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

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|---|---|
| **IN RE:** REVIEW OF THE PUERTO RICO ELECTRIC POWER AUTHORITY INTEGRATED RESOURCE PLAN | **CASE NO.:** NEPR-AP-2023-0004<br><br>**SUBJECT**: Motion Submitting Responses to Requests for Information in Compliance with Resolution and Order of April 1, 2026 |

**MOTION SUBMITTING RESPONSES TO REQUESTS FOR INFORMATION IN COMPLIANCE WITH RESOLUTION AND ORDER OF APRIL 1, 2026**

**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 state and request the following:

1. On April 1, 2026, the Puerto Rico Energy Bureau ("Energy Bureau") entered a Resolution and Order directing LUMA to file its response to the requests for information included in Attachments A and B of said order, within ten (10) business days ("April 1st Order"). Attachment A contains the requests for information that arose from the Initial Technical Hearing held on March 19, 2026. Meanwhile, Attachment B contains the requests for information regarding potential new or converted power plant options that the Energy Bureau understands the Puerto Rico Electric Power Authority ("PREPA") is considering, based on previous Energy Bureau orders and/or current public policy.

2. The Energy Bureau directed PREPA to provide LUMA with the information necessary for LUMA to respond timely to the requests for information included in Attachment B of the April 1st Order, within five (5) business days.

3. On April 8, 2026, PREPA filed a *Motion Requesting an Extension of Time to Comply with April 1, 2026, Resolution and Order*. PREPA requested a brief extension of time, until April 17, 2026, to submit the information to LUMA given that some of the information needs to be obtained from AES and the Puerto Rico Public-Private Partnership Authority ("P3A").

4. In compliance with the April 1st Order, LUMA hereby submits its responses to the requests for information included in Attachment A, as *Exhibit 1* to this Motion.

5. Further, as of today, LUMA has not received the necessary information from PREPA in order to complete the responses to the requests for information included in Attachment B of the April 1st Order. Therefore, LUMA respectfully requests a brief extension of five (5) days after PREPA provides the information pertaining to Attachment B of the April 1st Order, to submit its responses to the requests for information included therein.

## II. Request for Confidential Treatment

6. LUMA respectfully submits that certain information included in *Exhibit 1* to this Motion should be designated as confidential material protected from disclosure. The information is protected from disclosure as trade secrets; *see, e.g.*, Act 80-2011, P.R. Laws Ann. tit. 10, §§ 4131-4144 (2023), and pursuant to the Energy Bureau's Policy on Management of Confidential Information. *See* Energy Bureau's Policy on Management of Confidential Information, CEPR-MI-2016-0009, issued on August 31, 2016, as amended by Resolution dated September 20, 2016.

### A. Applicable Laws and Regulations to Submit Information Confidentially Before the Energy Bureau

7. The bedrock provision on the management of confidential information filed before this Energy Bureau is Section 6.15 of Act 57-2014, known as the "Puerto Rico Energy Transformation and Relief Act." It provides, in pertinent part, that: "[i]f any person who is required to submit information to the Energy Commission believes that the information to be submitted has

any confidentiality privilege, such person may request the Commission to treat such information as such . . . . " 22 LPRA § 1054n. If after appropriate evaluation the Energy Bureau determines that the information should be protected, "it shall grant such protection in a manner that least affects the public interest, transparency, and the rights of the parties involved in the administrative procedure in which the allegedly confidential document is submitted." *Id.* § 1054n(a).

8. The confidential information shall be provided "only to the lawyers and external consultants involved in the administrative process after the execution of a confidentiality agreement." *Id.* § 1054n(b). Finally, Act 57-2014 provides that this Energy Bureau "shall keep the documents submitted for its consideration out of public reach only in exceptional cases. In these cases, the information shall be duly safeguarded and delivered exclusively to the personnel of the [Energy Bureau] who need to know such information under nondisclosure agreements. However, the [Energy Bureau] shall direct that a nonconfidential copy be furnished for public review." *Id.* § 1054n(c).

9. Relatedly, in connection with the duties of electric power service companies, Section 1.10(i) of Act 17-2019 states that electric power service companies shall provide the information requested by customers, except for confidential information under the Rules of Evidence of Puerto Rico.

10. Moreover, the Energy Bureau's Policy on Confidential Information details the procedures a party should follow to request that a document or portion thereof be afforded confidential treatment. In essence, the referenced Policy requires identifying confidential information and filing a memorandum of law explaining the legal basis and support for a request to file information confidentially. *See* CEPR-MI-2016-0009, Section A, as amended by the Resolution of September 20, 2016, CEPR-MI-2016-0009. The memorandum should also include

a table that identifies the confidential information, a summary of the legal basis for the confidential designation, and why each claim or designation conforms to the applicable legal basis of confidentiality. *Id.* at ⁋ 3. The party that seeks confidential treatment of information filed with the Energy Bureau must also file both a "redacted" or "public version" and an "unredacted" or "confidential" version of the document that contains confidential information. *Id.* at ⁋ 6.

**B. Grounds for Confidentiality**

11. The Energy Bureau's Policy on Management of Confidential Information states the following with regard to access to validated Trade Secret Information and CEII:

1. Trade Secret Information

> Any document designated by the [Energy Bureau] as Validated Confidential Information because it is a trade secret under Act 80-2011 may only be accessed by the Producing Party and the [Energy Bureau], unless otherwise set forth by the [Energy Bureau] or any competent court.

*Id.* at § D (on Access to Validated Confidential Information).

12. Under the Industrial and Trade Secret Protection Act of Puerto Rico, Act 80-2011, P.R. Laws Ann. tit. 10, §§ 4131-4144 (2023), industrial or trade secrets are deemed to be any information:

> (a) That has a present or a potential independent financial value or that provides a business advantage, **insofar as such information is not common knowledge or readily accessible** through proper means by **persons who could make a monetary profit from the use or disclosure of such information**, and
> (b) for which reasonable security measures have been taken, as circumstances dictate, to maintain its confidentiality.

*Id.* § 4131, Section 3, Act. 80-2011.[1] They include, but are not limited to, processes, methods, and mechanisms; manufacturing processes; formulas; projects or patterns for developing machinery; and lists of specialized clients that may afford a competitor an advantage. *See* Statement of Motives, Act 80-2011; *see also* Puerto Rico Open Data Law, Act 122-2019, Article 4 (ix) (exempting from public disclosure trade secrets) and Article 4(x) (exempting from public disclosure commercial or financial information whose disclosure will cause competitive harm).

13. The Puerto Rico Supreme Court has explained that the trade secrets privilege protects free enterprise and extends to commercial information that is confidential in nature. *Ponce Adv. Med. v. Santiago Gonzalez,* 197 DPR 891, 901-02 (2017) (citation omitted).

14. The Energy Bureau should protect some of the work papers on the results, assumptions, and inputs of the responses included in *Exhibit 1* because they pertain to costs, processes, and methods of generators that may prove advantageous or useful to LUMA's competitors in the energy business and utilities in Puerto Rico. LUMA takes reasonable security measures, such as this one, to maintain the confidentiality of its data and information in draft form.

15. LUMA respectfully submits that some of the work papers presented as part of LUMA's responses in *Exhibit 1* should be designated as commercially sensitive or trade secret information. This designation is a reasonable and necessary measure to protect the information and enable LUMA to compete fairly in the future.

16. It is respectfully submitted that the right of public access to information is promoted and protected by the public version. The protection of specific information will not, in a material

[1] Relatedly, Rule 513 of the Rules of Evidence of Puerto Rico provides that the owner of a trade secret may invoke the privilege to refuse to disclose, and to prevent another person from disclosing trade secrets, provided that these actions do not tend to conceal fraudulent actions or lead to an injustice. 32 P.R. Laws Ann. Ap. VI, R. 513. If a court of law mandates disclosure of a trade secret, precautionary measures should be adopted to protect the interests of the owner of the trade secret. *Id.*

way, hinder or preclude the public from accessing relevant and necessary information. As such, the interest in the public viewing the information that LUMA hereby requests be kept confidential is outweighed by the harm that LUMA would be exposed to should the information be made available to the public.

## III. Identification of Confidential Information.

17. In compliance with the Energy Bureau's Policy on Confidential Information, CEPR-MI-2016-0009, below is a table summarizing the hallmarks of this request for confidential treatment.

| Document | Name | Pages in which Confidential Information is Found, if applicable | Summary of Legal Basis for Confidentiality Protection, if applicable | Date Filed |
|---|---|---|---|---|
| Exhibit 1 | RFI-LUMA-AP-2023.0004-20260401-PREB-001- Third RFI Outage data Q1cd.xlsx, 3RFI Q1k LUMA PRP Batteries Net Gen_MT.xlsx | Entire file | Trade Secret Information under Section D(1) of the Energy Bureau's Policy on Confidential Information, CEPR-MI-2016-0009 | April 16, 2026 |
| | RFI-LUMA-AP-2023.0004-20260401-PREB-008- Third RFI Q8a.xlsx, LUMA RFI_Q8b.xlsx | Entire file | Trade Secret Information under Section D(1) of the Energy Bureau's Policy on Confidential Information, | April 16, 2026 |

| Document | Name | Pages in which Confidential Information is Found, if applicable | Summary of Legal Basis for Confidentiality Protection, if applicable | Date Filed |
|---|---|---|---|---|
| | | | CEPR-MI-2016-0009 | |
| | RFI-LUMA-AP-2023.0004-20260401-PREB-009-3RFI_Q9a_IRP_PS_2026_Generator Info.xlsx, 3RFI_Q9a_IRP_PS_2034_Generator Info.xlsx, 3RFI_Q9b_2026_HNL_Gen Summary.xlsx, and 3RFI_Q9b_2034_HNL_Gen Summary.xlsx | Entire file | Trade Secret Information under Section D(1) of the Energy Bureau's Policy on Confidential Information, CEPR-MI-2016-0009 | April 16, 2026 |
| | RFI-LUMA-AP-2023.0004-20260401-PREB-011- RFI-LUMA-AP-2023.0004-20260401-PREB-011.xlsx | Entire file | Trade Secret Information under Section D(1) of the Energy Bureau's Policy on Confidential Information, CEPR-MI-2016-0009 | April 16, 2026 |

**WHEREFORE**, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned and **accept** the responses to the requests for information included in Attachment A of the April 1st Order, as *Exhibit 1* to this Motion; **approve the request for confidential treatment** of certain information submitted with *Exhibit 1* to this Motion; and **grant** a brief extension of time of five days to submit the responses to Attachment B of the April 1st Order.

**WE HEREBY CERTIFY** that this Motion was filed using the electronic filing system of this Energy Bureau and that electronic copies of this Motion will be notified to the Puerto Rico Electric Power Authority: Alexis Rivera, alexis.rivera@prepa.pr.gov, and through its counsel of record, Natalia Zayas Godoy, nzayas@gmlex.net, Richard Cruz Franqui, rcruzfranqui@gmlex.net, and Mirelis Valle Cancel, mvalle@gmlex.net, and Genera PR, LLC, through its attorney of record Luis R. Román Negrón, lrn@roman-negrom.com.

**RESPECTFULLY SUBMITTED.**

In San Juan, Puerto Rico, on April 16, 2026.


DLA PIPER

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*/s/ Yahaira De la Rosa Algarín*
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*Exhibit 1*

# 2025 Integrated Resource Plan (2025 IRP)

## Attachment A: Responses to Third Set of 2025 IRP Post Filing Request for Information

NEPR-AP-2023-0004

April 16, 2026

LUMA

# Attachment A
# NEPR-AP-2023-0004

## INTRODUCTION

On April 1, 2026, the Puerto Rico Energy Bureau (Energy Bureau) issued a Resolution and Order (April 1 R&O)[1] directing LUMA to submit its responses to the Third Set of 2025 IRP Post Filing Requests for Information (RFIs), included in Attachment A and Attachment B, within ten (10) business days of the notification of the April 1 R&O, by April 16, 2026.

The Third Set of 2025 IRP Post-Filing RFI -Attachment A- includes eleven RFIs through which the Energy Bureau seeks clarification on inquiries related to:

- PLEXOS® modeling methodology, including topics such as outages, hourly dispatch, module settings (LT/PASA/MT and ST), treatment of batteries within the model, and Unserved Energy Outputs
- Expected unserved energy (EUE), including the actual 2024-2025 EUE data, the use of historical EUE in the IRP process, and a comparison between the modeled and actual EUE
- Distributed photovoltaic (DPV) forecast, including the basis used to develop this forecast, the updated 2026-2030 DPV data, and the impact of updated DPV on the Preferred Resource Plan (PRP)
- Biodiesel conversion costs
- PLEXOS® issues (FOM/VOM/generation costs)
- PSS®E analysis, including topics such as the peak solar, peak demand, and BESS+ units dispatch in 2026 and 2034
- Capacity reserve margin and marginal cost, including tables for all scenarios, a comparison between the PRP and Scenario 12 Reserve margin, and the hourly marginal energy costs

In the April 1 R&O, the Energy Bureau also ordered the Puerto Rico Electric Power Authority (PREPA) to, within five business days, by April 9, 2026, provide the information necessary for LUMA to timely respond to the RFIs included in Attachment B.[2] On April 8, 2026, PREPA filed a motion requesting an extension until April 17, 2026, to submit its responses to Attachment B of the April 1 R&O.

LUMA hereby submits its responses to the Third Set of 2025 IRP Post-Filing RFIs included in Attachment A and respectfully requests an additional five days after PREPA provides its responses to Attachment B to submit LUMA's corresponding responses.

[1] P.R. Energy Bureau, Resolution and Order, No. NEPR-AP-2023-0004, (April 1, 2026) https://energia.pr.gov/wp-content/uploads/sites/7/2026/04/20260401-AP20230004-Resolution-and-Order.pdf

[2] Attachment B of the April 1 R&O contains RFIs arising from potential new or converted power plant options the Energy Bureau understands PREPA to be considering based on previous Energy Bureau orders or current public policy. The nature and status of these considerations are relevant to the current 2025 IRP process.

# List of Acronyms

| ACRONYM | DEFINITION |
|---|---|
| **BESS** | battery energy storage system |
| **COD** | commercial operation date |
| **DBESS** | distributed battery energy storage system |
| **DPV** | distributed solar photovoltaic |
| **EIA** | Energy Information Agency |
| **EUE** | expected unserved energy |
| **FOM** | fixed operation and maintenance cost |
| **FOR** | forced outage rate |
| **IRP** | Integrated Resource Plan |
| **kW** | kilowatt |
| **LNG** | liquefied natural gas |
| **LOLE** | loss of load expectation |
| **LOLP** | loss of load probability |
| **LT** | long-term |
| **MT** | medium-term |
| **MW** | megawatt |
| **MWh** | megawatt-hour |
| **PASA** | projected assessment of system adequacy |
| **PRP** | Preferred Resource Plan |
| **PV** | solar photovoltaic |
| **PVRR** | present value revenue requirement |
| **RFI** | request for information |
| **R&O** | resolution and order |
| **SJ** | San Juan |
| **ST** | short-term |
| **TPA** | transmission planning area |
| **USE** | unserved energy |
| **VOM** | variable operation and maintenance cost |

# List of Responses and Attachments

| Response ID | Document Type | Response Subject |
|---|---|---|
| RFI-LUMA-AP-2023.0004-20260401-PREB-001 | Response in PDF<br>Folder with Excel documents | Resource Outages and Settings of PLEXOS® Model |
| RFI-LUMA-AP-2023.0004-20260401-PREB-002 | Response in PDF | Foundational Outages Results |
| RFI-LUMA-AP-2023.0004-20260401-PREB-003 | Response in PDF | Illustrative Foundational Run Outputs |
| RFI-LUMA-AP-2023.0004-20260401-PREB-004 | Response in PDF | Illustrative ST Model Results for Unserved Energy by TPA |
| RFI-LUMA-AP-2023.0004-20260401-PREB-005 | Response in PDF | Target Expected Unserved Energy |
| RFI-LUMA-AP-2023.0004-20260401-PREB-006 | Response in PDF | Distributed Solar PV |
| RFI-LUMA-AP-2023.0004-20260401-PREB-007 | Response in PDF | Fuel Transition and Cost of Biodiesel |
| RFI-LUMA-AP-2023.0004-20260401-PREB-008 | Response in PDF<br>Folder with Excel documents | Issues with Modeling Results |
| RFI-LUMA-AP-2023.0004-20260401-PREB-009 | Response in PDF<br>Folder with Excel documents | Transmission System Modeling |
| RFI-LUMA-AP-2023.0004-20260401-PREB-010 | Response in PDF<br>Excel document | Planning Reserve Margin |
| RFI-LUMA-AP-2023.0004-20260401-PREB-011 | Response in PDF<br>Excel document | Hourly Marginal Energy Cost |

# 2025 INTEGRATED RESOURCE PLAN

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-001a-1n

### SUBJECT

Reference: PLEXOS model resource outage representation and certain data inputs and outputs, across all modules. IRP filing, Section 8.2.5-8.2.6, pages 247-250, and related workpapers and responses to Energy Bureau ROIs.

### REQUEST

1. Provide or confirm the following input assumptions or output results, in Excel file format if or as applicable, for the PRP scenario:

**Inputs:**

1a. Chronology settings in PLEXOS for the LT model

1b. Configuration settings in PLEXOS for LT, PASA, MT, and ST modules.

- This can be an update to the response provided by LUMA to the August 20, 2024, Energy Bureau ROI-2, which included an attachment file containing configuration parameters, with the filename RFI-LUMA-AP-2023.0004-20240820-PREB-001B.001_/nput_Assumptions_Parameters_and_Costs.

1c. Derated available capacity inputs per unit for the LT model, for both generation and battery energy storage resources

1d. Confirm or explain otherwise that each run of the LT module (Foundational and each iteration) uses the derated available capacity for each resource.

1e. Load blocks for the LT model

1f. PASA module stochastic simulation parameters for the Foundational run. Include all information and data to demonstrate how the outage schedule is determined in PLEXOS. Please include any stochastic sampling settings, including the number of iterations, and any additional source material if applicable.

1g. If this is not already addressed in the response to above question sub-part, please explain how the forced outage data for existing units presented on pages 163-165 of the IRP was used in the LT, PASA, MT, and ST modules of the PLEXOS model.

1h. Confirm or explain otherwise that the available capacity values for all resources in the ST module runs are the full available capacity amounts, and not any derated capacity amount.

**Outputs:**

1i. Confirm or explain otherwise that the unit-specific outage data in the tab "OtgRate" in the "solution spreadsheets" workpaper files are an annual average of the combined forced plus planned outage rate, reflect the result of the "Foundational" outage run, and at hourly granularity are used as an input to the ST modeling for iteration 1 and all remaining iterations.

1j. Concerning module run sequences: Why does LUMA state at page 248 that "The outages are unknown at the time of the LT simulation but are known and available by the conclusion of the ST simulation", if the outage schedule is actually known at the end of the PASA module run?

1k. Provide battery energy storage resource outputs from the MT runs that inform the ST runs, or confirm (or explain otherwise) that the "Batteries Net Generation" tab in the "Attachment 4B" Excel files provided in the January 15, 2026 responses to Energy Bureau ROI 4 contain the same data and temporal granularity as the MT run outputs.

1l. Provide generation by unit for the LT runs, at the temporal granularity reflected in the LT run, for the Foundational run and for each iteration.

1m. Confirm that all hours generation by unit from the ST runs are contained in the "Attachment 4B" Excel files provided in the January 15, 2026 responses to Energy Bureau ROI-4.

1n. Provide the LT run Expected Unserved Energy levels at the LT load block granularity for the PRP.

1o. At page 246 of the IRP LUMA states, "Review of early simulation results showed that material differences in the results between runs were caused by the differences in the schedules of the planned and forced outages".

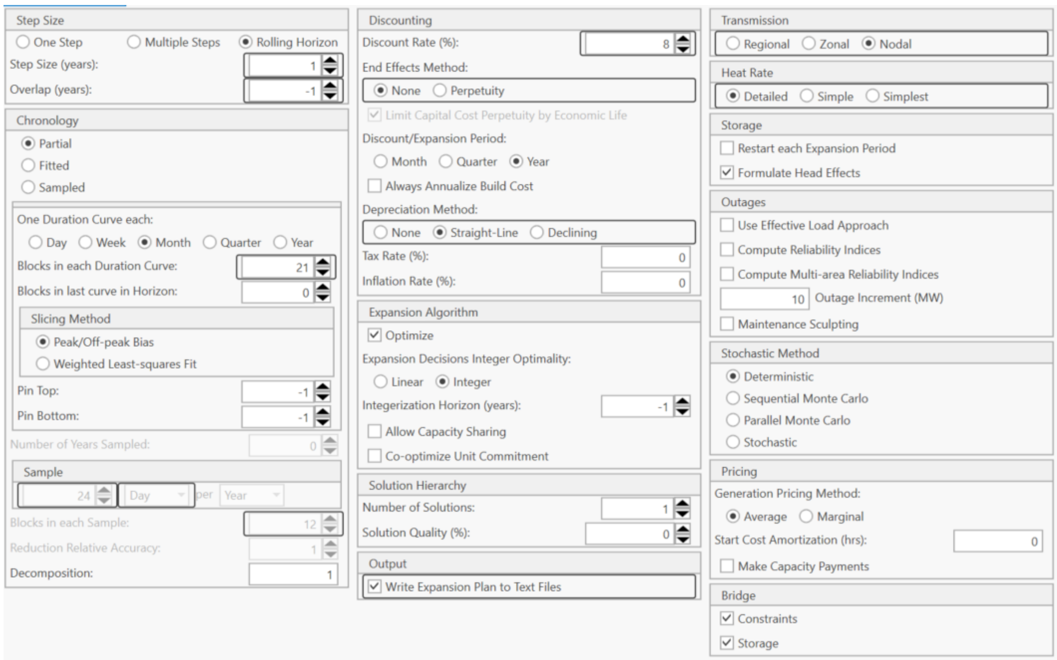
- What was the nature and the source of the differences in the schedules of planned and forced outages?
- What was the nature of the "material differences" in the results between runs?
- Does "between runs" means between iterations, or between modules, or something else? Explain.

## RESPONSE

**Inputs:**

1a. LUMA hereby confirms that the chronology settings used in PLEXOS® for the long-term (LT) model are as shown in Figure 1.

**Figure 1: LT PLEXOS® Settings**



1b. LUMA hereby confirms that the configuration settings for the PLEXOS® projected assessment of system adequacy (PASA), medium-term (MT), and short-term (ST) models are as shown in Figures 2, 3, and 4.

**Figure 2: PLEXOS® PASA Settings**

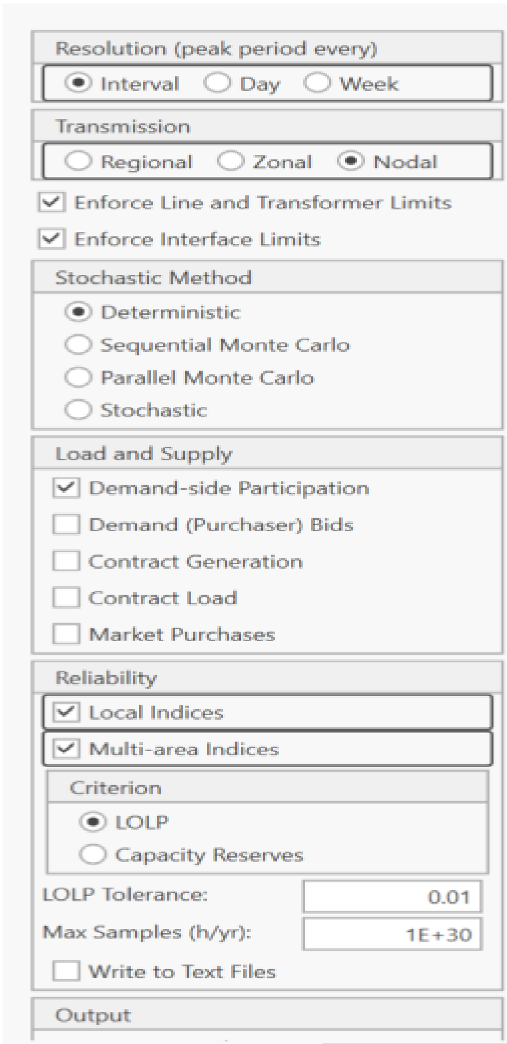


**Figure 3: MT PLEXOS® Settings**

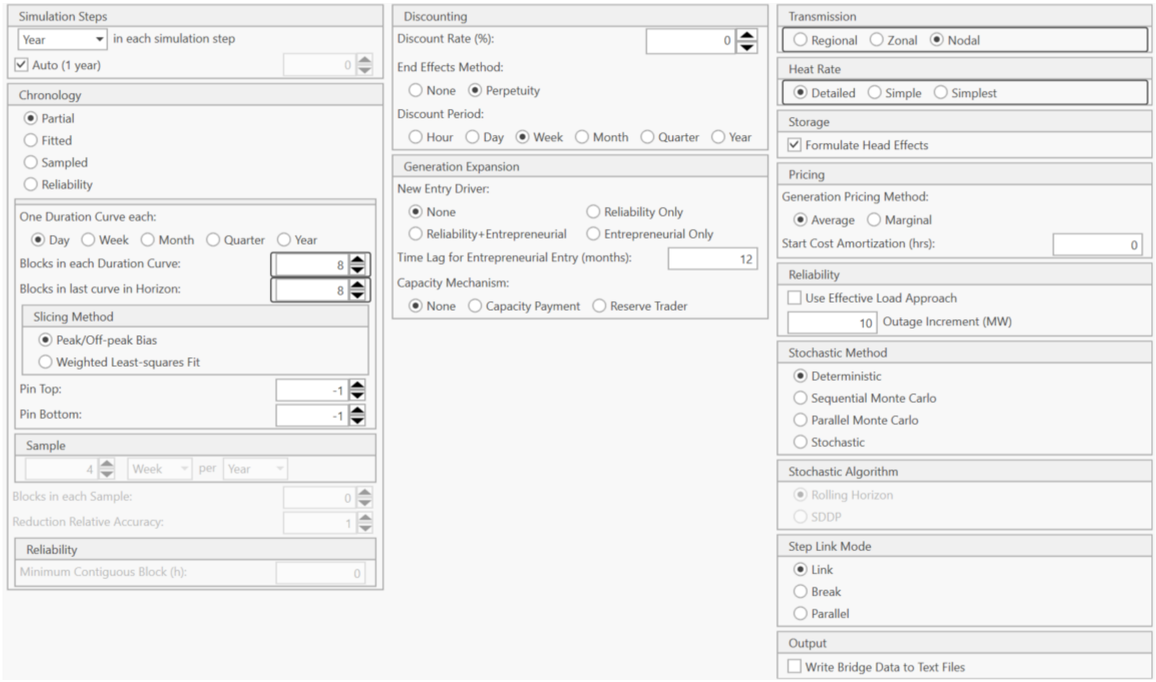
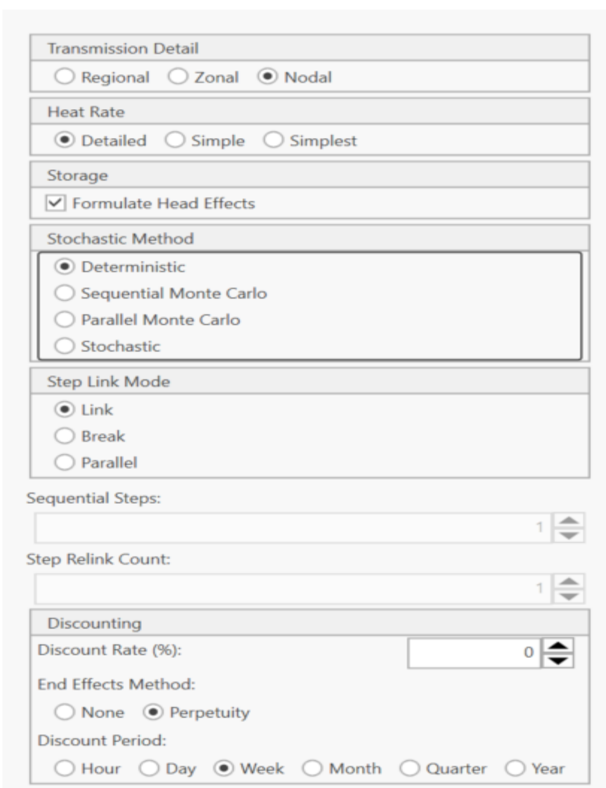



**Figure 4: PLEXOS® ST Settings**



1c. LUMA hereby explains the derated available capacity inputs per unit for the LT model, for both generation and battery energy storage resources. The LT model uses the rated capacity as input capacity for all energy resources, i.e., legacy energy resources, fixed decision additions, and candidate expansion resources. The LT model capacity and the planned maintenance outage and forced outage rates for each unit in the Preferred Resource Plan (PRP) are provided in Attachment: Outage data Q1cd.xlsx. No derating of rated capacity is used for any resource in the modeling of planned or forced outages.

The legacy units and the fixed decision additions use the Foundational run results, explained on page 247 of the Revised 2025 IRP,[3] as fixed outage inputs to account for the impacts of all planned and forced outages. The Foundational outages, which result from the Foundational run, assume a full outage with zero capacity for any hour with an outage event, whether due to planned maintenance or a forced outage. The Foundational outages do not include any partial outages or unit derating. The capacity of energy resources is the unit's rated capacity for any hour the unit is not out. Using the Foundational outages as input eliminates the need to use the embedded PLEXOS® functionality to account for the impact of planned and forced outages in any of the PLEXOS® models (i.e., LT, PASA, MT, ST).

The candidate expansion resources use the embedded PLEXOS® functionality to account for the impact of planned and forced outages. As explained in Section 8.2.5 on page 246 of the IRP and repeated below for background:

> "The LT module uses a derate method as a simplified approach to estimate the long-term impacts to unit available <availability> due to planned maintenance and forced outages. For example, a 100 MW generator with a 10% forced outage rate and a planned maintenance that equates to 5% of the hours in a year, will be treated in the LT module as a perfect 85 MW generator with no maintenance or forced outage hours (i.e., 100 MW minus a 15% derate attributable to the combined effects of planned and forced outages)."

The LT model derates each expansion unit by its respective planned and forced outage rates to arrive at a derated capacity for all hours in its resource planning analysis. Using the Foundational outage methodology minimizes the need for the LT derate method.

1d. Refer to response to RFI 1.c. above.

1e. LUMA hereby provides the load blocks for the LT model in Attachment: LUMA PRPR RFI Q1e_LT Blocks.

1f. LUMA herein explains the PASA module stochastic simulation parameters for the Foundational run. Refer to Figure 2 for the PASA configuration settings implemented in

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[3] LUMA Energy, Memorandum of Law in Support of Request of Confidential Treatment of Revised 2025 ITP and Submission of Public Version and Confidential Version of Revised 2025 IRP, No. NEPR-AP-2023-004 (Oct. 29, 2025), https://energia.pr.gov/wp-content/uploads/sites/7/2025/10/20251029-AP20230004-Memo-of-Law-in-Supp-of-Req-of-Conf-Treatment-Rev-2025-IRP.pdf.

PLEXOS®. These same settings were applied in the Foundational outage run. The Foundational outage analysis was conducted exclusively for existing generation units, and only the PASA module was executed to derive the corresponding outage schedules.

The Foundational outage run was performed a single time to establish a consistent outage schedule. This schedule was subsequently applied across all iterations and scenarios to ensure uniformity in outage assumptions for existing units throughout the analysis.

1g. LUMA herein explains how the forced outage data for existing units presented on pages 163-165 of the Revised 2025 IRP Report[4] were used in the PASA modules of the PLEXOS® model to perform the Foundational outage run shown in slide 34 of the Revised Initial Hearing Presentation,[5] from which the outage schedule is derived. This fixed outage schedule is then applied to all subsequent LT and ST simulations for existing units.

PLEXOS® dynamically determines outage schedules for candidate units.

1h. LUMA hereby confirms that all resources in the ST module run at the full rated capacity. There are no capacity derates for outages in the ST model.

**Outputs:**

1i. LUMA hereby confirms that the unit-specific outage data in the tab “OtgRate” in the “solution spreadsheets” workpaper files are an annual average of the combined forced plus planned outage rate, reflect the result of the “Foundational” outage run, and at hourly granularity are used as an input to the ST modeling for iteration 1 and all remaining iterations. The file also contains the combined forced and planned outages for optional expansion units added by PLEXOS® in the LT model run for the respective iteration.

1j. LUMA hereby confirms the concerning module run sequences regarding information provided on page 247 of the 2025 IRP Report filed on October 17, 2025[6] indicating that: “The outages are unknown at the time of the LT simulation but are known and available by the conclusion of the ST simulation”, if the outage schedule is actually known at the end of the PASA module run.” The statement that outages are unknown at the time of the LT simulation is accurate, and that they are known at the conclusion of the ST simulation is also accurate. Further, the outages are also known at the end of the PASA module run. All three statements are correct: the PASA model determines the outage schedule; LT model processing occurs before the PASA model; and ST model processing occurs after the PASA model.

1k. LUMA hereby confirms that the requested data can be found in the attached file: LUMA PRP Batteries Net Gen_MT.csv. The MT run uses a reduced chronology composed of representative blocks rather than full hourly intervals. The MT output is used to inform the subsequent ST run by translating medium-term operational outcomes and constraints into

[4] Memorandum of Law, supra note 3.
[5] LUMA Energy, Revised Initial Technical Hearing Presentation, (March 27, 2026), : https://energia.pr.gov/wp-content/uploads/sites/7/2026/03/20260327-AP20230004-IRP-Revised-Presentation.pdf
[6] LUMA Energy, Motion Submitting 2025 IRP and Request for Confidential Treatment, (October 17, 2025), https://energia.pr.gov/wp-content/uploads/sites/7/2026/02/20251017-AP20230004-Motion-IRP-and-Conf-Request2.pdf.

shorter-term targets and constraints that the ST schedule can apply on an hourly basis. In this way, the MT run does not replace the ST run's chronological battery dispatch; instead, it provides the medium-term operating framework within which the ST run determines hourly battery charging and discharging behavior.

1l. LUMA hereby clarifies that the generation by unit is not applicable for the Foundational outage run, as only the PASA module was executed to derive the outage schedule for existing units, and no generation simulation was performed.

1m. LUMA hereby confirms that all hours of generation by unit from the ST runs are contained in the "Attachment 4B" Excel files provided in the January 15, 2026, responses to Energy Bureau RFI-4[7].

1n. LUMA hereby clarifies that the LT model reports zero unserved energy (USE) in its outputs as it determines a build plan that ensures sufficient capacity is available to meet demand, as seen in the LT. Detailed reliability and potential USE are assessed in the ST model.

1o. LUMA hereby clarifies that the referenced quote is on page 246 of the Revised 2025 IRP filed on October 29, 2025[8].

LUMA found in early simulations that the date and time of planned maintenance outages and forced outages would change when small changes were made to the PLEXOS® input assumptions. For example, if LUMA tried to fix the above target EUE in a single year of the results by manually forcing the addition of a new energy resource of sufficient capacity to eliminate the above target EUE, the fix in the next run may or may not eliminate the original EUE issue, and might result in previously unseen, unacceptable EUE events in different years. In assessing the difference between these runs, LUMA found the dates and times of outages sometimes shifted from one run to the next. Many of the EUE events that LUMA analyzed were the result of unit(s) being on a combination of planned and forced outages.

LUMA, in consultation with Energy Exemplar, found that, after allowing PLEXOS®, specifically PASA, to determine all the outages in the Foundational run, and then fixing the Foundational run-based outage schedule, eliminated the shifting of outages across iterations and runs, which yielded more sensible results (e.g. changes in input assumptions, unrelated to outages, yielded logical changes in results). Using the Foundational run to fix outages in both the legacy units and the fixed decision additions was the methodology LUMA implemented. The Foundational run fixed the outages for all but the new energy resources selected by PLEXOS®. The implemented methodology provided more logical and stable results.

LUMA used the following definitions in the 2025 IRP:

- "Run" means the completion of a PLEXOS® model processing. The Run could refer to a single model, such as an LT model, or to the completion of the entire LT, PASA, MT, ST sequence of models.

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[7] LUMA Energy, Motion Submitting Supplemental Responses to the First Set of 2025 IRP Post Filing Request for Information in Compliance with Resolution and Order of December 3, 2025, Request for Confidential Treatment, and Memorandum in Support of Confidentiality (January15, 2026), https://energia.pr.gov/wp-content/uploads/sites/7/2026/02/20260115-AP20230004-Motion-Supplementing-RFI-Responses.pdf.

[8] Memorandum of Law, supra note 3.

- "Iteration" was used to refer to the sequence of interconnected Runs that were used to perform the Multi-step Iteration PLEXOS® Modeling Process shown in Figure 73 on page 249 of the Revised 2025 IRP Report[9]. The Iterative runs were used to arrive at acceptable EUE results.

- "Between Runs" as used in the reference quote from page 246 of the Revised 2025 IRP Report[10] refers to the period between the completion of two different completed Runs of the entire LT, PASA, MT, ST sequence of models.

[9] Memorandum of Law, supra note 3.
[10] Memorandum of Law, supra note 3.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-002a-002b

### SUBJECT

Reference: LUMA response to Energy Bureau ROI 4(a) of December 3, 2025. Foundational outages results provided in filename “LUMA 0616 Scl_Foundational outages existing units.csv”.

### REQUEST

2a. The referenced file with Foundational outage information contains results indicating unit outages but does not indicate the MW associated with each unit. Provide an updated Excel file including the MW capacity rating for each unit (for all entries) that would be available if the unit was not in an outage condition for the ST module run. Confirm or explain otherwise that this capacity rating is an available capacity rating, and not a derated capacity amount.

2b. What is the forced outage schedule for each unit after the Foundational ST simulation results? Provide an Excel file showing these results, and confirm or explain otherwise that it is different from the outage schedule seen in the “LUMA 0616 Scl_Foundational outages existing units.csv” file, since that file contains the schedule of both planned and forced outages.

### RESPONSE

2a. LUMA hereby confirms that the PLEXOS® ST modeling assumes that for all energy resources, the units are either available at rated capacity or unavailable during an outage with zero available capacity. The modeling does not include partial outages. The capacity of energy resources is the unit's Rated Capacity for any hour the unit is not on outage.

2b. LUMA hereby confirms that the Foundational outage results are an output of the PASA model that combines planned maintenance outages and forced outages. While the input assumptions for the Foundational run include separate planned maintenance outage rates and forced outage rates, LUMA is not aware of any PLEXOS® functionality that would enable the Foundational outage results to report planned and forced outages separately.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-003a

### SUBJECT

Reference: Table on slide 35 of the 3/19/26 Initial Technical Hearing presentation, Illustrative Foundational Run Output.

### REQUEST

3a. "Illustrative" sample hourly outage schedule. Confirm or explain otherwise that the table on slide 35 is reflective of the hourly outage schedule from the Foundational run used for LUMA's modeled scenarios.

### RESPONSE

3.a LUMA hereby confirms that the table on slide 35 of the Initial Technical Hearing Presentation[11] is an excerpt from the Foundational run[12] used for LUMA's modeled scenarios.

[11] Memorandum of Law, supra note 3.
[12] LUMA Energy, supra note 5, slide 34.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-004a-004e

### SUBJECT

Reference: Table on slide 36 of the 3/19 /26 Initial Technical Hearing presentation, Illustrative ST Model Results for Unserved Energy (USE) by TPA.

### REQUEST

4a. State which iteration of the ST module runs is reflected in the unserved energy results on the table listed in slide 36. Confirm or explain otherwise that the table reflects the PRP scenario.

4b. For the scenario reflected in the illustrative results provided in the table, provide a single Excel file with the ST model hourly dispatch results for October 31, 2030, for 1) the Foundational run that produced the Foundational results, and 2) each of iteration 1, 2, 3 and 4. For all ST model run dispatch results, include hourly load and hourly output for each resource, including all available generation and battery and energy storage resources.

4c. In the same Excel file, account in full for the available battery energy storage resource capacity, both utility scale and distributed scale, if such capacity is not providing energy in any of the hours included for October 31, 2030. For example, if the battery is providing spinning or control reserve capacity or is on outage, indicate such.

4d. For October 31, 2030, provide the "fixed load adder" amounts used at each iteration to increase the LT load, at the finest temporal granularity, and explain how the model translated unserved energy amounts at an hourly granularity in the ST run to a different temporal granularity in the LT run.

4e. Provide the LT run temporal granularity used for October 31, 2030, if or as applicable.

### RESPONSE

4a. LUMA hereby confirms that the unserved energy results on the table listed on slide 36 of the Revised Initial Technical Hearing Presentation[13] reflect the foundation run data used to define the PRP and are an excerpt from "LUMA 0616 Scl_Foundational outages existing units.csv" file, which was provided with the Revised 2025 IRP Report[14].

4b. LUMA hereby confirms that for all but the hourly load, the requested data was provided in the attachment CONFIDENTIAL_RFI-LUMA-AP-2023.0004-20251203-PREB-004B filed on January 15, 2026,[15] with LUMA's Response to RFI 4.b of the December 3, 2025, R&O[16]–1st

[13] LUMA Energy, supra note 5,
[14] Memorandum of Law, supra note 3.
[15] Motion Submitting Supplemental Responses, supra note 7.
[16] P.R. Energy Bureau, , Resolution and Order, No. NEPR-AP-2023-0004, (December 3, 2025) https://energia.pr.gov/wp-content/uploads/sites/7/2025/12/20251203-AP20230004-Resolution-and-Order.pdf

Set of 2025 IRP Post-Filing RFI. In that response, LUMA provided forced and planned outages by unit for all hours of the 2025 to 2044 planning horizon, and for each iteration of the PRP. However, as indicated in the LUMA response to question 2.b. of this RFI, the outage data for the legacy and fixed decision additions is in the "LUMA 0616 Scl_Foundational outages existing units.csv" file, provided with the 2025 IRP Report filed on October 17, 2025,[17] and revised on October 29, 2025,[18] but does not differentiate between the outage hours as either planned or forced.

The hourly load is the same for each iteration of the ST Model. The hourly load for the ST model can be found in the file: Attach 4c PRP_Region ST.xlsx on the load tab, which was provided previously in the attachments to LUMA's response to the First Set of 2025 IRP Post Filing Request for Information in the following folder path: CONFIDENTIAL_RFI-LUMA-AP-2023.0004-20251203-PREB-004C>PRP>Region ST> Attach 4c PRP_Region ST.xlsx.

4c. LUMA hereby confirms that the attachment referenced in LUMA's response to RFI 4.b. above, CONFIDENTIAL_RFI-LUMA-AP-2023.0004-20251203-PREB-004B, contains battery maintenance outages and battery forced outages.

The details of the hours when the batteries are providing spinning or control reserve capacity were provided in LUMA's Second Set of 2025 IRP Post Filing RFI responses filed on March 9, 2026,[19] in the file: CONFIDENTIAL - 2026.02.26_Attachment PRP_Reserve data for batteries- RFI 2-11-2.xls.

4d. LUMA hereby confirms that the "fixed load adder" amounts used for each iteration of the LT model used to define the PRP were provided in the First Set of 2025 IRP Post-Filing Request for Information. The requested data can be found on the USE (i.e., Unserved Energy) tab within the files in the following folder path: CONFIDENTIAL_RFI-LUMA-AP-2023.0004-20251203-PREB-004B>Hourly ST>PRP.

The ST model calculates unserved energy at an hourly resolution. The latter is used to create the fixed-load adder input at the hourly level by transmission planning area (TPA) as an input to the LT in the next iteration of the feedback loop. These are part of the LT's hourly load forecast, which is internally converted to a block-level forecast.

4e. LUMA confirms that the LT model is configured with 21 blocks per month using the Partial Chronology method, as illustrated in Figure 1 above. Under this configuration, PLEXOS® does not map specific calendar days (e.g., October 31, 2030) to individual blocks. Instead, hourly intervals from each month are aggregated and distributed across the corresponding 21 Load Duration Curve (LDC) blocks. For a one-year planning horizon with hourly resolution, this setup results in a total of 252 blocks, calculated as:

$$(Number\ of\ months)\ x\ (blocks\ per\ month) = 12\ x\ 21 = 252\ blocks$$

[17] Motion Submitting 2025 IRP, supra note 6.
[18] Memorandum of Law, supra note 3.
[19] P.R. Energy Bureau, Resolution and Order, No. NEPR-AP-2023-0004, (March 9, 2026) https://energia.pr.gov/wp-content/uploads/sites/7/2026/03/20260309-AP20230004-LUMA-Responses-in-Compliance-with-RO.pdf

Thus, each LT block corresponds to a group of original hourly intervals that have been combined based on the Partial Chronology approach, which does not correspond to a 24-hour day.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01PREB-005a-005d

### SUBJECT

Reference: Section 5.1 of the IRP, including Figure 58: Target Expected Unserved Energy (page 175), PRP scenario model results for Unserved Energy (table below from LUMA workpapers), and LUMA Monthly Generation Performance Reports (https://lumapr.com/wp-content/uploads/2026/02/2025.12-December_Generation-Performance-Report.pdf and https://lumapr.com/wp-content/uploads/2025/01/2024.12_Generation-Performance-Report.pdf). Also, LUMA's December 2025 Resource Adequacy report, for Fiscal Year 2026.

### REQUEST

| PRP “Solution Spreadsheet” Results - ST Unserved Energy | Unserved Energy, GWh | Unserved Energy Hours | Max Unserved Energy, MW |
|---|---|---|---|
| 2024 | 225 | 1,230 | 1,007 |
| 2025 | 52 | 375 | 705 |

5a. Based on the monthly generation performance reports that capture full-year results for 2024 and 2025, provide LUMA's best estimation of the actual level of annual unserved energy (in MWh) in Puerto Rico due to generation shortfall events and unit performance load shed events for each of 2024 and 2025. Provide any per-customer use assumptions or other assumptions used to provide the estimate.

5b. Explain how the magnitude, pattern, and type of event leading to actual amounts of unserved energy in 2024 and 2025 was or was not considered when determining the Foundational results that define the planned, forced, and combination of planned and forced outages used in the ST module.

5c. Did LUMA consider the actual unserved energy results (i.e., the loss of load resulting from the load shed events documented in the monthly generation performance reports) from 2024 or 2025 when structuring, analyzing, or revising the methods used for unit outage representation in the PLEXOS modeling for the IRP?

5d. Provide any further discussion concerning a comparison between the PRP scenario modeled unserved energy amounts in the 2024 and 2025 calendar years, and LUMA's estimate of actual unserved energy in Puerto Rico in 2024 and 2025 calendar years, including the extent to which the information or the analysis contained in the Fiscal Year 2026 resource adequacy report intersects with the assumptions made for the IRP modeling.

## RESPONSE

5a. LUMA confirms that, based on the monthly generation performance reports that capture full-year results for 2024 and 2025, the best estimation of the actual level of annual unserved energy (in MWh) in Puerto Rico due to generation shortfall events and unit performance load shed events for each of 2024 and 2025 is shown in Table 1 below. LUMA did not use any per-customer assumptions to provide the estimate.

**Table 1: Unserved Energy for 2024 and 2025**

| | Unserved Energy (MWh) |
|---|---|
| 2024 | 17,566 |
| 2025 | 12,946 |

5b. LUMA hereby explains that the forced outage rate (FOR) assumptions used in the 2025 IRP were based on a May 19, 2025 update to FOR assumptions. These assumptions are considered historical FOR unit performance through the first few months of 2025 only. To develop the FOR rates used in its assumptions, LUMA considered unit FOR performance from prior years, accounting for each unit's FOR trends, adjusted by excluding long outages that cause unusual outliers in the historical performance. While some of these historical forced outage events contributed to unserved energy (USE), LUMA did not use actual USE events or load shed events as an input to PLEXOS® nor in LUMA's development of the forecasted FOR. LUMA considered historical USE data in developing the expected unserved energy (EUE) targets used to evaluate PLEXOS® EUE results. For planned outages, each generator provides LUMA with its planned maintenance schedule, identifying the expected dates its units will be out of service for maintenance activities. LUMA used these schedules to determine the planned maintenance rates used in the 2025 IRP modeling.

5c. Refer to response to RFI 5.b. above.

5d. LUMA hereby explains that a comparison between the PRP scenario modeled unserved energy amounts in the 2024 and 2025 calendar years was not possible due to conflicting timelines. To ensure consistency and alignment, the fixed decisions and assumptions were incorporated as of May 2025, as explained on page 238 of the Revised 2025 IRP.[20] At the time, limited 2025 calendar data was considered, and the Fiscal Year 2026 resource adequacy report was not considered, as it was completed in December 2025, after the 2025 IRP modeling was filed.

[20] Memorandum of Law, supra note 3.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-006a-006c

### SUBJECT

During the Initial Technical Hearing Commissioner Ramos noted that the distributed solar PV amounts "fixed" into the model (for example, slide 65 of the presentation) seemed very low, as the actual annual amounts over the past few years have been on the order of multiple hundreds of MW per year, rather than the tens of MW per year seen on the slide. LUMA states at page 116 of the IRP that it utilized its own February 2024 forecast for distributed solar PV. LUMA's submittal to the Energy Bureau on January 27, 2026, contained historical data showing more than 250 MW per year of distributed solar PV installations during each of 2023 and 2024 (LUMA filing at https://energia.pr.gov/wp-content/uploads/sites/7/2026/01/FY2026-Q2-Performance-Metrics-by-Area-Renewable-and-DSM-Active.xlsx).

### REQUEST

6a. What information was LUMA using when it developed the distributed solar PV forecast shown in Figure 20 of the IRP (page 117), which appears to significantly undercount the distributed solar PV that has been installed in 2024 and 2025?

6b. What is LUMA's current estimate of the amount of distributed solar PV forecast for installation in 2026 through 2030, and the years beyond 2030?

6c. If the level of distributed solar PV used in the PRP modeling was updated to consider the actual amounts in place now, and the potentially increased levels over each of the next five years relative to what is in the model, what effect does that have on the underlying PRP or LUMA's overall IRP recommendations?

### RESPONSE

6a. LUMA hereby clarifies that the information used to develop the distributed solar PV forecast shown in Figure 20 of the 2025 IRP (page 117) filed on October 17, 2025[21] (located on page 116 of the Revised 2025 IRP Report filed on October 29, 2025[22]) was the actual installed capacity data available in LUMA's internal projects portal through December 2023, combined with long-term modeling informed by national Energy Information Agency (EIA) projections.

The forecast then extends those historical trends forward in a gradual, smoothed way, which, by design, does not fully capture sudden spikes in installations driven by real-world shocks, such as the December 2024 and April 2025 generation shortfalls, which accelerated customer adoption. It also does not account for the rapid increase in installations resulting from Act 10-2024[23] (pertaining to Net Energy Metering or NEM). In combination with these

[21] Memorandum of Law, supra note 6.
[22] Memorandum of Law, supra note 3.
[23] Act 10-2024: https://bvirtualogp.pr.gov/ogp/Bvirtual/leyesreferencia/PDF/2-ingles/0010-2024.pdf

external shocks, the act produced a substantial and sustained spike in adoption through 2026, with installation rates increasing by 50% during portions of this period.

6b. LUMA hereby clarifies that the current estimate of distributed solar PV installations for 2026 through 2028 is based on the updated forecasting methodology described in Joseline Estrada Rivera's rate-review testimony, which uses installed capacity data through February 2025 and a Gompertz Growth Model to reflect the non-linear pattern of PV adoption.

Under this model, and assuming stable macroeconomic and policy conditions, the forecast projects that Puerto Rico will reach approximately 1.9 MW of distributed solar PV by June 2028.

Because the model does not explicitly incorporate external shocks such as the December 2024 and April 2025 generation shortfalls, increase in concessional funding, or other factors that can sharply accelerate customer adoption, actual installations in 2026–2028 may exceed the forecast during periods when reliability concerns drive faster-than-trend uptake.

These projections assume that current Net Energy Metering (NEM) rules remain in place. NEM is a primary policy driver of customer economics and therefore accounts for a substantial share of baseline installations. Reliability concerns are also a major structural driver of customer adoption, as persistent service-quality issues create strong incentives for customers to install distributed solar PV. Event-driven shocks, such as acute generation shortfalls, are treated separately as temporary accelerators that can push installations above the modeled baseline but are not incorporated into the core Gompertz-based forecast.

The data has been included in Table 2 below:

**Table 2: DPV 2026- 2040 Projections**

| Year | New Clients | %Change | Cumulative Systems | New AC MW | Cumulative AC MW |
|---|---|---|---|---|---|
| **2026** | 42,314 | Base | 233,698 | 370 | 1,770.25 |
| **2027** | 35,400 | -16.34% | 269,098 | 248 | 2,018.05 |
| **2028** | 31,683 | -10.50% | 300,781 | 222 | 2,239.83 |
| **2029** | 24,876 | -21.48% | 325,657 | 174 | 2,413.96 |
| **2030** | 22,645 | -8.97% | 348,302 | 159 | 2,572.48 |
| **2031** | 17,316 | -23.53% | 365,618 | 121 | 2,693.69 |
| **2032** | 11,462 | -33.81% | 377,080 | 80 | 2,773.92 |
| **2033** | 4,200 | -63.36% | 381,280 | 29 | 2,803.32 |
| **2034** | 2,673 | -36.36% | 383,953 | 19 | 2,822.03 |
| **2035** | 2,487 | -6.96% | 386,440 | 17 | 2,839.44 |
| **2036** | 2,465 | -0.88% | 388,905 | 17 | 2,856.70 |
| **2037** | 2,447 | -0.73% | 391,352 | 17 | 2,873.83 |
| **2038** | 1,120 | -54.23% | 392,472 | 8 | 2,881.67 |
| **2039** | 1,106 | -1.25% | 393,578 | 8 | 2,889.41 |
| **2040** | 1,102 | -0.36% | 394,680 | 8 | 2,897.12 |

6c. LUMA hereby confirms that an increase in the forecasted distributed solar PV over the next five years would reduce the energy dispatched from thermal resources during daylight hours. However, LUMA does not expect an increase in the forecasted distributed solar PV over the next five years to modify the recommended resource additions and retirements reflected in the PRP, nor change LUMA's choice of the PRP, given expected capacity needs.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-007a-007b

### SUBJECT

Reference: slide 56, Fuel Transition and cost of biodiesel.

### REQUEST

7a. Provide the explicit costs ($/kW, and total cost) of biodiesel conversion used in the PLEXOS model for any existing resource for which a conversion cost is included.

7b. Confirm or explain otherwise that all new biodiesel resources or conversion of new gas resources are modeled with a zero-capital cost for conversion.

### RESPONSE

7a. LUMA hereby provides the explicit costs ($/kW and total cost) of biodiesel conversion used in the PLEXOS® model for any existing resource for which a conversion cost is included. The cost estimate for converting existing units from their existing fuel to biodiesel is provided in Table 3 below:

**Table 3: Biodiesel Conversion Cost Estimates**

| Unit | Capacity (MW) | Conversion Cost ($/kW) | Total Conversion Cost ($M) |
|---|---|---|---|
| CAMBALACHE CT_2 | 78 | 70 | 5.46 |
| CAMBALACHE CT_3 | 78 | 70 | 5.46 |
| FEMA PS Gen 4 #1 | 20 | 70 | 1.40 |
| FEMA PS Gen 4 #2 | 20 | 70 | 1.40 |
| FEMA PS Gen 6 #1 | 25 | 70 | 1.75 |
| FEMA PS Gen 8 #1 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #1 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #10 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #2 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #3 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #4 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #5 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #6 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #7 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #8 | 25 | 70 | 1.75 |
| FEMA SJ Gen+ 6 #9 | 25 | 70 | 1.75 |

| Unit | Capacity (MW) | Conversion Cost ($/kW) | Total Conversion Cost ($M) |
|---|---|---|---|
| MAYAGUEZ GT 1 | 50 | 70 | 3.50 |
| MAYAGUEZ GT 2 | 50 | 70 | 3.50 |
| MAYAGUEZ GT 3 | 25 | 70 | 1.75 |
| MAYAGUEZ GT 4 | 25 | 70 | 1.75 |
| SAN JUAN 460MW CC | 478 | 140 | 66.92 |
| SAN JUAN 5 CC | 210 | 140 | 29.40 |
| SAN JUAN 6 CC | 210 | 140 | 29.40 |

7b. LUMA confirms that all new LNG resources are assumed to have zero capital cost for conversion, as they are assumed to be procured and installed with dual fuel capability.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-008a-008b

### SUBJECT

Reference: slides 69 and 70, Issues with Modeling Results

### REQUEST

8a. For issue number 2 (slide 69) and issues number 3 and 4 (slide 70) provide documentation of the actual FOM and VOM component cost effects, and the resulting PVRR cost effects.

8b. For issue number 1 (slide 69) state what the level (MWh, and $) of incorrect generation and costs are for the months prior to the intended operation date.

### RESPONSE

8a. LUMA hereby clarifies that regarding issue Two (2), described on slide 69 of the Revised Technical Hearing Presentation filed on March 27, 2026, three generic expansion units which were converted to biodiesel did not include the intended FOM input assumptions which served to lower the FOM costs for the converted units. The FOM issue did not impact any other units and was limited to those generic units. To determine the component cost effects or net PVRR impact of this issue, LUMA would need to perform a series of runs designed to isolate the FOM issue alone using the same base runs that include the other issues identified in this request. LUMA is unable to isolate the total cost or PVRR impact resulting from the issue with the FOM costs for the three units converted to biodiesel.

Regarding issue Three (3), described on slide 70 of the Revised Technical Hearing Presentation filed on March 27, 2026,[24] LUMA's estimate of the cost and PVRR impacts of the VOM and FOM duplicate-counting item that was included for the Tranche projects is provided in Attachment: Third RFI Q8a.xlsx on tab "8a-issue 3."

Regarding issue Four (4), described on slide 70 of the Revised Technical Hearing Presentation filed on March 27, 2026,[25] outdated build cost estimates for the Energiza plant were inadvertently retained in the Scenario 14 summary spreadsheet, which is used to calculate the PVRR. LUMA observed and confirmed with some tests, and in consultation with Energy Exemplar, the PLEXOS® vendor, that PLEXOS® ignores build costs for units with fixed installation dates. LUMA created a workaround to this PLEXOS® limitation that incorporated the build costs for units with fixed installation dates, such as the Energiza unit, in the summary spreadsheet. While Scenario 14 was designed to exclude Energiza and all its costs, the spreadsheet used to calculate PVRR inadvertently retained the outdated

[24] LUMA Energy, supra note 5.
[25] LUMA Energy, supra note 5

Energiza build cost estimates. The cost and PVRR impacts of this data input error are provided in Attachment: Third RFI Q8a.xlsx on tab “8a-issue 4.”

8b. LUMA hereby clarifies that regarding issue One (1), described on slide 69 of the Revised Technical Hearing Presentation filed on March 27, 2026,[26] the Energiza unit had an estimated commercial operation date (COD) of June 2028; however, due to a PLEXOS® bug, it began operating the unit in January 2028. The new thermal peaking units had an estimated COD of July 2027; however, due to a PLEXOS® bug, they began operating in January 2027. The energy and costs associated with the Energiza and new Peaking units being installed by PLEXOS® prior to the intended commercial operation data is provided in Attachment: LUMA RFI_Q8b.xlsx.

[26] LUMA Energy, supra note 5

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-009a-009b

### SUBJECT

Reference: transmission system modeling, slide 72, “peak solar” and “peak demand” cases.

### REQUEST

9.a For the “peak solar” PSSE modeling case for each of 2026 and 2034, provide in an Excel file the assumed generation and battery energy storage dispatch levels (MW) by unit, and the total MW load and MW loss levels represented in the modeling. Provide any further explanation or reference to the Transmission Studies report as needed concerning the generation or battery energy storage resource configurations used.

9b. For the “peak demand” PSSE modeling case for each of 2026 and 2034, provide in an Excel file the assumed generation and battery energy storage dispatch levels (MW) by unit, and the total MW load and MW loss levels represented in the modeling. Provide any further explanation or reference to the Transmission Studies report as needed concerning the generation or battery energy storage resource configurations used.

### RESPONSE

9a. LUMA hereby provides the dispatch levels by unit in MWs, and the total MW load and MW loss levels associated with the PSS®E peak solar cases for 2026 to 2034 in Attachment: 3RFI_Q9a_IRP_PS_2026_Generator Info.xlsx and 3RFI_Q9a_IRP_PS_2034_Generator Info.xlsx. The modeling approach for the PSS®E analysis was to use the detailed PLEXOS® solution as an input to PSS®E. The load and generation dispatch used in PSS®E came from the PLEXOS® solution for the corresponding hours.

9b. LUMA hereby confirms that the dispatch levels by unit in MWs, and the total MW load and MW loss levels associated with the PSS®E peak demand cases for 2026 to 2034 are provided by LUMA in Attachment: 3RFI_Q9b_2026_HNL_Gen Summary.xlsx and 3RFI_Q9b_2034_HNL_Gen Summary.xlsx, provided by LUMA. The modeling approach for the PSS®E analysis was to use the detailed PLEXOS® solution as an input to PSS®E. The load and generation dispatch used in PSS®E came from the PLEXOS® solution for the corresponding hours.

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-010a-010b

### SUBJECT

Reference: slide 58 of the Initial Technical Hearing presentation, Planning Reserve Margin. Table 51 at page 176 of the IRP contains the Planning Reserve Margin ("PRM") for the PRP scenario. "Capacity Chart" tab of the "solution spreadsheet" workpaper files.

### REQUEST

10a. Provide an Excel file (or indicate where in the filing or the workpapers the table is located) with the equivalent table of total capacity, total dispatchable capacity for peak load, system peak load, and planning reserve margin for each of the other scenarios modeled, including core and supplemental scenarios.

10b. Provide a direct comparison of the annual planning reserve margin and the associated dispatchable capacity for the PRP and Scenario 12. Explain why the higher levels of dispatchable capacity seen in scenario 12 (relative to the PRP) are required.

### RESPONSE

10a. LUMA hereby provides the equivalent table of total capacity, total dispatchable capacity for peak load, system peak load, and planning reserve margin for each of the other scenarios modeled, including core and supplemental scenarios in Attachment: RFI-LUMA-AP-2023.0004-20260401-PREB-010.

10b. LUMA hereby confirms that the direct comparison of the annual planning reserve margin and the associated dispatchable capacity for the PRP and Scenario 12 is provided in Attachment RFI-LUMA-AP-2023.0004-20260401-PREB-010 on tab "Compare PRP vs SC12." The 2025 IRP does not use reserve margin to determine the required capacity, since LUMA found the planning reserve margin was not an effective planning indicator to address loss of load probability and EUE performance since it only looks at a single hour in the year. For the 2025 IRP, the PLEXOS® algorithms determined the capacity additions and retirements in each scenario that were needed to address the combined needs of the customer loads, operating reserves, renewable portfolios standard targets, and EUE results in each hour of the 20 years of the 2025 IRP, given the constraints of the FOR performance, planned maintenance needs, transmission limitations and other constraints.

# 2025 INTEGRATED RESOURCE PLAN

# Attachment A
# NEPR-AP-2023-0004

## Response: RFI-LUMA-AP-2023.0004-2026.04.01-PREB-011

### SUBJECT

Reference: hourly marginal energy cost, all years, for the PRP scenario.

### REQUEST

11a. Provide an Excel file with the hourly marginal energy cost in Puerto Rico that results from the PLEXOS ST modeling for all years, all hours for the PRP scenario. If the TPA zones "split", provide the hourly marginal energy cost by zone.

### RESPONSE

11a. LUMA hereby provides an Excel file with the hourly marginal energy cost in Puerto Rico that results from the PLEXOS® ST modeling for all years, all hours for the PRP scenario in Attachment: CONFIDENTIAL_RFI-LUMA-AP-2023.0004-20260401-PREB-011.