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

IN RE: GENERA PR LLC FUEL OPTIMIZATION PLAN	**CASE NO.:** NEPR-MI-2023-0004 **SUBJECT:** Motion to Submit Second Set of Responses to Request for Information in Compliance with Resolution and Order Dated April 15, 2024

MOTION TO SUBMIT SECOND SET OF RESPONSES TO REQUEST FOR INFORMATION IN COMPLIANCE WITH RESOLUTION AND ORDER DATED APRIL 15, 2024

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COMES NOW GENERA PR LLC ("Genera"), as agent of the Puerto Rico Electric Power Authority ("PREPA"),[1] through its counsels of record, and respectfully submits and prays as follows:

1. On February 21, 2024, Genera filed a document titled *Motion Submitting Revision to the Fuel Optimization Plan in Compliance with Resolution and Order Dated January 10, 2024* ("February 21st Motion"). In the February 21st Motion, Genera included as Exhibit A a revised Fuel Optimization Plan, and as Exhibit B, the letter from the P3 Authority dated February 16, 2024, which purportedly approved the January 10th Motion Fuel Optimization Plan, subject to several comments listed therein ("P3 Authority Letter").

2. Additionally, on February 21, 2024, Genera presented before the Energy Bureau a document regarding a *Request for Leave to Operate Palo Seco MP and Mayagüez CT with Natural*

[1] Pursuant to the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("LGA OMA"), dated January 24, 2023, executed by and among PREPA, Genera, and the Puerto Rico Public-Private Partnerships Authority ("P3 Authority"), Genera is the sole operator and administrator of the Legacy Generation Assets (as defined in the LGA OMA) and the sole entity authorized to represent PREPA before the Energy Bureau with respect to any matter related to the performance of any of the O&M Services provided by Genera under the LGA OMA.

Gas as the Primary Fuel ("February 21st Fuel Swap Request"). Through the February 21st Fuel Swap Request, Genera sought authorization from the Energy Bureau to operate the Mayagüez CT (combustion turbines) and Palo Seco's MP (mobile pack) units using natural gas as fuel.

3. On April 15, 2024, the Energy Bureau issued a Resolution and Order titled *Requirement of Information, Technical Conference, and Solicitation of Stakeholder Comments Including Evaluation of Fuel Change for Mayagüez Combustion Turbines and Palo Seco Mobile Packs* ("April 15th Resolution"). Pertinent to this motion, and in light of Genera's revised Fuel Optimization Plan submitted with the February 21st Motion, the Energy Bureau ordered Genera to respond, on or before May 10, 2024, no later than 12:00 PM, to the Requirements of Information ("ROI") in Attachment A and Attachment B to the April 15th Resolution.

4. On April 24, 2024, Genera filed before the Energy Bureau a motion titled *Motion to Submit First Set of Responses to Request for Information in Compliance with Resolution and Order Dated April 15, 2024* through with Genera submitted its responses to the ROI outlined in Attachment A of the April 15th Resolution, which addresses the detailed aspects of Genera's Fuel Optimization Plan Initiatives, including clarification on cost management, implementation specifics, and regulatory compliance. Additionally, in the April 24th Motion, Genera indicated to the Energy Bureau that it would be submitting the responses to the ROI in Attachment B of the April 15th Resolution in accordance with the orders stated in the April 15th Resolution.

5. In accordance with the April 15th Resolution and April 24th Motion, Genera hereby submits its responses to the ROI outlined in Attachment B of the April 15th Resolution, which addresses the comprehensive evaluation of a proposed LNG fuel swap at the Palo Seco and Mayagüez facilities, focusing on logistics, cost implications, operational capacities, regulatory

constraints, and the potential impacts on system dispatch, maintenance demands, and the feasibility of alternative fuel options.

WHEREFORE, Genera respectfully requests that the Energy Bureau **take notice** of the above for all purposes and **deem** Genera to be in compliance with the April 15th Resolution as it pertains to the submittal of responses to Attachment A & Attachment B of the April 15th Resolution.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 30th day of April 2024.

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CERTIFICATE OF SERVICE

We hereby certify that a true and accurate copy of this motion was filed with the Office of the Clerk of the Energy Bureau using its Electronic Filing System.

In San Juan, Puerto Rico, this 30th day of April 2024

/s/ Alejandro López Rodríguez
Alejandro López Rodríguez

Exhibit A

Response to Requirement of Information
Specified in Attachment B of the April 15th Resolution.

Docket Number: NEPR-MI-2023-0004
In Re: Genera PR LLC, Fuel Optimization Plan
Re: Requirement of Information, Technical Conference, and Solicitation of Stakeholder Comments Including Evaluation of Fuel Change for Mayagüez Combustion Turbines and Palo Seco Mobile Packs

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Attachment B

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #1

1. Describe the logistics for delivery of LNG to, and storage of LNG at Palo Seco and Mayagüez.

Response:

LNG will be delivered via 9-10,000 gals refrigerated ISO tanks (trucks). At the regasification unit on each site, LNG is transferred to a buffer tank prior to being gasified into natural gas. The buffer tanks at Palo Seco and Mayagüez have a capacity of 15,000 and 90,000 gallons, respectively.

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2. What ongoing costs would LNG storage at Palo Seco or Mayagüez incur? How do those costs compare to the marginal cost of storing ULSD at the same facilities?

Response:

LNG will not be stored in either Palo Seco or Mayagüez. The relatively small amount to be held in the buffer tanks required for the proper operation of the regasification unit will have no costs.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #3

3. What are the limits of on-site storage of ULSD and LNG for the Palo Seco Mobile Packs and for the Mayagüez CTs?

Respond in both physical units and in the estimated numbers of MWh of electricity that can be generated by the fuel stored on-site.

Response:

For LNG, see response to RFI#1 and 2 above.

For ULSD, the total operational storage capacity in Mayagüez is 92,000 barrels, enough to generate approximately 52,000MWh.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #4

4. Does Genera assume that the Palo Seco Mobile Packs and for the Mayagüez CTs would operate at the limit of their allowed annual production (e.g. capacity factor of roughly 33 percent) after swapping to LNG? If so, why is this a reasonable assumption? If not, what capacity factor does Genera assume the plants would operate at?

Response:

Regarding allowed annual fuel consumption, yes, the units at both sites will operate at the limits set forth by their respective permits after swapping to LNG. We expect that the capacity factor will increase after the fuel swap.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #5

5. Provide any analysis Genera has conducted (or has in its possession) regarding the impact of the proposed LNG fuel swap on system dispatch.

a. If these CTs run at a higher capacity factor than they do which generator(s) would run less, and by how much?

Response:

Genera is responsible for managing the Legacy Generation Assets. The T&D System Operator is responsible for making official dispatch analyses according to their contract. However, Genera understands that dispatch decisions are made with economic considerations in mind. Therefore, once Mayagüez CT and Palo Seco MP units start using natural gas as their primary fuel, they will be dispatched more frequently than they currently are. They will also take priority over other units that use more expensive fuels, such as ULSD and HFO. It's worth noting that environmental permitting limitations also constrain dispatch decisions. Since these units are permitted with Non-PSD, their dispatch is limited, and they are commonly referred to as "peakers." As such, their main purpose is to reduce fuel consumption costs during peak-load management operations if LUMA decides that this is the appropriate dispatch method.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #6

6. Would operating the Palo Seco Mobile Packs and the Mayagüez CTs at their maximum allowed capacity factor limit the ability of these units to provide flexible service to the electric system? Explain.

Response:

No. The flexibility is related to the "size" of the unit and the technology, not the allowed running time.

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7. Identify the specific outdated or damaged components that have become obsolete, and that Genera proposes to replace at the Palo Seco Mobile Packs and at the Mayagüez CTs.

a. Identify the funding source Genera proposes to use to replace each of these components.

b. Provide the schedule for replacing each identified component if the fuel swap is not approved.

c. Provide the schedule for replacing each identified component if the fuel swap is approved.

d. Specify which of the outdated or damaged components must be replaced for these plants to operate on LNG, and which must be replaced for these plants to operate on ULSD.

Response:

Following provisions of the GOMA, Genera or its Affiliate will purchase and install these components without using the Operating Budget. Thus, customers will not be charged for replacing these components. The components listed above are to have the unit capable of operating with two fuels (natural gas and ULSD) and not for the unit to continue operating with a single fuel like it currently is. Thus, the components listed will be replaced only if leave to operate with natural gas is granted. The components and schedule are included in the table provided below.

Mayaguez NG Supply to (4) FT8 SP Units			
Description	UOM	Qty	LT/TAT
SOV1101/1102 Shut Off Valves Overhaul	Each	16	8 weeks
Liquid Fuel Clutch Assembly	Each	10	12 weeks
EM Digital Driver	Each	2	12 weeks
Gas Fuel Hoses (Halo Ring Manifold)	Each	72	4-6 weeks
Gas Fuel Fuel Plate Header Flex Hose	Each	4	4-6 weeks
FV1101 (Fire Safety Valve)	Each	4	4-6 weeks
Vent SOV's	Each	8	1 week
FCV1101 (Fuel Control Valve)	Each	8	8 weeks
CV1101 (Check Valve)	Each	8	4-6 weeks
PDSH1101 (Differential Pressure Switch Assembly)	Each	4	1 week

Palo Seco NG Supply to (3) FT8 MP Units			
DVP (Digital Valve Positioner)	Each	3	

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8. What are the fire hours for service for each CT, in LNG operation and in ULSD operation?

Response:

The Mayagüez CTs do not currently operate in LNG. On ULSD, they can operate a total of 8.11 hours per day per turbine as per the limit set forth in the Air construction PFE-70-0120-0010-II-C.

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9. If each facility has both LNG and ULSD on site and is approved and capable of burning either fuel, what is the timeframe and process for switching between fuels used?

a. If in the future, ULSD were less expensive than LNG, what if any work is required to switch back to ULSD as primary fuel?

Response:

Assuming both fuels are readily available, units typically switch between liquid and gas fuel within minutes. Operationally speaking, for stability purposes, the unit load is reduced, then the unit breaker is open, fuel is transitioned while turned on, and then the unit breaker is closed and set to take on load again.

The units will be dual-fuel capable, and with the replacement of components that Genera or Affiliate will make, these units will be enabled to do a live fuel transition. The main part or component that allows this Transition of fuel is the liquid fuel clutch assembly. Thus, the units can adapt to changing fuel availability or pricing.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #10

10. On page 14 of the February 21 Fuel Swap Request, Genera states that "renewable and battery storage systems alone do not provide the same services as baseload units that will be retired after integrating utility-scale renewable energy projects. Therefore, systems that supply the necessary service must be integrated with renewable generation."

a. Identify the specific services being referred to here.

b. Do the Palo Seco Mobile Packs and the Mayagüez CTs provide these services? Explain.

c. Is it necessary for these CTs to run on LNG in order to provide these services? Explain.

Response:

The services are frequency regulation, voltage control, inertia capacity, short-circuit capacity, and fast spinning reserve. Small turbines like the Mayagüez CT and the Palo Seco Mobile Packs can provide these services to the grid. These units will continue to provide generation to the system during the transition to achieve RPS goals, and it is envisioned that in the future, they will remain part of the transformed system as part of Genera's grid support centers.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #11

11. Are the Palo Seco Mobile Packs and the Mayagüez CTs capable of operating using propane fuel (or would they be so capable after the components are replaced that would enable LNG operation)?

a. If so, describe the economics and feasibility of running these units on propane and compare them with LNG.

Response:

The units' performance specifications made available for these units are for natural gas and diesel fuel only. The use of propane fuel is not typical on combustion turbines and is still being studied and developed by the manufacturer.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #12

12. Would reducing ULSD deliveries to Palo Seco and Mayagüez affect the cost of ULSD or other fuels delivered to other PREPA's generation facilities?

Response:

No.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #13

13. Would beginning LNG deliveries to Palo Seco and Mayagüez affect the cost of LNG or other fuels delivered to other PREPA's generation facilities?

Response:

No.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #14

14. Does the permit limit to Mayagüez CT operation of 1,984 gallons per hour apply to each of the four units independently, or to the set of four units combined?

Response:

This is a limit per turbine (1,984 gal/hr/turbine). 4 units total (8 turbines). Two turbines per unit.

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15. Will the initiatives described in the February 21 Fuel Swap Request lead to increased ongoing maintenance and disruptions? Explain.

Response:

Combustion turbines are designed to operate primarily on natural gas, as it's a cleaner fuel compared to diesel. Maintenance intervals are expected to provide more operating time between maintenance sessions, thus reducing service disruptions and costs.

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16. Provide a verified version of Table 5 of the February 21 Fuel Swap Request, and of the Mayagüez spreadsheet, that confirms the units of each row and the number of units (e.g. 3, 4, or 8 units).

Response:

The data in Table 5 is verified. Each row is per unit. A table with native formulas was submitted with the February 21 Fuel Swap Request and is available in the Energy Bureau's site. (See 20240221-MI20230004-Annex-B-Mayaguez-Fuel-Swap-Savings-Model.xlsx (live.com))

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #17

17. When Genera in the February 21 Fuel Swap Request refers to fuel price, does this price include all applicable taxes and any other related costs?

Response:

Yes, it does include all applicable taxes and transportation costs. Nevertheless, it is our understanding that LUMA adds additional costs during the FCA reconciliation process.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #18

18. Are there limits (operational or contractual) in the amounts of LNG that can be received in the ports of the island?

How does this/ese limit(s) compare to the current LNG imports and the estimated imports after the fuel swaps for Palo Seco MP and Mayagüez CT?

Response:

Genera does not operate any of the LNG import terminals in Puerto Rico, and we are not aware of any specific operational factor that may limit the importation of LNG to the Island. Contractually, the LNG requirements for Palo Seco and Mayagüez combined represent about 11% of the current LNG supply agreement. Therefore, no contractual limitation should apply.

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #19

19. Are there any other costs not included in the fuel price in the February 21 Fuel Swap Request related to the fuel being imported, transported, stored, and used what would/could change due to the fuel swaps for Palo Seco MP and Mayagüez CT?

Response:

No

GPR – PREB – NEPRMI20230004 – 20240415 – ATTB #20

20. Are there different insurance-related costs depending on the type of fuel stored? If so, detail those costs differences per fuel type.

Response:

The property insurance program allows the addition of assets valued up to 10% of the total value of all property insured. Adding the Mayagüez and Palo Seco assets under discussion should not impact premiums.