIRECTIVE OF RESOLUTION AND ORDER OF  
FEBRUARY 27, 2023 ISSUED IN CASE NEPR-MI-2021-0004, ON IMPLEMENTATION  
PLAN FOR THE VEGETATION MANAGEMENT AND CAPITAL CLEARING  
IMPLEMENTATION SYSTEM REMEDIATION PROGRAM**

**TO THE HONORABLE PUERTO RICO ENERGY BUREAU:**

COME NOW LUMA Energy, LLC (“ManagementCo”), and LUMA Energy ServCo, LLC (“ServCo”), (jointly referred to as “LUMA”), and respectfully states and requests the following:

1. On April 2, 2022, LUMA submitted to this Honorable Puerto Rico Energy Bureau (“Energy Bureau”) in the proceeding known as the *In re Review of LUMA’s Initial Budgets*, Case No. NEPR-MI-2021-0004 (hereinafter, “the Budgets Proceeding”), its Annual Budgets for Fiscal Years 2023 through 2025 (“Annual Budgets”). On July 13, 2022, LUMA filed a *Motion Submitting Fiscal Year 2023 Annual Budget as Approved by the Financial Oversight and Management Board for Puerto Rico*, whereby it submitted to this Energy Bureau the Fiscal Year 2023 Budget as certified by the Financial Oversight and Management Board for Puerto Rico (“FOMB”) (“Certified Budget”).
2. The Certified Budget included a budget allocation for the Vegetation Management System Remediation Program. *See Motion Submitting Fiscal Year 2023 Annual Budget as*

*Approved and Certified by the Financial Oversight and Management Board for Puerto Rico, Exhibit 2, Appendix C, pages 229-234. LUMA's timeline to reach a Remediated State for the Vegetation Management Remediation Program was the second half of FY2027 ("H2 FY2027"). See id., page 234.*

3. On February 27, 2023, upon conducting proceedings to consider the Certified Budget, this Energy Bureau issued a Resolution and Order approving the Certified Budget, subject to conditions and reporting requirements ("February 27<sup>th</sup> Order"). In what is relevant to this Motion, on page 13 of the February 27<sup>th</sup> Order, this Energy Bureau directed LUMA to "(vi) provide in the Vegetation Management Docket (NEPR-MI-2019-0005) a corresponding detailed implementation plan to complete the Vegetation Management Remediation Phase by HI 2026 with a detailed Timeline and Milestones." See February 27<sup>th</sup> Order, page 13.

4. On March 20, 2023, LUMA filed in the Budgets Proceeding, a Motion entitled *Motion for Reconsideration and/or Request for Clarifications of Resolution and Order of February 27, 2023 on LUMA's FY 2023 Certified Budget and Request for Stay Pending Adjudication of the Motion for Reconsideration* ("Motion for Reconsideration"), where it respectfully submitted, in relevant part, that the accelerated timeline required by this Energy Bureau to complete the tasks laid out in the approved Vegetation Management System Remediation Program is not feasible without maximizing federal funding. LUMA explained that at the time, it had received confirmation from the Federal Emergency Management Agency and COR3 that vegetation clearing activities are eligible for federal funding under 406 Hazard Mitigation but was awaiting a final determination regarding the magnitude of 406 Hazard Mitigation funds that will be dedicated to vegetation clearing. Because LUMA does not dictate whether and when federal funds will be available for vegetation clearing activities, LUMA informed that it was not in position to commit

to a plan to reach remediated stated by H1 2026. LUMA thus requested that this Energy Bureau stay the order to accelerate the timeline to complete the Vegetation Management Remediation Phase. The Motion for Reconsideration is pending consideration by this Energy Bureau in the Budgets Proceeding.

5. On April 24, 2023, LUMA filed with this Energy Bureau, Case *In re Review of the Puerto Rico Electric Power Authority's 10 Year Infrastructure Plan*, Case No. NEPR-MI-2021-0002, a Scope of Work on the Island-Wide Vegetation Clearing T&D Project in compliance with that portion of the February 27<sup>th</sup> Order that instructed LUMA to include its plans for maximizing federal funding in the development of a strategy to address the necessary clearing of vegetation. This Energy Bureau approved the Statement of Work (“SOW”) on the Island-Wide Vegetation Clearing T&D Project through a Resolution and Order issued on May 5, 2023, Case NEPR-MI-2021-0002.

6. On May 15, 2023, LUMA submitted to this Energy Bureau in the Budgets Proceeding, the Consolidated Annual Budgets for Fiscal Year 2024 and Annual T&D Projections through Fiscal Year 2026, including Annual T&D Budgets for Fiscal Year 2024. *See Submission of Consolidated Annual Budgets for Fiscal Year 2024 and Annual T&D Projections through Fiscal Year 2026* filed in Case No. NEPR-MI-2021-0004 (“FY2024 Consolidated Budgets Submission”). LUMA’s Annual T&D Budgets for Fiscal Year 2024 includes a Vegetation Management and Capital Clearing Implementation Program. *See id.*, Exhibit 1, Appendix A. pages 208-214. Said Improvement Program has an allocation of \$179.8 million including \$125 million of federally funded capital and \$54.8 million in operating expenditures. *See id.*, page 205, Table A-8.

7. As LUMA informed in the FY2024 Consolidated Budgets Submission, LUMA recently received approval for a \$1.2 billion multi-year, island-wide Vegetation Reset, that will be funded by the Federal Government and will accelerate recovery. *See id.*, page 12.

8. In its Vegetation Management and Capital Clearing Implementation Program, LUMA included a detailed timeline with milestones, depicting the specific stages of the Vegetation Management and Capital Clearing Implementation Program and the projected timeline for achieving each, as well as a detailed description of the program remediated state, tasks to achieve the program remediated state and the FY2024 activities. *See id.*, pages 208-214. As shown in the timeline and milestones graphic included in the Vegetation Management and Capital Clearing Implementation Program, LUMA estimates achieving the clearing of all 230 kV Rights of Way (“ROWS”) by Q4 FY2024 which is consistent with the Energy Bureau’s directive in the February 27th Order, page 13. *See id.*, pages 211 (Section 2.4.2) and 214 (Section 3.4). LUMA estimates reaching remediated state by Q4 FY2027. *See id.*, page 214 (Section 3.4).

9. LUMA understands that even allocating additional funds to the Vegetation Management and Capital Clearing Program, the accelerated timeline required by this Energy Bureau to achieve remediated state by H12016 in connection with the Vegetation Management and Capital Clearing Implementation Program, is not feasible. Among the factors impacting the timeline to reach remediated state is the timing of receipt of the federal funds, including receiving Environmental and Historic Preservation approvals. *See id.*, Appendix A, page 214, n 1. In addition, LUMA identified —post-commencement— additional challenges that it was not able to identify when it conducted the Gap Assessment in 2020 during the Front-End Transition Period. These additional challenges included (1) denser vegetation and significantly fewer clear spans of ROW than originally garnered through satellite imaging, (2) an underestimation of the volume of

critical requests for vegetation clearing, and (3) incremental and more time-consuming permitting requirements from the federal government. All these factors contribute to an impact on the proposed timeline and lead to the estimate for completion of remediated state to be set for Q4 FY2027. *See id.*, page 209 (Section 2.1.1).

10. In compliance with the February 27<sup>th</sup> Order, LUMA respectfully submits as Exhibit 1 of this Motion, the updated version of the Vegetation Management and Capital Clearing Program which was also filed in the Budgets Proceedings. Said updated version of the Vegetation Management and Capital Clearing Program includes a Program description (Section 1.0); an explanation on additional gaps identified Post-Commencement (Section 2.1.1.), a description of the remediated state (Section 2.2); a section on tasks to achieve the remediated state (Section 2.2.1); a description of the Program completed state (Section 2.3); a description of FY2024 activities (Section 2.4.2); a Program funding table (Section 3.1); and an updated and expanded section on Program Milestones and Timelines (Section 3.4).

11. Although LUMA cannot reach remediated state by H12026, it respectfully submits that Exhibit 1 of this Motion complies with the order issued by this Energy Bureau to adopt an implementation plan to reach remediated state. As Exhibit 1 shows, LUMA has expedited processes to obtain federal funding for vegetation clearance work. Following approval by this Energy Bureau of the SOW on the Island-Wide Vegetation Clearing T&D Project, LUMA submitted an initial SOW to FEMA in Q4 FY2023 and will work to secure contract awards by Q2 FY2024. *Id.*, page 214 (Section 3.4). LUMA will leverage its experience and resources to reach an important milestone in Q4 FY2024: clear all 230 kV ROW. It is respectfully submitted that LUMA has reached important milestones to secure the path towards the end goal of a remediated state in connection with the Vegetation Management and Capital Clearing Program.

12. LUMA continues to prioritize vegetation management activities and will file in due course, updated timelines to reach remediated state and maximize federal funding.

**WHEREFORE**, LUMA respectfully requests that the honorable Bureau **take notice** of the contents of this Motion for all purposes; and **deem** that LUMA complied with that portion of the February 27<sup>th</sup> Order that required that LUMA file in this proceeding, an implementation plan to reach remediated stated in connection with the Vegetation Management and Capital Clearing Program.

**RESPECTFULLY SUBMITTED.**

In San Juan, Puerto Rico, this 17<sup>th</sup> day of May, 2023.

I hereby certify that this motion was filed using the electronic filing system of this Energy Bureau. I also certify that copy of this motion will be notified to the Puerto Rico Electric Power Authority, through its attorney of record: [jmarrero@diazvaz.law](mailto:jmarrero@diazvaz.law).



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Exhibit 1

# Vegetation Management and Capital Clearing Implementation

## Vegetation Management and Capital Clearing Implementation

### 1.0 Program Description

This program includes work to abate or mitigate immediate vegetation risk in the most critical locations, along with an ongoing program to clear and re-establish Rights of Way (ROWs) to standard widths. The program also includes federally funded capital vegetation clearing and reclamation along transmission and distribution lines, in and around substations, and along facility access roads to achieve vegetation remediation as a key activity in LUMA's capital investment plan federally funded capital activity to be reimbursed by federal agencies. This vegetation management and capital clearing work includes an immediate response for the highest risk sites (those that pose hazards to public safety or routinely experience tree-caused service interruptions), along with reclaiming rights of way corridors (especially those impacting the transmission and distribution systems). The program will also use a field-enabled IT tool to manage the vegetation management program, along with ongoing line clearance, pruning, tree removal, herbicides, etc. and vegetation management training. In addition, the program will evaluate and pilot an advanced AI remote sensing project to improve the program's efficacy vegetation management.

### 2.0 Program Rationale

#### 2.1 Initial State & Identified Gaps

There had been no centralized team with the responsibility and authority for maintaining vegetation and managing vegetation-related processes in the existing T&D System, and thus there was no regular vegetation management program in place. In-house employees and contractors did not use the most up-to-date utility vegetation management industry standards and best management practices.

Vegetation maintenance and facility right-of-way management had largely been deferred. The vegetation maintenance work performed by in-house personnel was predominantly reactive or corrective maintenance (a.k.a. "hot spotting"). Some preventive vegetation maintenance work was performed by contractors working under PREPA's PMO.

Pruning practices were not very effective, mainly resulting in excessive regrowth and wounding of trees, which increased the likelihood of structural failure.

Many personnel relied on the use of machetes and did not have access to more useful tools. The equipment that was used by in-house personnel was in poor repair, without the use of specialized vegetation management equipment. There was little use of herbicides and no use of tree growth regulators. The lack of appropriate tools and equipment contributed to the low productivity of in-house personnel.

Insufficient tree clearance and lack of vegetation maintenance, in general, are significant contributors to system unreliability, especially in extreme weather events such as hurricanes. This also creates a public





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safety hazard- directly in the form of fallen wires or children climbing trees too close to energized lines and indirectly in power outages.

These findings indicate possible failure to meet applicable legal requirements, policies, or standards or the OMA requirements, including Prudent Utility Practice. Specifically, these are:

- Act 57-2014, providing that PREB will oversee the compliance of the T&D operator with a vegetation plan following industry best practices
- Act 17-2019, whose objective is to establish priorities for the maintenance of the infrastructure of the electric system and create vegetation management plans
- The OMA requires LUMA to implement a vegetation management plan per Prudent Utility Practice and applicable laws

## 2.1.1 Additional Gaps Identified Post-Commencement

Post-commencement, LUMA identified a series of additional challenges that were not able to be identified during the Gap Assessment conducted in 2020 during the Front-End transition. Specifically, LUMA had used satellite imagery that led it to believe that there were significantly more clear and open spans in the system than existed. Fieldwork determined that there were fewer clear spans than expected, and that the vegetation was denser than expected.

Moreover, LUMA underestimated the large volume of critical and required requests for vegetation that were in addition to the remediation work. This led to the requirement to do significantly more reactive and corrective actions, and less clearing than planned.

Additionally, in LUMA's efforts to pursue and maximize federal funding for vegetation work, the process to procure federal procurement compliant contracts has required additional time in order to fully execute federally funded work.

Finally, LUMA expected a clearer regulatory pathway. Recently, for example, LUMA has received notice that there would be incremental permitting required from the Fish and Wildlife service regarding vegetation management and capital clearing, which had not been expected.

## 2.2 Description of Remediated State

In the remediated state, the following will apply:

- A centralized vegetation management team will have been created and staffed by professionals who will establish procedures and practices to eliminate public endangerment and promote a safe and efficient work environment
- A capital program for vegetation clearing will have been created to implement the federally funded capital clearing work plan that will work in coordination with the planned vegetation management team but at an expanded and accelerated pace
- The maintainable tree-conductor clearances will have been re-established on the T&D System, including:
  - Initially, reactive maintenance response that will target specific locations that pose the most significant risk to public safety, reliability, resilience, and system capacity (i.e., address the “worst of the worst”)



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- Reclamation of the ROWs that are currently overgrown and out of control and pose a risk to public safety, service reliability, and system capacity. This will include complying with Act 17-2019. In the remediated state, LUMA will set a baseline from which LUMA will establish reasonably maintainable conditions
- Establishment of steady state ongoing preventive vegetation maintenance practices (versus reactive response practices) as individual circuits are reclaimed (consistent with the principles of integrated vegetation management)
- Complying with Section 1.16 of Act 17-2019
- Meeting all requirements for federal agency reimbursement of vegetation-clearing activities

## 2.2.1 Tasks to Achieve Remediated State

LUMA's Vegetation Management Plan (VMP) submitted to PREB on April 11, 2021, lays out the specific approach LUMA will take in executing the remediation work. LUMA will utilize an industry best-practice, structured decision-making process known as Integrated Vegetation Management (IVM) to understand the dynamics of managing incompatible species and the ecosystem. By applying this approach, incompatible tall growing trees and woody plants are eliminated from rights-of-way to the extent possible to reduce interference with critically important power facilities. Low-growing plant communities are preserved, which "crowds-out" taller growing species thereby providing a form of biological control. In urban areas, IVM can include the planting of compact plants in place of tall growing landscape trees. The benefit of IVM is that the cost and intensity of vegetation work will reduce over time while system reliability and safety are improved.

In implementing an IVM approach, LUMA will restore overgrown rights-of-way to standard widths and maintainable tree-conductor clearances as specified in the VMP. LUMA will comply with all laws and regulations and will incorporate appropriate industry standards and best management practices. Some of these industry standards and best practices include the National Electric Safety Code, American National Standards Institute (ANSI) standards, International Society of Arboriculture Best Management Practices, and Right-of-Way Stewardship Council standards.

## 2.3 Description of Program Completed State

Oversight of vegetation-related practices will be centrally managed by a dedicated vegetation management (VM) team composed of utility vegetation management industry subject matter experts (SMEs) with the responsibility and authority to complete the work promptly and effectively. Capital vegetation clearing work will be managed by the capital organization, which operates separately, but in coordination with the VM team. The program will be guided by the VMP based on current industry standards and in compliance with the requirements of Act 57-2014, Act 17-2019, and the OMA.

The VMP will be based on the principles of integrated vegetation management, which is an approach for sustainable vegetation management over the long term rather than simply controlling vegetation currently affecting overhead lines.

Transmission and distribution lines, substations, and access road vegetation clearing will be completed, consistent with federal agency requirements, to improve the public safety, reliability, and resilience of the infrastructure LUMA operates in Puerto Rico.



# Vegetation Management and Capital Clearing Implementation

Technical specifications will establish vegetation work expectations, and process flows will be used to define standard approaches to manage the necessary types of work more efficiently. Performance measurement and quality systems will be used in managing vegetation work. A range of specialized vegetation services will be used to complete the work.

## 2.4 Program Activities

The program includes two major elements. This first involves reclamation of the existing ROWs – through preventive maintenance activities and federally-funded vegetation clearing work – during the remediation phase, depending on acquiring the necessary approvals, permitting, and resources. As individual facilities are reclaimed, they will transition to long-term preventive maintenance efforts. The second element is a program of rapid reactive response to address the most critical locations.

A field-enabled IT tool will be implemented and used to manage vegetation work, including planning, scheduling, executing, and evaluating the effectiveness of vegetation activities for both vegetation maintenance and capital vegetation clearing. The data collected with the tool will support defining resource requirements and budgets based on quantitative estimates of the vegetation workload to be completed. Performance measurement and quality-control systems will be established to manage vegetation work.

The VM and vegetation clearing program teams will be staffed with SMEs who will act as mentors, assisting in developing SME level of knowledge among the VM employees. A range of specialty vegetation services will be engaged in executing the work.

### 2.4.1 Additional Activities Identified Post-Commencement

In alignment with the Vegetation Management Plan scope and activities required for the operation of the utility, the following activities have been added to the scope of this program:

- “Reactive” vegetation support for outage, afterhours, and storm restoration along transmission, distribution, and substation facilities
- “Corrective” activities to support re-occurring system reliability needs, customer requests, access, and system patrols along transmission, distribution, and substation facilities
- “Maintenance” and control of vegetation at substations, material laydown yards, switchyards, and other company facility sites

### 2.4.2 FY2024 Activities

The focus upcoming fiscal year includes:

- Clearing all 230kV ROWs and additional clearing and maintenance on other voltage levels
- Pursuing federal funding obligation with FEMA for vegetation clearance work

# Vegetation Management and Capital Clearing Implementation

## 2.5 Program Benefits

Primary Goals	Objectives	Direct or Indirect Impact
☒ <b>Prioritize Safety</b>	<input type="checkbox"/> Promote a Safe Workplace	
	☒ Implement Effective Public Safety Practices	Direct
☒ <b>Improve Customer Satisfaction</b>	☒ Deliver a Positive Customer Experience	Indirect
	☒ Increase Service Reliability	Direct
	<input type="checkbox"/> Deliver Electricity at Reasonable Prices	
☒ <b>Operational Excellence</b>	☒ Enable Systematic Management of the Business	Direct
	<input type="checkbox"/> Pursue Project Delivery Excellence	
	☒ Enable Employees to Execute Operations Systematically	Direct
☒ <b>System Rebuild &amp; Resiliency</b>	☒ Effectively Deploy Federal Funding	Indirect
	☒ Restore Damaged Grid Infrastructure	Direct
	☒ Improve Resilience of Vulnerable Infrastructure	Direct
☒ <b>Sustainable Energy Transformation</b>	☒ Modernizing the Grid	Direct
	<input type="checkbox"/> Enable the Digital Transformation	
	<input type="checkbox"/> Enable the Sustainable Energy Transformation	
<input type="checkbox"/> <b>Other</b>	<input type="checkbox"/> Other	

### PRIMARY GOAL: PRIORITIZE SAFETY

**Objective: Implement Effective Public Safety Practices**

Correcting the backlog of untrimmed trees and deteriorated rights-of-way will mitigate public safety risks due to power outages, fallen wires, and people climbing onto energized lines.

### PRIMARY GOAL: IMPROVE CUSTOMER SATISFACTION

**Objective: Deliver a Positive Customer Experience**

**Objective: Increase Service Reliability**

The primary benefit of effective vegetation management and well-maintained rights-of-way is to reduce outages caused by vegetation-caused line faults. This is a substantial contributor to the current poor reliability of the system. Improved reliability will improve customer experience. Cleared ROWs will also



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make it easier to assess storm damage and access sites to make repairs, shortening the duration of outages and enabling efficient design and construction of electric infrastructure.

## PRIMARY GOAL: OPERATIONAL EXCELLENCE

**Objective: Enable Systematic Management of the Business**

**Objective: Enable Employees to Execute Operations Systematically**

Current vegetation management practices are focused on reactive and corrective work, i.e., addressing problems after they arise. A well-functioning program will trim vegetation systematically, increasing the workforce's efficiency and the system's reliability. A clear VMP will also enable employees to work more effectively and efficiently.

## PRIMARY GOAL: SYSTEM REBUILD & RESILIENCY

**Objective: Effectively Deploy Federal Funding**

The current poor conditions of ROWs hamper access to much of the T&D System. By reclaiming these ROWs, access will be improved, thus making Utility Transformation projects financed by federal funds easier and cheaper to build.

**Objective: Restore Damaged Grid Infrastructure**

**Objective: Improve the Resilience of Vulnerable Infrastructure**

Rights of way currently contain debris deposited during hurricanes which will be cleared through a better vegetation management process. Reclaiming rights of way will reduce outages in future hurricanes or weather events.

## 2.6 Program Risks

- The primary risk to delaying the program is that there will be no meaningful improvement in system reliability and perhaps a further decline resulting in an exceedingly poor level of service for customers. Resources would continue to be wasted on disorganized reactive or corrective maintenance such as hot spotting
- Inability to meet contractual performance requirements
- Inability to meet requirements of Vegetation Management Plan required under Act 57-2014, as amended, and standards under Act 17-2019, as amended, and meet other legal requirements, policies, and OMA requirements, including Prudent Utility Practice

## 3.0 Program Funding & Timeline

### 3.1 Program Funding (\$ millions)

Description	FY2024 Estimate	FY2025 Estimate	FY2026 Estimate	FY2027+ Estimate
Total Expenditures	\$179.8	\$405.7	\$431.5	\$769.9
SRP Expenditures	\$179.8	\$405.7	\$431.5	\$407.3



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## 3.2 Program Resource Requirements

- Recruitment and inclusion of experienced VM SMEs in LUMA's VM and capital clearing teams to address any gaps in knowledge and skills to support the development of an effective program based on industry standards and best practices
- To the extent dictated by workload and system performance, engagement of experienced providers of core and specialized vegetation services
- IT Tool to support the application of performance management techniques across the VM and capital clearing programs
- Training of vegetation workforce on industry standards and best management practices to build required knowledge and expertise

## 3.3 Estimating Methods & Assumptions

The cost estimate is based on spatial analysis and actual experience to define the vegetation workload. Satellite imagery (at two-meter resolution) and other remote sensing data sets were used to develop an initial assessment of vegetation-related field conditions. This was supplemented with high-resolution, near real-time satellite images of the entire T&D System, which were used to refine the estimate and to evaluate the need for “boots on the ground” field validation, which is ongoing.

## 3.4 Timeline & Milestones<sup>1</sup>



<sup>1</sup> Achieving milestones is dependent on the process to receive federal funding obligation from FEMA, receiving timely Environmental and Historic Preservation approvals from FEMA, and timelines associated with other legal or regulatory requirements. LUMA will continue to update this timeline and provide further detail as the federal funding process continues. With the information currently available, LUMA is unable to achieve a remediated state prior to the second half of FY2027.