

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

IN RE: REVIEW OF THE PUERTO RICO
ELECTRIC POWER AUTHORITY
INTEGRATED RESOURCE PLAN

CASE NO.: NEPR-AP-2023-0004

SUBJECT: Requests of Information to LUMA
for IRP Completeness.

RESOLUTION AND ORDER

The Energy Bureau of the Puerto Rico Public Service Regulatory Board (“Energy Bureau”) has commenced review of LUMA’s¹ October 17, 2025 Integrated Resource Plan (“IRP”) filing for completeness in alignment with the sections of Regulation 9021².

Attachment A to this Resolution and Order contains Requests of Information (“ROIs”) to LUMA. This is the first set of ROIs issued to LUMA since its October 17, 2025 IRP filing. These ROIs address IRP completeness: 1) a need for LUMA to provide further clarity concerning certain elements of the IRP; and 2) for LUMA to provide further explanation and workpapers in support of the material filed.

LUMA is **ORDERED** to respond to the attached questions within fifteen (15) business days of the notice of this Resolution and Order.


The Energy Bureau **WARNS** LUMA that, in accordance with Article 6.36 of Act 57-2014:

- i. Noncompliance with this Resolution and Order, applicable regulations, or laws may carry the imposition of fines and administrative sanctions of up to one hundred twenty-five thousand dollars (\$125,000) per day; and
- ii. In the event of recurrent violations or continued non-compliance, the penalty shall increase to no less than fifteen thousand dollars (\$15,000) and up to two hundred fifty thousand dollars (\$250,000) per violation, at the discretion of the Energy Bureau.

Be it notified and published.



Edison Avilés Deliz
Chairman



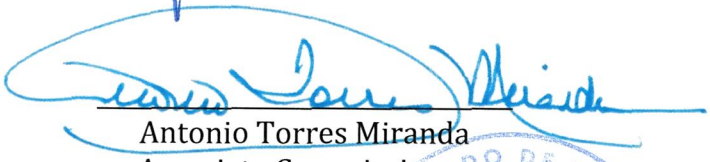
Lillian Mateo Santos
Associate Commissioner



Ferdinand A. Ramos Soegaard
Associate Commissioner



Sylvia B. Ugarte Araujo
Associate Commissioner



Antonio Torres Miranda
Associate Commissioner

¹ LUMA Energy, LLC and LUMA Energy ServCo, LLC (jointly referred as “LUMA”).

² Regulation on Integrated Resource Plan for the Puerto Rico Electric Power Authority, Regulation 9021, April 24, 2018 (“Regulation 9021”).



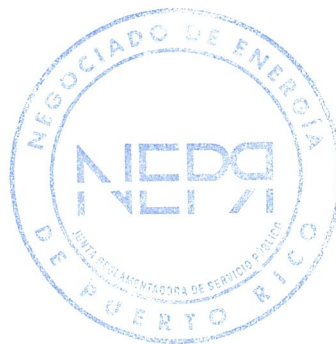
CERTIFICATION

I certify that the majority of the members of the Puerto Rico Energy Bureau has so agreed on December 3, 2025. I also certify that on December 3, 2025 I have proceeded with the filing of the Resolution and Order issued by the Puerto Rico Energy Bureau and a copy was notified by electronic mail to RegulatoryPREBOrders@lumapr.com; nzayas@gmlex.net; rcruzfranqui@gmlex.net; mvalle@gmlex.net; alexis.rivera@prepa.pr.gov; nzayas@gmlex.net; margarita.mercado@us.dlapiper.com; Yahaira.delarosa@us.dlapiper.com; lrn@roman-negron.com; regulatory@genera-pr.com

I sign this in San Juan, Puerto Rico, on December 3, 2025.



Sonia M. Seda Gaztambide
Clerk



Attachment A – Requests of Information to LUMA – 2025 IRP Completeness

Note: All responses to requests for quantitative information below must be provided as Excel format files with formulas intact.

1. Reference: Confidential Final Input Assumptions Parameters and Costs 10_03-2025 Excel file, Section 7; and PLEXOS results files, Section 8, with battery cost information on "Battery LT" tab.
 - a. Currently, the trajectories of utility-scale BESS resources are identical on tabs "BuildCost High Cost" and "BuildCost Low Cost" in the Confidential Final Input Assumptions Parameters and Costs 10_03-2025 file. Confirm whether the BESS costs on the BuildCost Low-Cost tab are incorrect in the Inputs and Assumptions file.
 - b. If confirmed, provide a revised Inputs and Assumptions file segment with the corrected low-cost BESS trajectory.
 - c. If not confirmed, explain why not.
 - d. Provide an explanation of how LUMA developed its low- cost BESS forecast, including any sources used.

2. Reference: IRP Report Section 7.1.2
 - a. LUMA states that its unit fuel cost forecast for 2025 through 2028 was based on Henry Hub futures from December 2023 to January 2024. Please explain why LUMA did not update its fuel price forecast to reflect more recent Henry Hub market data that was available prior to filing the October 2025 IRP.
 - b. Please state whether LUMA conducted any review or evaluation of more current natural gas price information during preparation of the IRP, and if so, provide that information. If not, explain why not.
 - c. Please quantify the expected impact on the fuel price forecast had LUMA updated its forecast using more recently published Henry Hub data from late 2024 or 2025.

3. Reference: Consolidated Workpapers List - October 17, 2025, IRP Filing.xlsx: and LUMA Filed IRP - October 2025\LUMA files\Exh 2 Workpapers\05. Section 8 CONF\CONF PLEXOS Model. LUMA has not provided a sufficiently detailed "legend" to guide review of the workpapers.
 - a. Provide an updated version of the "Consolidated Workpapers List" file or similar file that lists and explains the contents of the additional files contained within the "CONFIDENTIAL PLEXOS Model" subfolder. This should include files within both the "CSV files" and "GJW workfolder" subfolders. If the number of files is too numerous to list each one individually, LUMA may explain the files in groups for those that are similar.
 - b. For the files within the "CSV files" subfolder of the "CONFIDENTIAL PLEXOS Model" folder, provide a detailed description of how the filename relates to the specific PLEXOS iteration and how those files map to the "multi-step iterative PLEXOS modeling process " as depicted in Figure 73 of the IRP filing.
 - c. Please identify, for the files contained within the "CSV files" subfolder of the "CONFIDENTIAL PLEXOS Model" folder that correspond to specific scenario runs and share the same naming convention, which files represent the final versions. For example, indicate whether "LUMA 0930 Sc12 Hourly USE.xlsx" is the final version as compared to "LUMA 0917 Sc12 Hourly USE.xlsx".

- d. In workpapers like "LUMA 0102 Sc2ST Rn1b Hourly USE.csv" and similar, please explain the values provided, state what units the numbers are in, and whether columns B through I should be summed in order to get a system-wide result.
4. Reference: IRP Report Sections 8.2.5-8.2.6 (Outage and LOLE Modeling), including ST Module model run results on an hourly basis.
 - a. Provide the foundational results for all scenarios or state the specific source / filename reference in the workpapers that contain these results if already submitted. These results should show at minimum the hourly detail of forced outages and planned maintenance by unit.
 - b. For each year of the planning horizon (2025 through 2044) provide the hourly ST and annual LT dispatch results for each iterative step for Scenario 1, the PRP, and Scenario 12, or state the specific source / filename reference in the workpapers that contain these results if already submitted. These hourly results should show at minimum the hourly detail of forced outages and planned maintenance by unit, as well as the unserved energy in each hour and the capacity builds and retirements per year.
 - c. Provide the final hourly Gen ST, Battery ST, and Region ST results for Scenario 1, the PRP; and Scenario 12, or state the specific source / filename reference in the workpapers that contain these results if already submitted.
 - d. Confirm, or explain otherwise that the final ST hourly run results provide the same energy generation results seen in aggregate on an annual basis in summary PLEXOS files provided in the Exhibit 2 folder "Confidential PLEXOS Solution spreadsheets".
 5. Reference: IRP filing pages 244-250, EUE, planned and forced outages, LOLE modeling in Plexos.
 - a. Ref. page 248, "Further, by holding outages constant, there should be no variation in results, for example across scenarios, due to changes in generator outages". Confirm or explain otherwise that all forced outage result patterns and quantities are reflected in the same way across all scenarios.
 - b. Refer to page 175 of the IRP report where LUMA states that it developed its EUE targets to align with a timeframe that was "judged by LUMA to be sufficient for Genera to implement any planned improvements to existing generation units that would improve their reliability to sufficiently improve the forced outage rates and delay or eliminate future unit additions or retirements." Explain whether LUMA used the static forced outage rate assumptions from Table 45 for the whole study period or whether LUMA adjusted the forced outage percentages for any of the legacy units across the years in which they are included as available to the model to reflect ongoing capital and O&M investment in those units by Genera to improve their performance.
 - i. If LUMA did change the forced outage rates, please provide the forecast.
 - ii. If LUMA did not update its outage rate forecast, please explain how this approach is consistent with the adjustments made to the EUE targets. Specifically, given that the EUE targets were lowered based on the assumption that Genera's planned capital and O&M investments would reduce forced outage rates, explain how maintaining a static outage rate does not conflict with the expectation that unit performance would improve over time.

6. Reference: PLEXOS Solution Spreadsheets, including "CONFIDENTIAL_25.10.03 IRP Summary Results_Sc1_HYBRID A - PRP.xlsm"
 - a. Explain why the forced outage rate in column BA of both the Gen LT and Gen ST tabs frequently shows up as 0% for legacy plants with non-zero forced outage rate assumptions.
 - b. State where to view actual annual forced outage rates by unit in the output files provided by LUMA.

7. Reference: Resource Plan Hybrid A
 - a. Clearly state the differences in assumptions between the scenarios that resulted in Core A, Core H, and Hybrid A.
 - b. On page 31 of the IRP, LUMA states that it further investigated both Resource Plans A and H. Please summarize the investigation and findings.
 - c. Explain how changing the assumptions of Scenario 1 resulted in a lower cost portfolio for Hybrid A than Core A.
 - d. State whether changing the assumptions of Scenario 12 resulted in a lower cost portfolio for Hybrid H than Core H.

8. Reference: PLEXOS Solution Spreadsheets, including "CONFIDENTIAL_25.10.03 IRP Summary Results_Sc1_HYBRID A - PRP.xlsm, Tab "Battery ST". The annual capacity factors (between 2026 and the end of the modeling horizon) of the aggregate of Tranche 1, Tranche 2, Tranche 4, and new Genera Battery units on the "Battery ST" tab for the Scenario 1 Hybrid A PRP scenario in all but the last few years of the planning horizon are on the order of 5-6% (based on the "Generation MWh" field).
 - a. This aggregate value is much less than the roughly 15-16% available maximum capacity factor for 4-hour battery resources. Confirm that the capacity factor for these aggregate battery resources as listed in the Battery ST tab is less than the maximum capability of the resource.
 - b. Does the PLEXOS model in ST module mode use these battery energy storage resources as part of its dispatch to reduce the incidence of Expected Unserved Energy (EUE) in the region between 2026 and the mid-2030s? As necessary, explain and discuss.
 - c. If the dispatch solution in the ST module does use these resources to reduce EUE, why doesn't the model use the BESS at greater average annual capacity factors to further reduce the EUE in these years? If the dispatch solution in the ST module does not use these resources to reduce EUE, why not? Discuss and explain.
 - d. If not already provided in response to question 4 c) above, provide the hourly ST file that contains the dispatch results illustrating how these battery resources were utilized and their contribution to reducing EUE.