October 17, 2024

The Honorable Harriet M. Hageman
Chair
Subcommittee on Indian and Insular Affairs
Committee on Natural Resources
US. House of Representatives

Dear Chair Hageman,

On behalf of the more than 4,000 men and women who make up the LUMA team, I would like to thank you and your fellow Subcommittee members for the opportunity to discuss the significant progress LUMA has made, as well as the significant legacy challenges we continue to face as we build a more reliable and resilient energy system for Puerto Rico. This letter is in response to your questions for the record dated October 1, 2024 (the "Letter" or "QFRs") in relation to my testimony at the hearing on "Examining Puerto Rico's Electrical Grid and the Need for Reliable and Resilient Energy" held by the Subcommittee on Indian and Insular Affairs on September 26, 2024.

I. Introduction

A Record of Progress

As we discussed during the hearing and in my testimony, LUMA has continued to confront an enduring series of system challenges as a result of the failures of the bankrupt prior operator who amassed a $10 billion debt, and who left customers without power for months after Hurricanes Irma and María. Despite these legacy challenges which have impacted the reliability of the energy system, LUMA continues to make real and measurable progress to improve the overall resiliency and reliability of the grid, including:

- **Stronger Poles**: Replacing more than 18,700 utility poles with equipment more resistant to hurricane-force winds of over 160 mph,
- **Targeted Vegetation Management**: Clearing hazardous vegetation from more than 5,100 miles of powerlines through daily maintenance to reduce outages,
- **Substation Upgrades**: Upgrading 26 critical substations to reduce large-scale outages, and
- **Streetlight Replacements**: Replacing more than 127,500 streetlights to improve safety and energy efficiency across 62 communities all over the Island and counting.

With respect to improving day-to-day reliability, LUMA has also prioritized innovative technologies, specifically the installation of over **9,000 distribution automation devices that have prevented 140 million minutes of service interruptions** for our customers. Because of the combined actions taken by LUMA, more than **95% of customers have had concurrent service more than 98%** of the time when generation was available over the past year.

To further improve the resiliency and reliability of the grid, LUMA has prioritized the primary cause of outages on the island: overgrown vegetation. To address this legacy challenge, we launched a FEMA-funded **Vegetation Safety and Reliability Initiative** that will, for the first time in Puerto Rico's history, clear vegetation from 16,000 miles of powerlines. This historic effort will, when complete, result in up to a 45% reduction in outages.

Strengthening Puerto Rico's Energy Future

As was discussed during the hearing, Puerto Rico's lack of available generation capacity is a long-standing issue that has resulted in system instability and ongoing outages. While LUMA does not operate, manage or control generation, LUMA has taken action to strengthen the overall energy system including:

- **FEMA-funded Generators**: Advocating for the rapid deployment of the first FEMA-funded generators in Puerto Rico following Hurricane Fiona resulting in the permanent addition of 340 MW of generation capacity.
- **Customer Battery Storage**: Launching the Customer Battery Energy Sharing (CBES) initiative which allows rooftop solar customers with battery storage to provide energy back to the grid during peak demand periods to minimize the impact of rotating outages, also known as load shedding.
- **Large-Scale Renewables**: Advancing large-scale renewable projects through collaboration with renewable energy developers to increase the supply of clean energy resources for Puerto Rico.
- **Adoption of Rooftop Solar**: Empowering the adoption of rooftop solar with approximately 3,650 customers added each month, connecting over 100,000 rooftop solar customers to date who together provide more than 650 MW of renewable energy to the grid.

The Importance of FEMA Support

In order to continue the progress, we have made across Puerto Rico, we want to stress, as we did during the hearing, that one of the most critical areas impacting the pace of progress is the speed and availability of federal funding. LUMA continues to utilize all available federal funds to support capital improvement projects, and we have made historic progress moving FEMA projects forward. For example, LUMA has initiated 460 critical projects to FEMA representing $12.3 billion in federal funding, with 171 approved and 87% of those, or 149 projects, already in construction or energized. As we have repeatedly made clear in public statements and testimony, we will continue to prioritize FEMA-funded projects and want to stress that we greatly value FEMA's support for the people of Puerto Rico, as well as your continued assistance and counsel as we execute these critically important capital projects.

Addressing PREPA's Bankruptcy

Looking ahead, one of the enduring challenges Puerto Rico's energy future faces is the unresolved nature of PREPA's $10 billion bankruptcy. Even though LUMA is not a party in the ongoing litigation and mediation process and LUMA does not control the outcome, (including its impact on rates), PREPA's bankruptcy must be resolved to help empower the pace of progress and build the more stable energy future the people of Puerto Rico deserve. It is our hope that this issue will be resolved in the near future so that Puerto Rico can look forward to an even more promising and financially sustainable energy future.

A Commitment to Puerto Rico's Energy Future

No matter the present or future challenge we may face, we want to make very clear that our entire LUMA team is committed to building on the progress made so we can deliver what is most important for our 1.5 million customers that we are privileged to serve: a more reliable, more resilient and cleaner energy future. Now, and over the coming years, we will continue to confront the challenges we face directly and transparently and will take the necessary actions required to improve the energy system across Puerto Rico.

As part of this commitment, we want to thank you and all of the committee members for the insightful questions, and your support for how to best build a better energy future for Puerto Rico.

II. Responses to the Indian and Insular Affairs Subcommittees' Questions

A. Questions for the Record from Rep. Westernman

1. "From your perspective, what are the key reasons for the continued blackouts in Puerto

Rico and what is your recommendation for addressing these challenges and for ensuring that Puerto Rico has access to reliable and resilient energy?"

Response:

First, it is critical to remember that LUMA inherited a system that is outdated, was poorly designed, and has been neglected for decades by the previous operator, who accumulated $10 billion in debt and left customers without power for months after Hurricane Maria. A clear example of this negligence that still impacts operations today is the multiple substation transformers and circuit breakers out of service and a shortage of spares to replace this critical, failing infrastructure.

Second, vegetation continues to be the leading cause of outages, which is why LUMA will clear 16,000 miles of vegetation from the utility's powerlines and rights-of-way across the island through our Vegetation Safety and Reliability Initiative. We expect to reduce outages by 45% once the initiative is complete. LUMA also continues to make critical upgrades to grid infrastructure to improve resiliency including:

- Replacing more than 18,700 utility poles able to withstand hurricane-force 160 mph winds, and
- Installing more than 9,000 grid automation devices to reduce the impact of outages. These devices have already prevented more than 140 million service interruption minutes.

Additionally, LUMA submitted a System Improvements Plan to the Puerto Rico Energy Bureau (PREB), which details LUMA's efforts to stabilize the electric system across Puerto Rico over the next two years. The plan outlines the near-term efforts to strengthen and improve the system by further focusing on repairs and upgrades to critical equipment including transformers and transmission lines to bring immediate relief to customers. The plan will run concurrently with our efforts to advance longer-term capital projects such as substation and transmission line rebuilds and pole replacements.

With respect to generation, which LUMA is not responsible for, the severe lack of generation capacity is a long-standing issue in Puerto Rico that has resulted in system instability and ongoing outages for our customers. Even though LUMA does not own or operate any generation facilities, we are committed to doing everything we can to help address this issue. This committee's help for more timely disbursement of critical federal funding will help ensure we can continue to build on the progress we have made and construct the energy system Puerto Ricans expect and deserve.

2. ***Of the $1.4 billion capital budget spent by LUMA in 2021, $1.1 billion was federal funding while only $300 million was from non-federal funding. While the federal government has made commitments to assist with the recovery of Puerto Rico's infrastructure after it experienced a devastating series of hurricanes, we can all agree that the ultimate goal is to have a reliable and resilient electrical grid operated by private utilities for the long-term.***

a. ***How does LUMA plan to decrease their reliance on federal funds to operate and maintain Puerto Rico's electrical grid? Do you see a day when LUMA can perform their operations without injections of taxpayer dollars, and what needs to be done to achieve that goal?***

Response:
To be clear, LUMA began operating the Puerto Rico grid on June 2021 and during our first fiscal year, from July 1, 2021 to June 30, 2022, LUMA spent $60 million in federally funded capital expenditures and $98 million in non-federally funded expenditures.

Responsibly operating a reliable and resilient electric grid requires both repairing the grid following natural disasters, including Hurricanes Irma, María, Fiona and Tropical Storm Ernesto, as well as regular capital and maintenance investments associated to improve the quality and reliability of service.

As we work to rebuild the grid, we prioritize fiscal responsibility and remain on budget. In fact, LUMA is required under our operating contract to stay within the budget, and we've always met this requirement. To add further context, LUMA's portion of the rate to fund operations makes up less than 18% of customers' bills. The other 82% of revenues from customers pay for fuel, generation operations, PREPA's administrative expenses (including bankruptcy costs and fees), and subsidies—all costs over which LUMA has no control.

Working with FEMA, Central Office for Recovery, Reconstruction and Resiliency (COR3) and other agencies, LUMA has already deployed significant capital and maintenance funds, with more than 149 federally funded projects, representing $1.1 billion, already under construction or complete. In contrast, zero FEMA projects were in construction when LUMA took over operations in 2021.

LUMA is also closely following PREPA's ultimate exit from its $10 billion bankruptcy, which continues to pose an obstacle to progress. PREPA's exit from bankruptcy is a critical step to achieving a better energy future for Puerto Rico as it should allow PREPA to access capital markets and the stable, long-term funding crucial to execute these grid investments with less impact on electric rates, similar to other utilities across the United States.

3. *For* ***the areas where you have already cleared vegetation, have you seen an increase in the reliability of the systems or a decrease in outages? If so, can you quantify that benefit and its economic impacts?***

Response:

As part of our daily vegetation maintenance, LUMA has already cleared hazardous vegetation from more than 5,100 miles of powerlines and electric equipment. This work has helped avoid over 21 million customer minute interruptions.

In addition to, and separate from, our daily vegetation management operations, LUMA launched the FEMA-funded Vegetation Safety and Reliability Initiative on June 26, aimed at clearing over

16,000 miles of vegetation around powerlines and reducing outages by up to 45% once complete.

We expect to begin to see improvements in the next 3 to 6 months as a result of this critical initiative within the initial San Juan Project area.

In terms of overall economic impact, LUMA's overall reconstruction of the electric system is estimated to create close to 15,000 jobs in Puerto Rico, while producing approximately $25 billion in economic activity over the next decade. The Vegetation Safety and Reliability Initiative is expected to utilize more than 2,000 workers over a projected three-year period, resulting in an economic impact of $2 billion in the Puerto Rico economy.

4. *Federal environmental regulations have clearly delayed LUMA's vegetation clearing project plans.*

a. *Are there local environmental regulations contributing to these delays? If so, have you raised these concerns with the Government of Puerto Rico? What has the response been?*

Response:

LUMA is subject to federal and local laws for environmental compliance, and other endorsements, reviews, permits and agency consultations relating to the electric grid transmission and distribution reconstruction projects across Puerto Rico. Those requirements are critical to FEMA's obligation process.

The Government of Puerto Rico has issued an executive order to accelerate the permit process to support the reconstruction of the electric grid that includes vegetation clearing. As relates to clearing vegetation, the law establishing the Puerto Rico Electric Power Authority, 83-1943, and the Easement Regulations for the Puerto Rico Electric Power Authority (Regulation 7282), establish the right of PREPA (and LUMA through its operation of the grid on behalf of PREPA) to access easements and to carry out operation, conservation, construction, improvements or repair of facilities, including the removal, elimination, or cutting of any tree or bush, that are located or invading the easement

To date, local agencies have provided the assistance needed to accomplish the permit process in the current project phase San Juan I. In order to execute the Vegetation Safety and Reliability Initiative, we need clarity on what is required from LUMA, dedicated and fully resourced staff to evaluate, revise and approve the work accordingly, and a coordinated approach that finds the most expeditious and compliant paths amongst all federal agencies so that the Puerto Rican people can see relief from electrical interruptions sooner rather than later.

5. ***How does LUMA select vendors for contracting out projects such as vegetation clearing projects or substation upgrades? Are there any issues with finding and hiring the workforce LUMA needs to complete its maintenance projects ahead of it and maintain the grid for the long term? If there are, how does this impact LUMA's operations and capacity to rebuild Puerto Rico's electrical grid?"***

Response:

Vendor Contracts

To complete large-scale projects such as the Vegetation Safety and Reliability Initiative, we have hired both mainland and local contractors. When selecting vendors, LUMA issues a Request for Proposals (RFPs), which includes a public call for all vendors. All contractors are evaluated through a rigorous process designed for FEMA-funded projects and approved by the Public-Private Partnerships Authority (P3A) and COR3. Contracts with a value of over ten million ($10,000,000) dollars require the approval of the Fiscal Oversight and Management Board (FOMB) and P3A. All contractors are determined based on technical and financial factors, including their ability to successfully perform the work, and are held to the highest safety and performance standards.

LUMA's Qualified Workforce

LUMA has a dedicated workforce of over 4,000 employees who call Puerto Rico home. LUMA's agreement with the International Brotherhood of Electrical Workers (IBEW) helps enhance the economic development of the local region, cultivates and further develops a highly skilled local construction workforce, ensures the timely completion of projects through labor stability and creates exciting opportunities that will build the next generation of Puerto Rican lineworkers.

For example, through a $10 million investment by our parent companies, LUMA trains and upskills employees and lineworkers through the LUMA College for Technical Training, which includes the first Department of Labor-certified electrical lineworker apprenticeship program in Puerto Rico. We work collaboratively with the IBEW to make sure that Puerto Rico has a qualified local workforce that is critical to a more resilient and reliable electrical grid.

LUMA also continues making progress to secure and train its local workforce through its internship program, which has several hundred students from local universities, and employs approximately 500 full-time young energy professionals.

While LUMA has made tremendous efforts to cultivate local talent, more support is needed for greater workforce development in Puerto Rico.

B. Questions for the Record from Rep. Raúl Grijalva

1. The solar market in Puerto Rico is growing rapidly, helping thousands of families avoid blackouts. LUMA is approving thousands of new rooftop solar installations a month. How is LUMA making the necessary upgrades to facilitate this growth? For example, how much federal funding is LUMA planning to spend on feeder upgrades to accommodate the widespread use of distributed generation?

Response:

LUMA is making significant investments to support the integration of renewable generation through critical grid upgrades to support the capacity of the system to integrate new generation resources. These upgrades include rebuilding key substations, distribution feeders, and transmission lines. We are also deploying incremental capabilities in prioritized areas, including the first networked microgrid project to leverage undersea cables in Vieques and Culebra to integrate additional renewable generation.

As renewable generation resources continue to connect to the grid at a historic rate, Puerto Rico's aging grid infrastructure will require additional capabilities, and the associated funding, to integrate all of the distributed renewable generation that is expected to be deployed.

2. ***We know that rooftop solar has averted blackouts in Puerto Rico. There are about 900 megawatts of distributed solar ("rooftop solar") capacity on the island installed across 130,000 homes. Without these systems, overall power demand would exceed available generation capacity. Do you agree that these systems help avoid blackouts, either by contributing to the grid via net metering or by reducing demand? How is Puerto Rico prioritizing rooftop solar as a resiliency measure?***

Response:

LUMA strongly supports Puerto Rico's clean energy transformation and continues to advance renewables adoption at a historic rate. Since becoming the system operator for Puerto Rico in 2021, we have connected over 100,000 customers to rooftop solar, representing 650 MW of clean energy. In Puerto Rico there are currently over 125,000 interconnected systems, representing 870 MW of capacity.

Rooftop solar systems themselves do not reduce the need for meeting actual demand in cases of individual or aggregate system shortcomings, i.e. a failure in the individual's rooftop solar system. LUMA is still required to provide adequate supply to interconnected customers with rooftop solar to meet those scenarios when solar power is not available. Coupling these systems with batteries certainly helps improve the resiliency value of the system for the grid, however, we are still evaluating if and when residential solar and storage can be relied upon to supply firm reserves to all customers in case of emergencies. This evaluation is underway, through our initial pilot efforts with programs such as Customer Battery Energy Sharing Initiative (CBES), a battery demand response program designed to leverage customer battery storage systems to increase the supply of energy available during peak demand periods to improve day-to-day service reliability.

As of today, approximately 7,200 customers have been enrolled in CBES. The target for this fiscal year is dispatching over 570 events in support of forecasted demand shortfall events, with up to 26 MW of available dispatchable energy, as reported by aggregators. As part of the CBES Program, LUMA partnered with COR3 to submit a grant application to the Department of Energy to augment customer participation levels as well as further testing. As a result, LUMA recently was awarded with approximately $3.5 million the BIL Section 40101(D), Preventing Outages DE-GD0000055 and Enhancing the Resilience of the Electric Grid Formula Grants to States and

Indian Tribe. We look forward to an expansion of the program so that distributed resources can play a larger role in supporting grid reliability.

As relates to utility-scale renewables, LUMA remains committed to working with stakeholders, including Genera and renewable energy developers, to help integrate sufficient generation to meet demand. Through these efforts, we are working on interconnecting over 780 MW of new utility-scale solar energy and 350 MW of battery energy storage onto the grid – enough energy to power thousands of homes across Puerto Rico.

3. ***You testified that unmaintained vegetation is responsible for about 50% of service interruptions in Puerto Rico. LUMA is rolling out an initiative to clear vegetation from 16,000 miles of powerlines using federal funds. How is LUMA working with FEMA, U.S. Fish and Wildlife Service, and other agencies to ensure this initiative complies with review process requirements without delay? How will LUMA maintain the vegetation when this lump sum of funding runs out? Can LUMA promise that it will not come to the federal government or the ratepayers to ask for more vegetation management funds?***

Response:
First, this is a historic initiative – it has never been done before in Puerto Rico and was the result of LUMA identifying that vegetation had not been effectively addressed for decades.

We proposed this initiative to FEMA because of the impact that vegetation is having on grid reliability, and we are working together with local and federal partners including FEMA, COR3, the U.S. Fish and Wildlife Service and others to ensure this critical initiative can be completed safely while following all environmental regulations, such as receiving appropriate environmental reviews in a timely manner, determining how we can use existing resources to expedite the review process.

In addition, regarding vegetation management, since 2021, our teams have cleared dangerous vegetation from over 5,100 miles of electric lines across the island to date through our daily vegetation management operations, which is separate from the FEMA-funded vegetation clearing program. Our daily vegetation management program will continue during and long after the FEMA-funded clearing program ends.

4. ***LUMA's aims to enroll over 6,000 customers with solar and batteries in its Customer Battery Energy Sharing pilot program to help prevent blackouts in the evenings. There are over 100,000 customers with batteries that could theoretically enroll in this program. How many customers with solar and batteries are currently enrolled in the program? How are you encouraging greater enrollment in this "Virtual Power Plant"? Has additional funding been identified to grow this program beyond its initial pilot?***

Response:
LUMA continues to promote the Customer Battery Energy Sharing (CBES) Initiative through its

social media channels, and through the aggregators who connect and manage battery storage systems for customers. Information about LUMA's CBES program can be found on our webpage: https://lumapr.com/battery-demand-response, includes key details on the program and provides customers with the information they need to contact their aggregator to sign up.

We are actively enrolling additional aggregators as approved by DOE as ESCs and in coordination with our terms and conditions to participate – with 4 current and 3 pending aggregators for a total of 7 distinct aggregators working with LUMA and customers to further increase enrollment into the CBES pilot.

CBES is funded through a combination of monies from a portion of the forecasted and granted Power Purchase Cost Adjustment (a cost component of customer rates) and more recently through an augmentation provided by DOE, which further expands participation using funds from the Department of Energy's BIL40101d grant. Neither source of funding is permanent and will need to be validated moving forward should the pilot continue to a permanent program.

More than 7,200 customers have enrolled in the CBES since the program started less than a year ago, with an approximate (self-reported) capacity of 27 MW available.

The program is actively expanding with steady growth of residential and commercial customers and is being augmented by some additional outside funding sources to make that growth more feasible in the short- and near-term administration of the pilot program.

Potentially, the CBES could grow to reach the more than 100,000 battery systems enrolled in NEM. However, there are key factors such as customer willingness to participate in the program, customer compensation and budgetary constraints, and firmness of the capacity resource from a grid management perspective that will ultimately define size of the future program.

After compilation and analysis of pilot data, LUMA will make a recommendation to PREB for continuance, adjustment or postponement of the CBES pilot into a formal program. This recommendation will take all variables mentioned above into account to ensure that what is implemented is cost and resource effective.

C. Questions for the Record from Rep. Gonzalez- Colon

1. Mr. Saca, as discussed in the hearing, LUMA needs to source the power from multiple providers. Besides Genera there are private fossil-fueled plants like AES and EcoElectrica, utility-scale renewables under power purchase agreements; PREPA's limited hydro plants, distributed renewables—all also contribute to the grid.

a. Please provide the subcommittee with the breakdown of how much capacity is provided from the different suppliers and what share of demand does it represent?

Response:

The table below is extracted from LUMA's annual Resource Adequacy report for Fiscal Year 2024. It shows the effective capacity of each supplier based upon fuel and technology type. The

relative share of available capacity is shown for each supplier type. This is a measure of each supplier's share of demand.

Generator Name	Available Capacity (MW)	Share of Total Available Capacity (%)
AES 1	227	5%
AES 2	227	5%
Aguirre Combined Cycle 1	220	5%
Aguirre Combined Cycle 2	100	2%
Aguirre Steam 1	350	8%
Aguirre Steam 2	330	8%
Costa Sur 5	350	8%
Costa Sur 6	350	8%
EcoEléctrica	535	13%
Palo Seco 3	190	5%
Palo Seco 4	190	5%
San Juan 7	70	2%
San Juan 9	90	2%
San Juan Combined Cycle 5	200	5%
San Juan Combined Cycle 6	200	5%
Cambalache 2	75	2%
Cambalache 3	75	2%
Mayagüez 1	50	1%
Mayagüez 2	25	1%
Mayagüez 3	50	1%
Mayagüez 4	50	1%
Palo Seco Mobile Pack 1-3	81	2%
7 Gas Turbines (Peakers)	147	4%
Total	**4,182**	**100%**

b. *We have seen news reports of failures or defects in the private power plants – what has been the reliability of the private generators?*

Response:

Private generators represent 984 MW of thermal capacity and 273 MW of renewable capacity. From the perspective of reliability, the thermal capacity is what is relevant. The thermal generators (AES and EcoElectrica) in general, perform very well. Their availability averages approximately 85% of their nameplate capacity, which is considered good considering their age and required outage schedules. They have a forced outage rate below 3%.

In comparison, PREPA-owned plants have an average availability of approximately 45% of nameplate capacity and a forced outage rate of between 10% - 40% depending upon the unit. Availability performance has improved over the past 6 months and has been running at approximately 52% recently, but this is still far below industry averages.

c. *Is it true that one of our problems with not meeting demand is that at sunset every day we lose much solar capacity that is not backed by storage? How much is the relative loss?*

Response:

With respect to generation, which LUMA is not responsible for, the severe lack of generation capacity is a long-standing issue in Puerto Rico that has resulted in system instability and ongoing outages for our customers.

Even though LUMA does not own or operate any generation facilities, we are committed to doing everything we can to help address this issue, such as:

- Launching the Customer Battery Energy Sharing (CBES) Initiative, a battery demand response program designed to leverage customer battery storage systems to increase the supply of energy available during peak demand periods to improve day-to-day service reliability.

- Developing and implementing the Accelerated Storage Addition Program, to deploy battery energy storage systems on an accelerated basis at existing Independent Power Producer locations.

- Integrating over 780 MW of new utility-scale solar energy and 350 MW of battery energy storage onto the grid – enough energy to power thousands of homes across Puerto Rico.

Renewable generation (wind, solar and methane gas from landfills) is approximately 413 MW of nameplate capacity. Effective available capacity is largely dependent on wind speeds and solar irradiation, both of which are higher during the daylight hours and are minimal or zero at night.

d. ***Does LUMA operate a model of Virtual Power Plant to draw reserve from private storage sources through the net metering system? How many customers participate and how large could this become? Is there a plan to expand it?***

Response:

LUMA launched the Customer Battery Energy Sharing (CBES) initiative in November of 2023 to help improve reliability during generation shortfalls.

This program provides customers with battery storage systems an opportunity to contribute to increased grid stability by helping to increase energy reserves during peak demand periods to reduce rotating outages caused by generation shortfalls. If LUMA forecasts that the following or current day's power needs will exceed the available generation supply, a CBES event may be scheduled to make use of some of the renewable energy produced and stored by solar customers.

More than 7,200 customers have enrolled in the CBES since the program started less than a year ago, with an approximate (self-reported) capacity of 26.5MW available. The program is actively expanding beyond the initial pilot cap with steady growth of residential and commercial customers and is being augmented by some additional outside funding sources to make that growth more feasible in the short- and near-term administration of the pilot program.

Potentially, the CBES could grow to reach the more than 100,000 battery systems. However, there are matters to consider such as customer willingness to participate in the program, customer compensation and its budgetary rates and affordability for all grid customers, and firmness of the capacity resource from a grid management perspective.

After compilation and analysis of pilot data, LUMA will make a recommendation to PREB for continuance, adjustment or postponement of the CBES pilot into a formal program. This recommendation will take all variables mentioned above into account to ensure that what is implemented is cost and resource effective.

2. ***What is the status of establishing regional microgrids to power communities and critical loads such as hospitals, seaports, airports, and industrial parks? What is the status of LUMA/PREB interconnection requirements for community and critical microgrids to expedite their interconnection to the grid? Has LUMA not cooperated with microgrid developers?***

Response:

Multiple microgrid projects are underway to power communities across Puerto Rico, including the San Juan Medical Center and the first networked microgrid project to leverage undersea cables, which will power Vieques and Culebra. LUMA is working with COR3 and FEMA to obligate the latter project and we have already begun engineering and issued an RFP for construction.

LUMA continues to collaborate with the Puerto Rico Department of Housing (PRDOH), the U.S.

Department of Housing and Urban Development (HUD) and the DOE on various proposed microgrid projects, including those expected to be funded using CDBG programs, and DOE funding to create a modern, world-class, clean energy system that Puerto Ricans can rely on.

For microgrid projects planned and developed by our customers and third parties, we are actively evaluating microgrids and establishing interconnection procedures for gaps in regulations, aiming to effectively reduce timelines and create a clear and transparent facilitation process for new projects to adhere to and complete. This work which has been done at the level of distributed generation is being extended to microgrids and aims to power communities and critical loads

LUMA is actively collaborating and taking feedback from community groups and other stakeholders to help transform the electrical system in Puerto Rico. There are many microgrid projects being developed by stakeholders in Puerto Rico. Two examples that are working with LUMA are:

- Cooperativa Hidroelectrica de la Montaña through participation and leadership of various microgrid regulations and applications; and

- PRDOH through technical guidance regarding the federally funded ER-2 grant projects.

The process of interconnection of microgrids must be established by the Energy Bureau, the regulatory body for the electricity system of Puerto Rico. LUMA provided comments on the Generating Facility and Microgrid Interconnection Regulation and drafted the Technical Interconnection Requirements, a supplementary document to the regulation, which has been under Energy Bureau revision since 2022.

LUMA remains committed to expediting the technical and commercial processes for microgrid projects.

3. ***The Puerto Rico Financial Oversight Board's Executive Director recently stated, in a 45th public meeting, that the pace of grid reconstruction was unacceptably slow. He further indicated that the FOMB would be getting involved more directly in reconstruction matters and federal funds, along with LUMA and Genera.***

Four years and 3 months after taking over the system, why does LUMA need FOMB's assistance, when it was selected based on representations from its Partners (ATCO Ltd., and QUANTA Services) that it had the experience and know-how to operate, maintain and reconstruct the grid, maximizing federal taxpayer funds?

Response:

To be clear, LUMA has been operating the grid for a little over three years, and during this time, we have remained singularly focused on overcoming the historic challenges facing the energy system, and our dedicated actions have resulted in significant progress toward our goal of

building a brighter energy future. For example, to date LUMA has:

- Moved forward FEMA projects at a historic rate, with more than 149 projects underway or complete,
- Installed more than 18,700 new poles that are more resistant to high winds of over 160 mph,
- Cleared vegetation that causes outages and hazardous conditions from more than 5,100 miles of powerlines,
- Installed more than 9,000 automated devices to reduce the size and duration of outages and already preventing more than 140 million service interruption minutes,
- Upgraded dozens of critical substations to reduce large-scale outages,
- Replaced more than 127,500 streetlights to improve safety across communities, and
- Connected over 100,000 customers to rooftop solar.

The progress we have made to improve reliability has been significant, resulting in 95% of customers having power 98% of the time (when generation was available), all while without raising rates, and reaffirming our commitment to fiscal responsibility.

The FOMB has been invaluable in helping to address the financial challenges the electric system faces and their role in determining the Fiscal Plan for PREPA and overseeing compliance has been critical to the reconstruction of Puerto Rico's electric system. The FOMB, along with the Government of Puerto Rico, is leading the effort to have PREPA exit the Title III bankruptcy process, an essential part of a financially sustainable and more reliable electric grid. LUMA appreciates FOMB's support to bring together multiple agencies and stakeholders that need to work together to accelerate progress for the Puerto Rican people.

4. ***Puerto Rico's cheapest fuel-using power source, the AES power plant in Guayama, provides up to 454 MW of generation when running at capacity and is by law required to stop burning coal after 2027. That has been known since 2019.***

a. ***Have any specific plans been presented for the replacement of this base load?***

Response:

AES is one of the lower cost options in the Puerto Rico generation fleet.[1] While we've drawn attention to this need, LUMA is not in charge of supplying or choosing fuel power sources. However, LUMA's Resource Adequacy Report, which is the first of its kind in Puerto Rico and conducted annually, highlights the impacts of this issue every year. Achieving resource adequacy is also an important objective of the Integrated Resource Plan that LUMA is developing and which provides key data on the future evolution of the Puerto Rico energy resources.

In addition, the P3A has a process underway on a combined cycle plant to address the retirement

[1] To be accurate, since AES' renegotiation of their Power Purchase and Operation Agreement completed in March 2024, Ecoeléctrica is the lowest cost generator.

of the AES plant. However, it requires approximately three years to complete a combined cycle plant in the mainland U.S. from "Notice to Proceed" to Commercial Operation. The time frame for a new combined cycle plant to begin operating in Puerto Rico would typically be longer. Genera PR also has announced approximately 140 MW of peaker replacement units which they have scheduled to reach Commercial Operation in 2026.

b. How critical is this power unit to the stability of the grid?

Response:

Currently the AES unit is critically important to reliable electric service. The Resource Adequacy report estimates that if the AES units were removed without significant new generation to replace them, the expected days when customers are disconnected for generation shortfalls will increase from an expected 36 days per year in the current base case to 140 days per year. In other words, without AES and without an equivalent amount of energy resources to replace AES, customers would be disconnected on average three days of every week during the entire year.

5. There has been a steady march through our doors of proponents of other ideas about how to address the Puerto Rico Energy Recovery that are not incorporated into the existing action plans but that they want the authorities to adopt, including proposals for inter-island submarine power cables around the Caribbean, from both American- Based (starting with PR-USVI – Bob Garcia Interconnection) and Dominican Republic-Based (starting with PR-DR – Hostos project) proponents – that requires the governments of other jurisdictions, including foreign, to be aboard.

a. Have these proposals been presented to you, and how viable and suitable for addition have you seen them?

Response:

No one solution provides the answer to a more resilient and reliable electric service for customers in Puerto Rico. A broad portfolio that addresses future energy demand and applicable policy objectives is needed to address Puerto Rico's energy needs. The Integrated Resource Plan will provide further information on the most cost effective components of the future portfolio and its performance against potential future scenarios.

As a system operator, LUMA coordinates renewable and other generation resources and manages the grid to ensure the integration of renewable energy while improving reliability. As part of this responsibility, we help facilitate the reliable interconnection of large-scale renewable projects. LUMA's role involving the integration of large-scale renewables includes:

- The planning of all generation to ensure resources are adequate, and
- Performing technical interconnection studies to ensure the reliability of the system.

As with all other interconnection projects, LUMA is ready to evaluate the grid's needs to integrate

the proposals. There is a formal process through which developers may request an analysis of their proposal. We follow that process to ensure that all developers are treated equitably and are simultaneously provided with the same information.

D. Questions for the Record from Rep. Velázquez

1. What are LUMA's plans to decrease reliance on federal funding?

Response:

Responsibly operating a reliable and resilient electric grid requires both repairing the grid following impacts of natural disasters, including Hurricanes Maria, Irma, Fiona and Tropical Storm Ernesto, as well as regular capital and maintenance investments associated with prudent utility practice to improve the quality and reliability of service.

As we work to rebuild the grid, we prioritize fiscal responsibility and remain on budget. LUMA is required to stay within budget under our operating contract, and we've always met this requirement. Furthermore, LUMA's portion of the total customer rate to fund operations makes up less than 18% of customers' bills.

LUMA is also closely following PREPA's ultimate exit from its $10 billion bankruptcy, which continues to pose an obstacle to progress. PREPA's exit from bankruptcy is a critical step to achieving a better energy future for Puerto Rico as it should allow access to capital markets and the stable, long-term funding crucial to execute these grid investments with less impact on electric rates, similar to other utilities across the United States.

LUMA will continue working with FEMA, COR3 and the PREB to leverage federal funding to complete repairs of damage caused by natural disasters. In parallel, LUMA is working with the PREB to ensure that sufficient customer funds are available to operate and maintain the grid under normal conditions.

2. What types of projects are being prioritized by LUMA, and what general obstacles are you facing in advancing these projects?

Response:

Starting day one, LUMA immediately started to develop key projects that would receive federal funding, prioritizing work that is most critical and that will have the greatest impact on reliability for our customers. FEMA approved the first projects in May 2022, and LUMA has continued to move projects through the FEMA approval process and on to execution. These include vegetation clearing, smart grid deployment, new streetlights, substation modernization and pole replacement projects.

One of the greatest obstacles we face is time. We know that customers are frustrated. While we have made significant progress, we know it has to be accelerated. LUMA has the responsibility to achieve faster progress without sacrificing our standards and safety. The obligation and reimbursement

processes are long and complicated. Environmental approvals in particular can extend schedules and delay execution of important work by months or even years. We are working closely with COR3 and FEMA to shorten timeframes while maintaining compliance.

Nevertheless, because of LUMA, Puerto Rico has seen FEMA projects move forward at a historic pace. LUMA has initiated 460 critical projects to FEMA representing $12.3 billion in federal funding, with 171 approved and 87% of those, or 149 projects, already in construction or energized.

3. ***According to LUMA's website, the consortium expects to clear 680 miles of vegetation by December 2024. As of October 2024, LUMA has cleared 15 miles of vegetation, or 2% of the stated goal. How does LUMA plan to meet its own timeline by the end of the year?***

Response:

The Vegetation Safety and Reliability Initiative is a historic initiative. Proper clearing of rights-of-way to allow for reliable and safe operation is long overdue in Puerto Rico and was neglected by the prior operator for many years. LUMA identified vegetation clearing and maintence as top priorities to reduce customer interruptions and improve resilience.

The San Juan portion of the program has already begun and LUMA will begin the clearing phase for 10 projects in early 2025. To date, 23 miles have been cleared of vegetation and LUMA is actively ramping up to clear the remaining 657 miles of vegetation by the end of December 2024.

Environmental reviews could stall the advancement of these projects. We are working hard with our selected vegetation clearning contractors to safely and effectively ramp up the needed qualified resources. While this is a multi-year program, LUMA would like to accelerate implementation by working with agencies for an expedited review process.

4. ***LUMA has failed to complete an Integrated Resource Plan for the island. Why has LUMA been unable to finish this analysis? Do you consider the absence of this plan a barrier to Puerto Rico's renewable energy goals?***

Response:

LUMA strongly supports Puerto Rico's clean energy transformation and continues to advance renewables adoption, including:

- Connecting over 100,000 customers to rooftop solar, representing 650 MW of clean energy, propelling Puerto Rico to rank fifth among all U.S. states and territories in distributed solar adoption per capita.
- Integrating over 780 MW of new utility-scale solar energy and 350 MW of battery energy storage onto the grid – enough energy to power thousands of homes across Puerto Rico.
- Launching the Customer Battery Energy Sharing Initiative, a battery demand response program designed to leverage customer battery storage systems to increase the supply of

energy available during peak demand periods to improve day-to-day service reliability.

On the IRP, it is critical to remember that this is the first time an accurate and detailed analysis and planning effort has been done for the island's electric system, which is complex and compounded by ongoing challenges unique to Puerto Rico. Most other utilities with prior experience developing IRPs in their jurisdictions, with similar planning horizons and less complex systems, spend a minimum of 18 to 24 months. Given the complexities and challenges, and LUMA's absolute commitment to getting the IRP right for our customers, we have requested more time from the Energy Bureau. Typically, an IRP process can take several years to complete. This additional time will help ensure the IRP meets regulatory requirements, current energy industry standards and reflects the energy priorities of our customers, while reliably and responsibly progressing toward Puerto Rico's clean energy goals at the most reasonable cost.

LUMA is actively working with stakeholders, through the SETPR stakeholder engagement process to receive and incorporate meaningful feedback from customers into the IRP analysis.

5. ***It is estimated that over the next 10 years, more than 5 Gigawatts of solar capacity will be installed in Puerto Rico, with only 8.8% coming from the utility-scale segment. Does LUMA consider the grid equipped to absorb the growing number of households with solar and battery systems?***

a. ***Could you share details of the infrastructure investments LUMA is planning to make to adapt to this new reality?***

Response:

LUMA strongly supports a cleaner, more renewable energy future. Electrification and higher participation of renewable, distributed resources, require a resilient and reliable grid. A stronger Transmission and Distribution System is necessary to help support the expanding rate of solar in Puerto Rico.

LUMA continues to make critical investments toward strengthening infrastructure to support the growth of both residential and industrial scale connected solar energy systems of all sizes such as upgrading critical equipment and completing interconnection studies to help determine how to reliably integrate large-scale solar. In addition, LUMA is deploying two new systems, an Energy Management System (EMS) and the Advanced Metering Infrastructure (AMI) that is part of smart grid deployment. Both of these initiatives which will provide data so that LUMA can not only better integrate renewable resources but will also help us to better identify and respond to outages and other reliability issues.

Transitioning to renewable energy while improving reliability will take all of us – the Puerto Rico government, federal agencies, LUMA, renewable energy companies, and above all, our customers. Our collaboration to date has resulted in the connection of more than 100,000 residential rooftop solar customers, providing more than 650 MW of clean, renewable energy to the island's grid. We are committed to our role in Puerto Rico's clean energy transformation and look forward to working

together with all our partners to move Puerto Rico toward a reliable and cleaner energy future.

6. ***LUMA has expressed a commitment to support transparency efforts. Why, to date, has LUMA not shared power outage data with the Outage Data Initiative Nationwide (ODIN)? Are you willing to commit to sharing this data going forward?***

Response:

Transparency

LUMA is committed to transparency, in fact, we welcome it. We support strong working relationships with all our government and agency partners, and we continue to provide updates and respond to requests from several regulators and stakeholders, including the Governor's Office, the Resident Commissioner of Puerto Rico, Mayors in Puerto Rico, Puerto Rican legislature, COR3, PREB, P3A, FOMB, DOE, FEMA, HUD, USACE, and Members of Congress. We also have multiple agencies including the PREB, P3A and FOMB that oversee our operations and actions.

Arguably, no utility, in the US is subject to the degree of oversight LUMA is, and we will continue to work together with every agency to build a better energy future for Puerto Rico.

Outage Data/Comms

Concerning outage communications, as is similar to all utilities, our official website, lumapr.com, is the most reliable source for service interruption status and updates. LUMA makes the most recent outage data available to customers through its website, which features information on the number of customers affected by service interruptions, details on notable service interruptions, an outage map with information by neighborhood (sector), and information on the bulk power system including plant-by-plant generation, total reserves, and forecasted supply and demand.

To further increase its transparency, LUMA is working with Outage Data Initiative Nationwide (ODIN) to share system information. Due to the aging and deficient system LUMA inherited from the prior operator, we continue to face data integration issues that are slowing down the real-time exchange with the ODIN platform. We are working through these issues to be able to provide this data to ODIN. Smart grid deployment and our new EMS will enable LUMA to provide better outage data at more granular levels, both through the ODIN platform, as well as directly to customers and stakeholders.

E. Questions for the Record from Rep. Carl

1. ***Statement of Assured Guaranty, GoldenTree Asset Management, National Public Finance Guaranty Corp. and Syncora Guarantee as Holders and Insurers of PREPA Revenue Bond. What is the FOMB waiting for?***

Response:

PREPA's ultimate exit from bankruptcy is a critical step to achieving a better energy future for Puerto Rico. This is long delayed and continues to pose an obstacle to progress. For example, bankruptcy

restricts access to capital for operations and investments, hindering our ability to make certain investments that are critical for improving Puerto Rico's energy grid. FEMA funding is enormously important to a more resilient grid, but there are many urgently needed and key investments required for improved service that are not currently eligible for federal funding.

Even though LUMA is not a party in the ongoing litigation and mediation process and LUMA does not control the outcome, (including its impact on rates), PREPA's bankruptcy must be resolved to help empower the pace of progress and build the more stable energy future the people of Puerto Rico deserve.

Thank you for the opportunity to provide additional insight into LUMA's progress to rebuild Puerto Rico's energy grid.

Sincerely,

Juan Sacá
President and Chief Executive Officer