

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

NEPR Received: Apr 29, 2024 2:05 PM
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IN RE:

GENERA PR LLC FUEL OPTIMIZATION
PLAN

CASE NO.: NEPR-MI-2023-0004

SUBJECT: Compliance with Order and Request
to Clarify and Amend the Record Regarding the
Fuel Optimization Plan Submitted on February
21, 2024

**COMPLIANCE WITH ORDER AND REQUEST TO CLARIFY AND AMEND THE
RECORD REGARDING THE FUEL OPTIMIZATION PLAN SUBMITTED ON
FEBRUARY 21, 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:

I. Correction of Fuel Optimization Plan on Record for Evaluation

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 (“FOP”) for the approval of the Puerto Rico Energy Bureau of the Public Service Regulatory Board (“Energy Bureau”), and as Exhibit B, a letter from the P3 Authority dated February 16, 2024 (“P3 Authority February 16th Letter”). According to the P3 Authority

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.

February 16th Letter, the version of the FOP dated January 30, 2024 (“January 30th FOP”) was approved, subject to several comments listed therein.

2. The P3 Authority February 16th Letter not only confirmed approval but also included what was referred to as the approved FOP. However, the document that Genera received as an attachment to the P3 Authority February 16th Letter *was not* the latest version, the January 30th FOP, but rather an earlier version dated January 4, 2024 (“January 4th FOP”). As a result, Genera, unintentionally and due to a clerical oversight, relayed the outdated January 4th FOP to the Energy Bureau along with its February 21st Motion instead of the January 30th FOP that was approved pursuant to the P3 Authority February 16th Letter. *See* P3 Authority February 16th Letter submitted as Exhibit B of the February 21st Motion. The error was not immediately evident.

3. Upon recognizing the clerical error, Genera swiftly took measures to correct the mistake and initiated email exchanges with the P3 Authority to confirm that the January 30th FOP was indeed the correct and officially approved version. The P3 Authority confirmed in writing that the approved version was the January 30th FOP (as clearly stated in the P3 Authority February 16th Letter) and *not* the version attached to the email that transmitted the P3 Authority February 16th Letter.

4. The main difference between the January 4th FOP and the January 30th FOP is that the Fuel Efficiency Initiatives were removed. Genera is evaluating and presenting them in future revisions to the FOP and thus reserves the right to amend and submit the plan to the P3 Authority and the Energy Bureau for evaluation and approval.

II. Update of the January 30th FOP addressing the P3 Authority’s Comments

5. On April 15, 2024, the Energy Bureau entered a Resolution and Order with the subject: *Requirement of Information, Technical Conference, and Solicitation of Stakeholder*

Comments Including Evaluation of Fuel Change for Mayaguez Combustion Turbines and Palo Seco Mobile Packs (“April 15th Order”). The April 15th Order directed Genera, among other things, to address several comments included in the P3 Authority Letter, to amend the January 30th FOP to incorporate the comments, and to submit the updated version of the January 30th FOP to the Energy Bureau before May 6, 2024.

6. In furtherance of compliance with the above-stated directives, Genera updated the January 30th FOP to incorporate and address some of the comments in the P3 Authority Letter and proposed that the P3 Authority defer the final resolution of other issues to the Energy Bureau.

7. On April 22, 2024, Genera sent its proposed revisions of the January 30th FOP (“Amended January 30th FOP”) to the P3 Authority to align the FOP with the comments listed in the P3 Authority Letter. *See* letter from Genera to the P3 Authority with the subject: *Fuel Optimization Plan – Answers and Final Approval* (“April 22nd Letter”, attached as Exhibit A). Genera respectfully asserts that the revisions sent do not significantly alter the January 30th FOP.

8. Thereafter, on April 26, 2024, the P3 Authority sent Genera a letter with the subject: *Fuel Optimization Plan* (“P3 Authority April 26th Letter”, attached as Exhibit B). In the P3 Authority April 26th Letter, the P3 Authority approved the Amended January 30th FOP, subject to Genera making two changes (“Based on the previous discussion, P3A **APPROVES** the Revised FOP, subject to the modifications described in comments (1) and (3) above.”. *See* P3 Authority April 26th Letter, p.4). The remaining comments were considered resolved and, thus, are now closed.

9. Genera has revised the Amended January 30th FOP and incorporated the changes the P3 Authority requested in the P3 Authority April 26th Letter to address items 1 and 3. The latter is hereinafter referred to as the P3 Authority Approved FOP and is attached as Exhibit C. The redline version of the

Amended January 30th FOP against the January 4th FOP and the January 30th FOP is herein attached as Exhibit D.²

10. It must be noted that Exhibit A is the amendment made to the January 30th FOP, **not** the January 4th FOP, which, as informed in paragraph 2, was incorrectly relayed. Genera respectfully requests that, since the differences between the January 4th FOP and the P3 Authority Approved FOP are not substantive (as explained in paragraph 4 above), the Energy Bureau maintain all the deadlines set in the April 15th Order and that the procedural calendar, including, the Technical Conference, which is set to be held on May 23, 2024, is sustained.

WHEREFORE, Genera respectfully requests that the Energy Bureau **take notice** of the above for all purposes; **accept** Genera's submission of the Amended FOP; and maintain the current April 15th Order's procedural calendar unaltered.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 29th day of April 2024.

ECIJA SBGB
PO Box 363068
San Juan, Puerto Rico 00920
Tel. (787) 300.3200
Fax (787) 300.3208

/s/ Jorge Fernández-Reboredo
Jorge Fernández-Reboredo
jfr@sbglaw.com
TSPR 9,669

/s/ Alejandro López-Rodríguez
Alejandro López-Rodríguez
alopez@sbglaw.com
TSPR 22,996

² The P3 Authority Approved FOP no longer includes a Section VI, as the Fuel Efficiency Projects were removed. Thus, Fuel Change Initiative is now designated as Section VI, and the Asset Enhancement Initiative is the new Section VII.

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 29th day of April 2024

/s/ Alejandro López Rodríguez
Alejandro López Rodríguez

Exhibit A
April 22nd Letter

April 19, 2024

Transmittal Letter

Puerto Rico Public-Private Partnerships Authority
PO BOX 42001
San Juan, Puerto Rico 00940-2001
Attention: Executive Director – Fermín E. Fontanés Gómez
Telephone: (787) 722-2525 Ext. 15330
Email: Fermin.Fontanes@p3.pr.gov and Administrator@p3.pr.gov

Re: Fuel Optimization Plan – Answers and Final Approval

Dear Administrator:

We refer to the Operation and Maintenance Agreement (“OMA”) dated as of January 24, 2023, by and among the Puerto Rico Electric Power Authority (“Owner” or “PREPA”), the Puerto Rico Public-Private Partnership Authority (“Administrator” or “P3A”) and Genera PR LLC (“Operator” or “Genera”). Capitalized terms not defined in this letter shall have the meanings ascribed to them in the OMA.

Pursuant to the requirements of the OMA, on January 30, 2024, Genera sent for the Administrator review and approval a proposed Fuel Optimization Plan (“Jan 30 FOP”). On February 16, 2024, Administrator sent an approval letter of the Jan 30 FOP to Genera, subject to comments (the “February 16 Letter”).

On April 15, 2024, the Puerto Rico Energy Bureau of the Public Service Regulatory Board (“PREB”) issued an Order and Resolution (the “Order”) under docket number NEPR-MI-2023-0004, related to the Jan 30 FOP. The Order requires Genera to (1) resolve any ongoing discrepancies with the P3A regarding the Jan 30 FOP or as necessary; (2) amend the Jan 30 FOP to incorporate the relevant comments outlined in the P3A February 16 Letter; and (3) submit an updated version of the Jan 30 FOP to the PREB within ten (10) business days from the issuance of the Order. The Order also instructs Genera to file a public and updated version of the Jan 30 FOP, addressing the comments of the February 16 Letter with the final approval of the Administrator.

After careful consideration of the comments issued by the Administrator in the February 16 Letter, Genera has (1) identified sections of the Jan 30 FOP that address some of the comments; (2) made amendments to address the comments provided by Administrator; and (3) identified matters that require further evaluation by PREB for a final determination. The revised Jan 30 FOP (“Revised FOP”) is attached hereto as **Annex A**.

For ease of reference, we have included below a summary of the comments issued by the Administrator in the February 16 Letter together with Genera’s response.



April 19, 2024

Administrator Comment	Genera response
<p>(1) All incentives associated with the implementation of the Updated FOP must be calculated net of implementation costs, including system upgrade costs.</p>	<p>As stated in Section VII(7)(c) of the Jan 30 FOP, fuel savings will be calculated after all capital costs are recovered or accounted for. Additionally, Section VIII(8)(c) reiterates the same principle. Therefore, the Jan 30 FOP already considered payments to be net of implementation costs. To provide further clarity, we confirm that incentives will indeed be paid net of implementation costs for all initiatives.</p> <p>Genera respectfully requests Administrator to consider this comment as resolved.</p>
<p>(2) Any savings achieved by the implementation of initiatives financed by federal grants (including, without limitation, federal disaster and mitigation funding programs from FEMA) are not subject to incentive payments.</p>	<p>Genera respectfully disagrees with making this comment a blanket statement in the FOP at this time. We believe that a more nuanced, case-by-case evaluation approach is necessary to ensure accuracy and fairness. Therefore, Genera kindly requests that Administrator agree to submit this comment to the PREB for additional evaluation and that the decision regarding this matter be deferred to the PREB.</p>
<p>(3) The P3 Authority supports implementing the Price Risk Management Initiative, as described in Section IV of the Updated FOP: Fuel Portfolio Optimization Initiative. This is subject to the outcome of the proceeding currently held by the Puerto Rico Energy Bureau ("PREB") for those purposes. Furthermore, the P3 Authority concurs with Genera that it should be compensated for its efforts and actions taken towards the implementation of the Price Risk Management Initiative. Notwithstanding, using the formula to calculate cost savings, as described in Section IV(5)(b) of the Updated FOP, is not the appropriate mechanism at this time for this purpose. Similarly, using budgeted fuel cost as the baseline for calculating cost savings is also inappropriate.</p>	<p>Genera kindly requests that Administrator agree to submit this comment to the PREB for additional evaluation and that the decision regarding this matter be deferred to the PREB.</p>
<p>(4) The Fuel Swap and Fuel Conversion Initiative described in Section VII of the Updated FOP: Fuel Change Initiative, are considered in isolation of the baseload units, whose performance/availability maybe subject to penalties under the Generation OMA. As integration of the available resources is an energy</p>	<p>Genera agrees that this comment and matters related to it should be submitted to the PREB for additional evaluation and its final determination.</p>



April 19, 2024

<p>regulatory matter, the P3 Authority defers to the PREB the final determination with respect to this subject.</p>	
<p>(5) It is not clear whether the system upgrades described in Sections VII and VIII of the Updated FOP: Fuel Change Initiative and Asset Enhancement Initiative, respectively, are consistent with the current approved Integrated Resource Plan Genera did not address this issue in the Updated FOP. Since this is an energy regulatory matter, the P3 Authority also defers to PREB's final determination with respect to this subject.</p>	<p>Initiative 7: Fuel Swap and Fuel Conversion Initiatives provides that “[a]ll fuel conversions and modernizations are subject to PREB approval.” Initiative 8: Asset Supplementing Initiatives does not expressly mention that the proposed projects under this initiative would be subject to PREB approval. Genera operates under the assumption that regulatory approvals are necessary before undertaking any project, and therefore seeks approvals from relevant regulatory bodies such as PREB, EPA, and others.</p> <p>The Updated Jan 30 FOP reflects changes made to include a specific statement to address this. Moreover, the Updated Jan 30 FOP includes a general statement to address approvals and compliance with regulators. <i>See</i> Section II(e).</p> <p>Genera respectfully requests Administrator to consider this comment as resolved.</p>
<p>(6) The formula described in Section III(1)(c) of the Updated FOP is not consistent with the methodology to determine estimated savings related to the reduction of the Ultra-Low Sulfur Diesel ("ULSD") fixed premium, as presented therein³ The formula should read as follows:</p> <p>Savings = (FY23 ULSD Premium - FY24 ULSD Premium) x 2024 Barrels</p>	<p>The formula set forth by P3 is consistent with the methodology proposed by Genera in the Jan 30 FOP. The Updated Jan 30 FOP includes the updated formula to align with the methodology and address P3A comments.</p> <p>Genera respectfully requests Administrator to consider this comment as resolved.</p>

To move these efforts forward and comply with the Order issued by PREB, we kindly request the Administrator to address these comments no later than 5 business days after receiving this letter. Furthermore, we request the Administrator, after reviewing and accepting the answers provided by Genera, to issue a final approval for the Revised Plan. This will allow Genera to submit the Revised Plan with the Administrator's approval letter for further proceedings with PREB.

We look forward to your response and remain available to discuss as needed.

Should you have any questions, please contact Mrs. Katuska Bolaños-Lugo, Chief Regulatory Officer, at kbolanos@genera-pr.com.



April 19, 2024

Cordially,

Genera PR LLC

Kevin D. Futch

Kevin D. Futch
General Counsel



April 19, 2024

Annex A



FUEL OPTIMIZATION PLAN

Draft submitted to Administrator on April 19, 2024

Draft Form disclaimer

Please be advised that the information contained in this draft document is confidential and intended solely for discussion with the Puerto Rico Public-Private Partnerships (“P3 Authority” or “Administrator”) and the Puerto Rico Energy Bureau (“PREB”). If you are not the intended recipient, please notify Genera immediately and delete this document from your system. This document is a work in progress and is protected under commercial considerations. Any unauthorized use, disclosure, copying, or distribution of this document is strictly prohibited.

This disclaimer will be amended after the P3 Authority and PREB approve the document as final. Genera reserves the right to request PREB leave to produce a final public version of this document for public access and a sealed version that may only be accessed by the P3 Authority and PREB.

Disclaimer

The information provided in this plan is presented in accordance with the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("OMA"), which was signed on January 24, 2023, by the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3 Authority" or "Administrator"), and Genera PR LLC ("Genera"). Additionally, this plan adheres to the requirements of the Puerto Rico Energy Bureau of the Public Service Regulatory Board ("PREB"), as outlined in the matter of In Re: Genera PR, LLC Fuel Optimization Plan with docket number NEPR-MI-2023-0004. For further information, please refer to <https://energia.pr.gov/en/dockets/?docket=nepr-mi-2023-0004>.

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I. EXECUTIVE SUMMARY

PREPA's customers have experienced fluctuations in fossil fuel markets, resulting in increased fuel costs that are reflected in their monthly bills. As part of its role under the OMA, Genera is responsible for managing fuels for the Legacy Generation Assets and is committed to presenting a plan to the Administrator and PREB that outlines the Fuel Cost Savings Initiatives and expected methods for achieving estimated fuel savings during the OMA's term.

This Fuel Optimization Plan outlines Genera's vision and strategy to improve the management of fuels consumed by the Legacy Generation Assets¹ on the island of Puerto Rico for fiscal year 2024 ("FY2024"). The main objectives of this plan are to optimize the use and consumption of fuels by the Legacy Generation Assets and reduce the price of the associated fuels via specific and targeted fuel initiatives. The plan below provides specific details on multiple initiatives, how Genera will implement these initiatives and how these initiatives will be measured. These initiatives will be implemented in parallel with the overall improvement in the reliability and efficiency of the Legacy Generation Assets in compliance with Puerto Rico's public energy policy as implemented by PREB, the Integrated Resource Plan,² and related orders.³ The initiatives herein proposed will reduce the costs that customers pay for fuel adjustments, thus alleviating their energy bill spending until the diversification of generation technologies, led by renewable resources, is materialized.

Genera will achieve these objectives with the execution of these various Fuel Cost Savings Initiatives classified into four focus categories starting in FY2024:

¹ Pursuant to the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("OMA"), dated January 24, 2023, executed by and among PREPA, the Puerto Rico Public-Private Partnerships Authority ("P3 Authority" or "Administrator") and Genera, Genera is the sole operator and administrator of the fossil-fueled base-load generation plants and combustion turbine peaking units owned by PREPA (the "Legacy Generation Assets" or "LGA").

² Final Resolution and Order on the Puerto Rico Electric Power Authority Integrated Resource Plan approved by PREB on August 24, 2020 and available at <https://energia.pr.gov/wp-content/uploads/sites/7/2020/08/AP20180001-IRP-Final-Resolution-and-Order.pdf>

³ Any capitalized terms that are not defined will be given the meaning provided to them in the OMA.

FUEL ACQUISITION INITIATIVES

Fuel Acquisition Initiatives focus on reducing transport, testing, delivery, and storage costs of existing fuels within the current portfolio, which are liquified natural gas (“LNG”), heavy fuel oil (“HFO,” commonly referred to as “Bunker C”) and ultra-low sulfur diesel (“ULSD”). These initiatives will incorporate various forms of infrastructure optimization projects, including logistics-related market negotiations and modifications to subsequent requests for proposals (“RFPs”) that will achieve dollar cost savings and fuel supply chain reliability. The main Fuel Acquisition Initiatives are:

- Reducing ULSD adder
- Incorporate ULSD fuel supply reliability enhancements
- Change the fuel oil escalator and reduce the fuel oil adder
- Spot purchase

FUEL CREDIT AND PORTFOLIO OPTIMIZATION INITIATIVES

These initiatives incorporate risk management strategies and tools focused on mitigating volatility across the fuels portfolio and providing better protection against fuel price fluctuations. Genera will introduce price risk management with a conservative approach over the coming months and years, as the history of this concept has been marked by skepticism and highly criticized for its failure to contribute to lower fuel prices. The following Fuel Credit and Portfolio Optimization Initiatives are:

- Market-price risk management
 - Backwardation / contango market structures
 - Futures market-price caps
 - Futures market options
- Credit risk / payment-term management

FUEL SWAP AND CONVERSION INITIATIVES

Fuel Conversion Initiatives focus on the conversion of certain Legacy Generation Assets from burning diesel fuel to burning LNG. Fuel Swap Conversions and Initiatives focus on alternate fuel sources to maximize efficiency.

ASSET ENHANCEMENT INITIATIVES

Asset enhancement initiatives will focus on adding new equipment within the physical vicinity of the Legacy Generation Assets that are more fuel efficient and/or operate on any new alternative fuel (including natural gas and hydrogen) and reduce fuel costs within the overall system operation.

II. STRUCTURE OF THE FUEL OPTIMIZATION PLAN

Every initiative detailed throughout this Fuel Optimization Plan is organized in the following manner:

- **History and Background**

This section will provide some historical background on how this area has been managed to set the baseline for the newly adopted strategies in the following section.
- **Approach and Strategy**

This section will outline Genera's specific strategies for adopting the initiative to save on fuel costs.
- **Methodology Used to Determine Estimated Savings**

This section provides a methodology for calculating cost savings for the specific initiative. These methodologies will be different across specific initiatives and could also change and be different over different time horizons for a specific initiative.
- **Estimated Cost Savings**

This section provides estimated cost savings for the year the initiative is projected to be implemented.

- **Implementation Timeline**

This section provides a timeline of implementation for when the strategies associated with the initiative will be executed.

a. Summary of Cost Savings Initiatives

Below is a summary of all cost savings initiatives within each category, the estimated timing of implementation, and estimated dollar savings per fiscal year.

GENERA PR FUEL OPTIMIZATION PLAN						
CATEGORY	INITIATIVE	FY2024	FY2025	FY2026	FY2027	FY2028
Fuel Acquisition	REDUCE THE FIXED PREMIUM FOR ULTRA LOW SULFUR DIESEL (ULSD)	\$10.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	FUEL RELIABILITY ENHANCEMENTS FOR ULSD	\$6.0	\$1.0	\$1.0	\$1.0	\$1.0
Fuel Acquisition	REDUCE THE FIXED PREMIUM FOR FUEL OIL	\$0.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD	\$5.4	\$5.4	\$5.4	\$5.4	\$5.4
Fuel Optimization	PRICE RISK MANAGEMENT	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Fuel Optimization	PAYMENT TERM MANAGEMENT	\$0.0	\$2.0	\$6.0	\$8.0	\$8.0
Fuel Conversion	FUEL SWAP AND CONVERSION PROJECTS	\$0.0	\$75.0	\$75.0	\$75.0	\$75.0
Asset Enhancement	ASSET SUPPLEMENTING INITIATIVES	\$0.0	\$100.0	\$100.0	\$100.0	\$100.0
TOTAL ESTIMATE		\$21.4	\$187.4	\$191.4	\$193.4	\$193.4
	Evaluation / Planning Phase					
	Partial Implementation					
	Active Cost Savings Initiative					

Estimates are in millions of dollars per year

Cost savings estimates beyond fiscal year 2025 have a lower confidence level. As better insight becomes available, the plan will be updated.

b. Process to Review the Fuel Optimization Plan

This Fuel Optimization Plan may require modifications from time to time. Genera anticipates new initiatives and modifications of existing initiatives that will be introduced to the stakeholders and regulators throughout the life of the OMA. All reviews will be made in accordance with Section 4.2 (t) of the OMA and PREB orders.

Given the fuel market and its worldwide reach and volatility, during the first Contract Year, Genera may identify opportunities to adjust the scope or implementation of these programs on a trial basis to evaluate the

effectiveness in cost-reducing even further. Upon a determination by Genera of a cost reduction opportunity within the term of any fiscal year, the changes or modifications to the Fuel Optimization Plan shall be submitted to the Administrator and PREB for approval.

c. Conflicts

Any disagreements between Administrator and Operator regarding this Fuel Optimization Plan will be resolved pursuant to Section 4.2 (t) of the OMA.

d. Fuel Optimization Report and Fuel Optimization Payment

This Fuel Optimization Plan and the methodologies for calculating Actual Fuel Savings detailed herein will serve as the basis for Genera's annual Actual Fuel Savings calculations and the resulting Fuel Optimization Payment. Genera will present this information in a detailed Fuel Optimization Report, pursuant to Annex II, Section III (B)(6) of the OMA. The latter will also be followed to submit requests for payment of the Fuel Optimization Payment.

e. Regulatory Approval and Compliance

All projects proposed in this plan for the implementation of initiatives (such as fuel changes, conversions, upgrades, asset enhancement or modernization of the LGA) are subject to PREB approval. This ensures alignment with the operational Integrated Resource Plan and Puerto Rico's energy policy as established by applicable laws and regulations.

III. FUEL ACQUISITION INITIATIVES

Introduction

Liquid fuels and natural gas are the two categories of fuel used for power generation in the Legacy Generation Assets. LNG, transported and supplied in its liquid form, is used at two locations: San Juan and Costa Sur power plants. Heavy fuel oil is used in the San Juan, Palo Seco, Costa Sur and Aguirre steam plants. Lastly, ULSD is used as a backup fuel in the four steam plants mentioned above and all emergency generation units across the Island.

Historically, PREPA purchased fuels using the general price concept of:

$$\textit{final price} = \textit{escalator} + \textit{fixed premium} + \textit{applicable taxes}$$

The escalator, sometimes referenced as price postings, will fluctuate up or down with the international oil price. To minimize the impact of price volatility of the international oil market in the final price of liquid fuels, changes to the reference price postings (escalator) must be evaluated to reduce basis and arbitrage risk. That is, by using a reference posting that better represents the market and the quality of the product being acquired, less volatility and dislocation of prices will occur. Note that price movement, including escalation in relation to the international price of oil, is unavoidable to a large degree. Some type of price risk management could be implemented to cap or minimize such escalation but at a certain cost (more on this subject in Section 10).

The fixed premium is affected mainly by intrinsic and extrinsic factors. The main intrinsic factor is the logistics costs associated with transport to the LGA sites. Supplying the required amount of fuels, at its mandated quality, to all the generation facilities has been challenging throughout the years due to logistics constraints, such as the limited receiving capacity of reserve tanks and restricted navigation capacity at receiving ports and docks. The need for a large storage terminal to receive medium capacity vessels (break bulk) and an ocean-going, US flag, dedicated barge for deliveries to the plants is a fixed cost that can only be recovered via the fixed premium. Optimizing key elements of the logistics chain is needed to ensure a reliable supply of liquid fuels, which

in turn could result in fuel cost savings. Changes to the acquisition process and the final supply contracts are necessary to achieve said improvements.

Extrinsic factors affecting the fixed premium are mainly:

- international freight rates,
- arbitrage and basis risk between the index price and the reference posting, quality differentials,
- credit risk,
- payment terms (cost of working capital),
- insurance and
- bonds

Factors affecting the escalator and the fixed premium are further discussed in the following sections, along with the corresponding optimization initiatives.

1. INITIATIVE: REDUCE THE FIXED PREMIUM FOR ULSD

a. Introduction and Background:

As part of the preparations for the new State Implementation Plan (“2022 SIP”) submitted by the Government of Puerto Rico to the Environmental Protection Agency (“EPA”) in the winter of 2022, PREPA changed the quality of most of the diesel being contractually acquired by PREPA from high and low sulfur diesel to ULSD for all generation plants. Palo Seco was the only plant requiring ULSD before the 2022 SIP. The expedited negotiations with the current diesel supplier, at that moment Novum Energy Trading, to change contractual specifications to the ULSD resulted in a significant increase in fixed premium of almost \$3.00/bbl effective in July 2022 to the end of the existing contract in November 2022, which was extended by mutual agreement to November 2023.

b. Approach and Strategies:

The reduction of the fixed premium for ULSD will occur annually during each year’s RFP for new fuel suppliers. A new ULSD RFP for FY2024 is ongoing, with active negotiations underway with two potential suppliers. Even with fuel reliability enhancements (see initiative no. 2 below), a new fixed premium is estimated to materialize in the \$2.75–\$3.00 range of savings per barrel. Genera will target additional optimization initiatives in future ULSD RFPs. These initiatives include but not be limited to (1) an increase in the number of potential bidders to create a more competitive bidding process, (2) Genera taking more control of the overall logistics chain (see initiatives 6, 7 & 8 below) and (3) Genera evaluating the adoption of additional on-site ULSD storage (see initiative 5 below).

c. Methodology used to determine estimated savings:

The methodology used for estimated cost savings for the reduction of the ULSD fixed premium will be as follows:

- The FY2024 methodology will compare the then-current fiscal year ULSD premium (FY2023 contract) to the new negotiated number for FY2024 based upon the then-annualized volume of

ULSD consumption across the generation system while the supplier's contract is in effect (estimated date is November 17, 2023, until November 16, 2024). For example, the FY2023 ULSD premium is set at \$10.60, with the FY2024 potential ULSD premium set to be somewhere around \$7.75 per barrel. The value difference equates to an estimated savings of \$2.85 per barrel consumed during the FY2024 supplier's contract date range (November 17, 2023 to November 16, 2024). At the end of the supplier contract year, Genera will submit to PREB the following example calculation for review and approval (See subsection (d) below for calculations on estimated savings for FY2024):

- Annualized ULSD volume consumed during supplier contract (November 17, 2023 to November 16, 2024): 1,000,000 barrels
- Cost savings from new supplier adder: \$2.85
- $\$2.85 * 1,000,000 = \$2,850,000$ savings during FY2024 for this initiative

Thus, the formula to calculate the savings is:

$(\text{FY2023 total ULSD premium paid} - \text{FY2024 total ULSD premium paid}) \times 2024 \text{ barrels}$

d. Estimated cost savings:

Using the methodology described above in subsection (c), the estimated savings from FY2024 ULSD premium is estimated to be \$2.85 per barrel (FY2023 of \$10.60 – FY2024 of \$7.75 = \$2.85 per barrel). Based upon the estimated volume of ULSD consumed during the FY2024 supplier's contract effective dates (estimated to be November 17, 2023 to November 16, 2024), the following table represents a range of the estimated dollar savings arising from the FY2024 reduction of the ULSD premium. The targeted range is wide due to the unknown ULSD demand.

ULSD Estimate Cost Savings @ \$2.85 per barrel					
Estimated Volume in BBLs	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000
Estimated Reduction In Adder	\$ 2.85	\$ 2.85	\$ 2.85	\$ 2.85	\$ 2.85
Estimated Annualized \$	\$5,700,000.00	\$7,125,000.00	\$8,550,000.00	\$9,975,000.00	\$11,400,000.00

Estimated total savings for FY2024 by reducing the ULSD premium is projected to be around \$8.5 million to \$10 million in savings.

Estimating cost savings for the future reductions of the ULSD premium will occur annually once the start of the future RFP has commenced. The communication of these future cost savings, if any, will be a part of the annual update of the Fuel Optimization Plan.

e. Implementation Timeline:

The implementation of the FY2024 reduction of ULSD premium will be for one year, starting on November 17, 2023, and until the expiration of the FY2024 ULSD supplier contract on November 16, 2024. Future RFPs should follow similar timing as the RFP process occurs once a year.

2. INITIATIVE: FUEL RELIABILITY ENHANCEMENTS FOR ULSD

a. Introduction and Background:

In November 2022, upon agreeing to extend the current ULSD supply agreement with a supplier, PREPA requested said supplier bring, at PREPA's full cost, a second barge of 50,000 bbls capacity to enhance distribution capabilities for diesel to all plants. This redundancy was needed primarily because the existing supply contract did not impose on the supplier the obligation to have a minimum stock reserve, especially during emergencies, nor the commitment to have a barge in Puerto Rico of a reasonable capacity to operate during normal and emergency periods. Historically, due to unforeseen supply disruptions, PREPA was forced to initiate diesel curtailments into one or more of the plants. The solution to this problem was to bring and pay for a second barge as a contingency.

b. Approach and Strategies:

An additional savings consideration for the FY2024 ULSD RFP premium is the removal of the use of an additional barge currently under operational control by the FY2023 supplier, Novum. Genera is implementing two specific changes in the current ULSD RFP for FY2024 to strengthen and achieve more control in the supply chain logistics, which should guarantee a more reliable and consistent supply of ULSD to all plants. The changes include (1) an increase in the minimum stock reserve to the amount of an additional 50,000 barrels of working capacity for Genera to call on in times of estimated heavier-than-normal ULSD demand and 2) a requirement that the supplier uses a minimum size barge (45,000 – 50,000 barrels) to optimize marine deliveries into all plants capable of receiving ULSD via water. Genera will work to implement other enhancements to future ULSD RFP and their resulting supply agreements in the following years to reduce fuel costs further and optimize operations.

c. Methodology used to determine estimated savings:

The methodology used for estimated cost savings for fuel reliability enhancements will be as follows:

- Compare the actual cost of the barge from December 2022 to November 2023 to not having to pay for the use during the FY2024 ULSD contract.

d. Estimated cost savings:

The additional barge costs Genera an estimated \$6.2 million per year. By removing the need for the second barge, mainly due to Genera's negotiated reserve stock and minimum barge requirements mentioned above in subsection (b) of this section, the FY2024 plan for ULSD will save an additional \$6.2 million.

Estimated total savings for FY2024 by reducing the ULSD premium is estimated to be around \$6.2 million in savings. This is a one-time savings.

Fuel savings for future years as a result of further enhancements to the ULSD supply contract are estimated at about \$1 million.

e. Implementation Timeline:

The fuel reliability enhancements will be implemented after the execution of the FY2024 ULSD RFP.

3. INITIATIVE: CHANGE OF FUEL OIL ESCALATOR AND REDUCTION OF FUEL OIL ADDER

a. Introduction and Background:

Historically, PREPA maintained an escalator for fuel oil purchases that was quite representative of the international price of fuel oil for the quality that PREPA was purchasing. In the 1980s and 1990s, PREPA was buying fuel oil of 2.0% maximum sulfur for Aguirre, San Juan and Palo Seco and 1.5% for Costa Sur. Price escalators for these fuels were the Platts Oilgram Report⁴ New York Harbor (NYH) 1.0% and 2.2% sulfur postings interpolated to the respective maximum sulfur for the specific generation plant. (i.e., 1.5% and 2.0%, as mentioned above). The NYH 1.0% sulfur posting was a widely used, very liquid posting traded at significant daily volumes, making this posting a reliable and efficient indicator of price for medium sulfur fuel oils in the region. Although postings for other regions were available (i.e., there was also a 1.0% sulfur posting for the US Gulf Coast), PREPA chose to continue using the NYH postings due to (a) its larger liquidity and (b) NYH was the largest importer/buyer of 1.0% sulfur fuel oil in the region while the US Gulf Coast was a net exporter.

In the early 2000s, the mandated sulfur specification for all fuel oil generation units was reduced to 0.5% sulfur. PREPA was then forced to change the escalator to the Platts NYH 0.7% and 0.3% sulfur interpolated to 0.5% sulfur. Although this new escalator was quite effective in tracking the value of sulfur of the new low sulfur fuel oil ("LSFO"), the respective postings of 0.7% and 0.3% were not as liquid and heavily traded as the prior 1.0% posting once was. It's worth noting that LSFO was only consumed in the Northeast region of the US, thus reducing its daily consumption and trading volume.

In 2020, the International Maritime Organization ("IMO") changed the worldwide sulfur specification for all bunker (marine) fuel oils. In the 3rd quarter of 2021, Platts announced that it would discontinue publishing the NYH 0.7% and 0.3%

⁴ Platts Oilgram Report is an independent publication of worldwide international oil prices published daily by Platts, a S&P Global Company.

sulfur postings effective December 31, 2022, due to low demand and traded volume, and instead would post a single 0.5% sulfur posting for all fuel oils based on the underlining market of marine fuel oils used for bunkering in the NYH. PREPA now uses the Platts NYH Marine 0.5% sulfur posting as the escalator for fuel oil.

This new escalator suffers from two significant deficiencies as an accurate escalator for 0.5% sulfur fuel oil used for power generation. First, the postings reflect only the volume of 0.5% sulfur fuel oil traded in the NYH for marine fuels, which is a relatively more minor volume than power generation used to be. It must be noted that LSFO used for power generation in the New York and Northeast region is almost nonexistent due to environmental regulations and the increase of natural gas as the preferred fuel. Second, it reflects volumes traded in smaller parcels (1000–3000 metric tonnes) of marine fuel sales as opposed to the typical 50,000 metric tonnes parcels used for power generation by PREPA. More importantly, the low volume of trading makes this posting vulnerable to significant volatility and even a certain degree of manipulation by market participants, even for brief periods.

b. Approach and Strategy:

Since almost all fuel oil volumes traded in the international oil market are done based on the more liquid, more transparent postings for crude oil, changing the escalator for the fuel oil purchases to a crude oil posting reference will achieve cost savings. Specifically, switching to a crude oil escalator will achieve cost savings by:

- The new crude escalator should be more accurate in terms of prices for large-scale utilities consuming fuel oil compared to a very small Northeast US fuel oil utility market;
- Allow for suppliers or Genera to more accurately manage the price risk of fuel oil because the current fuel oil price escalator (Platts .5%) has limited forward price discovery (these savings could show up in a supplier's reduced adder and via Genera's price risk management program, see price risk management section, initiative 10 below for further details); and

- Reduce the volatility of the escalator and subsequently reduce the opportunity for targeted price spikes due to manipulation or limited liquidity that have often occurred in the current pricing escalator.

Upon evaluating the various available crude oil postings that better reflect the value of LSFO, Brent Crude Oil appears to be a better choice to change to for the future escalator for fuel oil. All major components used by potential suppliers for blending IMO and power generation that consumes LSFO are traded basis Brent. For example, straight-run feedstocks, ultra-low sulfur cracked fuel oils, viscosity reducers, and even Brazilian LSFO are traded based on Brent crude oil posting references.

c. Methodology used to determine estimated savings:

Various methods will be utilized to assess cost savings by retrospectively reviewing the fiscal year's end. These are:

- Direct comparison of all fuel oil purchases for FY2024 using the awarded supplier's reported escalator + adder for the two posting references below (note each price escalator will have its own unique adder provided by each supplier):
 - a. Platts 0.5% + adder1
 - b. Brent Crude + adder2
- A second methodology for cost savings will be attributed to using Brent crude in our price risk management strategies as a more efficient and liquid price risk management instrument. Initiative 5, listed below, provides the specific cost savings methodologies.

d. Estimated cost savings:

At the time this plan was being presented to PREB, it was not possible to determine the actual FY2024 savings for the comparison of Brent's vs. Platt's actual pricing. A high-level estimated cost savings for the direct comparison of flat price (the Brent + adder1 to the Platts + adder2) is around \$0.25 to \$0.75 per barrel. An example of a reduced price using Brent + adder1 vs. Platts + adder2 using 12 million barrels of expected fuel oil consumption is:

- $\$0.25 * 12,000,000$ barrels of fuel oil = \$3,000,000 savings

After receiving bids from all RFP participants, it was determined that:

- Genera would not be changing the fuel oil escalator from Platts to Brent Crude Oil. The decision not to change was based upon historical and forward market analysis of the Brent Crude market and the Platts USAC .5% market escalators + each respective adder.
- b. The awarded fuel oil contract for FY2024 resulted in an increase in the adder by \$0.64 per barrel (current supplier adder is \$3.66 vs. new supplier at \$4.30)
 - i. Current supplier pays \$2.78 for the adder but delivers fuel oil with lower BTU content (148,600 BTUs vs. FY2024 at 150,000 BTUs)
 - a. Note the current supplier's adder is being adjusted up by a BTU content value of \$0.88 per barrel (Based upon Genera PR market analysis)
 - ii. The increase of \$0.64 per barrel is mainly due to the following factors:
 - a. Increase in marine logistics costs
 - b. Increase in storage costs
 - c. Increase in financing costs
 - d. Increase in insurance costs
 - e. Inflationary cost increase for other items
 - f. Arbitrage and alternative product demand (bunker fuel market for global marine markets)

e. Implementation Timeline:

Based on the results from the last RFP and subsequent supply contract awarded in the fall of 2023, Genera decided not to change the escalator, considering the offers received were not deemed favorable. Furthermore, the adder under the existing escalator was not reduced. Therefore, this initiative will not be implemented in FY24. Genera will continue to evaluate available options for future years subject to market conditions and in the best interest of ratepayers.

4. INITIATIVE: SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD

a. Introduction and Background:

Explicit in both Fuel Oil and ULSD contracts is a clause that allows Genera to purchase up to 25% of the estimated fuel for the given contract year. If Genera finds fuel at a lower price than what is offered in the supplier's contract (Article I, Section B(1) for both Fuel Oil and ULSD contracts), then Genera can purchase lower-cost fuel.

b. Approach and Strategy:

Throughout the contractual year for a specific fuel, Genera will continue to monitor the market for spot fuel purchases. If, during that year, Genera identifies another market willing to sell ULSD or Fuel Oil at a cost less than the contractual price of the current supplier, Genera will negotiate with that new supplier to purchase the specific fuel.

c. Methodology used to determine estimated savings:

Compare the newly purchased fuel cost to the price of the contractual cost on the day of purchase (or an average over time if there are multiple purchases), and if the new purchase fuel acquisition cost is less than the current contracted supply, that difference will be considered for cost savings. Example:

- Current Fuel Oil contract starting on November 1, 2023 is Platts .5% + \$4.30 per barrel
- Spot Fuel Oil purchase opportunity is Platts .5% + \$2.80 per barrel
- All volume bought (up to 25% of annual Fuel Oil demand) * \$1.50 per barrel would be considered savings in this example

d. Estimated cost savings:

Estimating cost savings of \$5.4 million for FY2024. The goal is to achieve \$1.00 per barrel savings on 25% of the estimated annual ULSD portfolio of 3,600,000 barrels (equivalent to 900,000 barrels) and \$1.50 per barrel savings on 25%

estimate of the annual Fuel Oil portfolio of 12,000,000 barrels (equivalent to 3,000,000 barrels).

e. Implementation timeline:

This initiative will be implemented during FY2024.

IV. FUEL PORTFOLIO OPTIMIZATION INITIATIVE

5. INITIATIVE: PRICE RISK MANAGEMENT

a. Introduction and Background:

With the exception of isolated instances, PREPA did not consistently manage price exposure in the past. Attempts by PREPA to fix or cap the escalation of prices (moves in the international price of oil or “flat price”) have been repeatedly debated and questioned because of its interpretation as price speculation.

Deliveries of liquid fuels to Legacy Generation Assets are usually made in sizes that can sustain the plants for 5–10 days in Aguirre and 15–20 days in San Juan, Palo Seco, and Costa Sur for fuel oil and diesel. For gas turbine generation stations (peakers), diesel deliveries are made in even shorter periods. This is due to the relatively small reserve capacity for liquid fuels.

Pricing periods for each fuel delivery are based on the three-day average around the delivery date (typically depicted as -1, 0, +1 pricing days). Therefore, the average cost of fuel often corresponds to the average monthly flat price, rendering the use of intra-month hedging⁵ ineffective and even unnecessary under normal circumstances.

a. Approach and Strategies:

The main objective for implementing this price risk management initiative is to manage commodity price volatility and provide stability to fuel prices throughout the year. Consulting services company Deloitte defines commodity price risk as *“the financial risk on an entity’s financial performance or*

⁵ Hedging is a mechanism to manage price exposure using the commodity future financial markets when there is time (different pricing periods), quality (basis risk) and/or location (arbitrage).

profitability based upon fluctuations in the prices of the commodities that are out of the control of the entity due to external market forces.”⁶

The following figure shows the key components of a price risk management program.



Due to the complexity of price risk management programs, understanding how to design and develop such a program for a complex web of entities such as a public-private partnership and the overall importance of gaining buy-in from all stakeholders, Genera anticipates spending a significant time on FY024 in the initial development of the framework, policies, tactical strategies, audit & governance metrics and internal & external reporting of a price risk management program. This initial phase will ensure all stakeholders understand and approve of the overall risks and objectives of this important cost savings initiative. This initiative is still a work in progress, but Genera found it important to share the initial strategy for this first fuel optimization plan.

If an overall framework and price risk management program gets developed and approved in FY2024, there could be opportunities for cost savings. In the case of the Legacy Generation Assets and the portfolio of fuels used for electricity generation, Genera would implement certain price risk

⁶ Deloitte & MCX, Commodity Price Risk Management: A Manual of Hedging Commodity Price Risk for Corporates (2018), available at <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/risk/in-risk-overview-of-commodity-noexp.PDF>.

management strategies to reduce these fluctuations in prices compared to planned and budgeted costs. The tactical methodologies will be simple in approach at first and, if needed, further developed in complexity over time. Implementing a conservative approach to price-risk management will be key during the initial stage of Genera's management of the generation system. Examples of Genera's initial strategies for managing price risk include a budget and time methodology. These strategies are defined as:

- Budget

This type of strategy is used to manage the price of fuel that was defined during a budgetary process. Certain price risk management instruments will be executed at the time of the budgetary process to fix a certain percentage of the forward price of the fuel portfolio (note these numbers will be based upon reviewed, approved, and auditable PROMOD, our equal economic dispatch modeling result produced values). This will show the stability of fuel prices throughout the year since they will have been fixed at a certain level, and any price increases will be abated. However, due to the unknown demand for fuel for a given year, Genera considers it reasonable to implement an approach in which no more than 30% of anticipated fuel demand is fixed at the start of a budgetary year. Limiting the amount of the fuel portfolio to 30% fixed provides a greater level of certainty that you don't run the risk of overbuying a certain fuel. As mentioned above, these tactical strategies will be further refined throughout FY2024 as Genera finalizes the price risk management framework.

- Time

This type of strategy is used to manage the price of fuel on a volumetric basis, meaning by some date in time, a certain percentage of the anticipated fuel demand will be price risk managed (or hedged) at a certain price. The following is a detail of a potential example.

1. Before the start of any quarter, 25% of that quarter's estimated total fuel demand must be hedged 45 days prior to the start of the quarter. Example for Q4-2023 (illustrative purposes only):

- a. Estimate 3,000,000 barrels of fuel oil / 900,000 barrels of ULSD and 18 TBtu of natural gas are expected to be consumed during Q4-2023
- b. Starting 45 days prior to October 1, 2023, if no volume has been price risk managed "hedged" up to this point, this strategy would implement a mandate hedge for 25% of each of the fuels within the fuel portfolio (750,000 barrels of fuel oil, 225,000 barrels of ULSD and 4.5 TBtu of natural gas) at best achievable pricing.

The following risk management instruments would be used opportunistically to manage market price risk across the fuel portfolio utilizing a "Time" or "Budget" strategy described above.

- Futures Market - SWAPS (LNG, Fuel Oil and ULSD)
The use of swaps or price limits to temporarily set price caps could be utilized to control estimated increases in short-term fuel prices for budgetary purposes. The cost of said price caps could, at times, be expensive, especially now with the implied volatility of all the underlying generation fuels. Therefore, a careful analysis would be needed on a case-by-case basis. In this case, resulting cost savings must be limited to or expressed as fuel budget savings.
- Futures Contracts - Fixed Price (LNG, Fuel Oil and ULSD)
The use of futures contracts will also be used opportunistically to control estimated increases in short-term fuel prices for budgetary purposes. Buying fixed-price futures contracts provides more levels of guarantees across the portfolio and will be limited to a lower percentage of total volume due to the uncertainty of the generation unit demand. This will change over time as the system becomes more reliable and the demand profile becomes more assured.
- Backwardation / Contango Market Structures - (Phys. Fuel Oil and ULSD decisions)
Due to limited reserve storage capacity at the plants and the continued forced outages of base generation units, Genera must

consistently keep a high inventory in all reserve tanks. This exposes Genera to “market structure,” otherwise known as “contango” or “backwardation.” When the oil market structure is in contango, the future price of oil is higher than prompt prices, resulting in a positive price exposure (i.e., the weighted average price will be lower than otherwise would have been if purchases were delayed to a future period). On the other hand, when the market structure is in backwardation, the future price of oil is lower than prompt prices, resulting in a negative price exposure (i.e., the weighted average price will be higher than otherwise would have been if purchases were delayed to a future period).

Genera’s exposure to market structure could be managed using two methods: (1) managing end-of-the-month receipts and inventories or (2) hedging intra and inter-month future prices on the underlying price index (ULSD for diesel and Brent for fuel oil).

b. Methodology for Estimated Cost Savings:

The main methodology for estimating cost savings of any of the previously mentioned price risk management strategies will be to compare the budgeted price per barrel and the price per MBTU forecasted for fuel purchases to the actual hedged and fixed price per barrel and price per MBTU realized for a given time frame. The most appropriate time frame will be for each fiscal year.

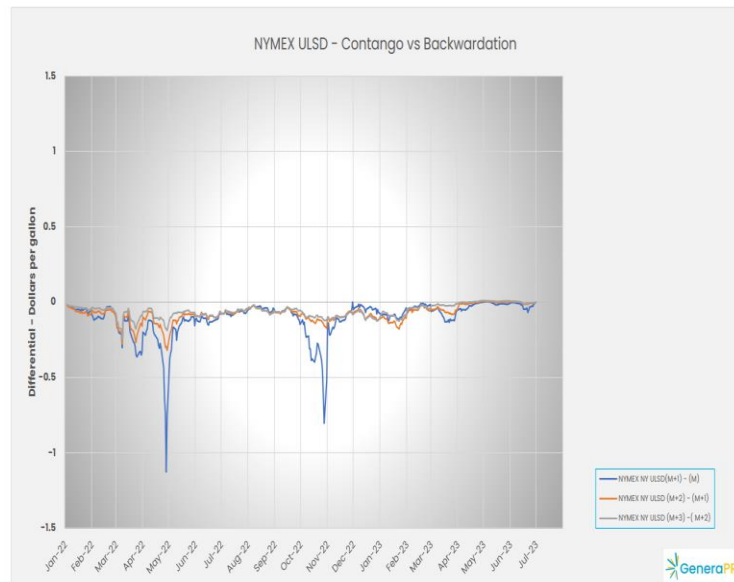
- Example: For FY2024, the prices budgeted for ULSD and fuel oil are set at \$119.28 per barrel and fuel oil at \$96.01 per barrel, respectively.
- One million barrels of ULSD was hedged at \$115 per barrel during various months of FY2024 (either by executing a future, swap, option or any of the previously mentioned financial or physical price risk management instruments).
- The cost savings in this example would be $\$119.28 - \$115 = \$4.28 * 1,000,000$ barrels for a total cost savings of \$4,280,000. *This is irrespective of where the market prices were on the day of physical delivery for the barrel in which the prices were hedged.*

Another methodology that will be used is one that will compare the structure of the underlying forward curve (“contango” or “backwardation”) to make decisions around physical end-of-month or beginning-of-month deliveries “purchases.”

- Example: In the Heating Oil structure below, a decision will be made to commence delivery at the start of August 2023 (\$2.9006 per gallon ULSD) vs. the end of July 2023 (\$2.9169 per gallon for ULSD). The decision to delay delivery until August would save an estimated \$0.016 cents per gallon / \$0.67 per barrel could be achieved by delaying that delivery.
- Note the second chart below showing Heating Oil contracts from January 2022 to June 2023 showing extreme periods of contango or, in this case, backwardation.

Commodity Futures Price Quotes For Heating Oil (NYMEX)
 (Price quotes for NYMEX Heating Oil delayed at least 10 minutes as per NYMEX rules)
 Also available: electronic Session Quotes

Click for Chart	Open	High	Low	Last	Current Session Time
Cash	2.9169	2.9169	2.9169	2.9169	20:25 Jul 27
Aug'23	2.9006	2.9748	2.8862	2.9586	15:44 Jul 28
Sep'23	2.9017	2.9651	2.8777	2.9498	15:59 Jul 28
Oct'23	2.8839	2.9356	2.8552	2.9211	15:59 Jul 28
Nov'23	2.8283	2.8884	2.8184	2.8769	15:59 Jul 28
Dec'23	2.7799	2.8387	2.7759	2.8292	15:54 Jul 28
Jan'24	2.7620	2.8041	2.7549	2.7969	15:49 Jul 28
Feb'24	2.7361	2.7695	2.7242	2.7657	14:30 Jul 28
Mar'24	2.6912	2.7328	2.6893	2.7296	15:02 Jul 28
Apr'24	2.6569	2.6882	2.6547	2.6872	15:01 Jul 28
May'24	2.6351	2.6555	2.6254	2.6555	14:56 Jul 28
Jun'24	2.6058	2.6311	2.5977	2.6293	14:56 Jul 28



ESTIMATED COST SAVINGS:

Estimated savings for FY2025 and beyond are mainly dependent upon budgeted prices for each fuel versus market movements in the prices of those

fuels during that specific fiscal year. A reasonable approach to estimating savings would be 0.25% to 1% of the total notional value of the fuel budget (equivalent to \$0.25 to \$1.00 per barrel) that could be achieved annually using the previously mentioned price risk management methodologies and financial/physical instruments. FY2025 estimates would range from \$10 to \$20 MM dollars in estimated savings using the ranges defined above.

Total cost savings estimated for price risk management initiatives are estimated to be between \$5 million and \$20 million per year.

IMPLEMENTATION TIMELINE:

This initiative continues to be evaluated in FY2024. The estimate remains that this initiative will be implemented during the second half of FY2024 through the first half of FY2025. During FY2024, the main focus will be on:

- Finalizing a framework and policy for the price risk management program and receiving approval from PREB
- Execute the strategies mentioned above or further develop them in the policy phase as soon as possible after receiving approval from PREB (estimate FY2024 / FY2025).

V. FUEL CREDIT OPTIMIZATION INITIATIVE

6. INITIATIVE: PAYMENT TERMS MANAGEMENT

a. Introduction and Background:

Historically, PREPA has paid high financing costs due to the market's view of its creditworthiness. This is exacerbated by the fact that PREPA requires large amounts of credit (upwards of \$200 million on the fuel oil contract), and it has been requested in the current Fuel Oil RFP that suppliers provide up to 60-day payment terms. These contractual requirements and the current state of the economy have led to high financing costs for all the liquid fuel supply. Most recent analysis shows that there are somewhere around 13% to 15% annualized financing costs for this credit.

b. Approach / Strategies:

Genera will endeavor to pursue all possible avenues available under the current fuels RFP framework to achieve better financing terms and reduce fuel premiums. Future RFPs will ensure that all bidders are provided with options for 60-day, 30-day, and even 15-day financing terms. These financing term improvements could be achieved through the following financing options: 1) due to optimization of the current order to cash process, 2) leveraging outside third-party financing, or 3) through the use of the Operator's own capital. Fuel contracts will be renegotiated and extended or replaced as per government guidelines, with Genera acting as an intermediary providing increased access to the market.

c. Methodology for Estimated cost savings:

The methodology will be to compare suppliers' price offerings under the typical credit and payment terms determined by the RFP process (30 / 60-day terms and various credit limits) and then see if those values will be lowered if the RFP allows for earlier payment terms and lower credit limits.

For example, during one of the RFP processes, a bidder provided the following 30-day and 60-day payment terms for fuel (the numbers have been changed, but the relative difference is the same):

- 30-day price was Escalator + \$10.00 per barrel
- 60-day price was Escalator + \$11.00 per barrel

Genera will seek secondary 3rd party financing options for a 30-day payment term, pay the fuel supplier in 30 days at \$10 per barrel (price premium if paid in 30 days), and if the secondary financing option is cheaper than \$1.00 per barrel for (\$11.00 - \$10.00) for another 30-day credit term, then there will be cost savings to share. Example:

- Product supplier's 30-day price is escalator + \$10.00 per barrel
- Additional financing option for 30-day is \$0.50 per barrel
- All in costs under this example for 60-day payment terms would be escalator + \$10.50 per barrel
- Under this example, there would be \$.50 per barrel of savings for a 60-day payment term (\$11.00 adder under an original supplier) - (\$10.00 adder under original supplier 30-day adder + 3rd party financing of \$0.50); $\$11.00 - \$10.50 = \$0.50$

d. Estimated cost savings:

Estimated savings for FY2025 are around \$.25 to \$.50 a barrel on the liquids fuel portfolio of 16 million barrels, with estimated annual savings of \$4 million to \$8 million dollars.

e. Implementation Timeline:

This initiative will be implemented during FY2025, but there is a chance that this could be adopted during the FY2024 plan.

f. Implementation Timeline:

This initiative will be implemented during FY2025, but there is a chance that this could be adopted during the FY2024 plan.

VII. FUEL CHANGE INITIATIVE

7. INITIATIVE: FUEL SWAP AND FUEL CONVERSION INITIATIVES

a. History / Background

Most generation units comprising the LGA have become inefficient and out of compliance with current EPA and local environmental regulations. As such, and in compliance with PREB's orders and Puerto Rico's public policy requirements, most of the LGA must be retired and decommissioned. Nonetheless, due to the unexpected delays in integrating new generation assets or energy purchase agreements, part of the LGA must remain in service longer than expected and planned⁷. This is necessary to ensure resource adequacy while the transformation and modernization of the energy system is completed (i.e., PPOAs, new generation assets, renewable and storage resources).

The conversions of some of the LGA to burn cleaner, sustainable, and less costly fuel would provide a substantial runway to the full decommissioning and transition plan. These converted dispatchable units could remain as the necessary backup generation to the 50% renewable fleet that is planned, as well as back-up and grid support services provider and peaking units once the target of 100% is met.

Fuel swap initiatives will cover those LGA units where most, if not all, of the capital required to convert the current LGA to run on a different fuel source has been completed. Typically, with these initiatives, the capital required will be limited to additional infrastructure improvements required to receive the new type of fuel (receipt of LNG deliveries versus receipt of other liquid hydrocarbons such as ULSD or fuel oil).

⁷ At this time, the ~600MW solar PV from Tranche 1 renewable energy projects (representing an estimated 138 MW of intermittent energy) are not expected to come online until early 2026 with that date being at risk for delays.

b. Approach / Strategy

Fuel swap initiatives will be the initial focus as those projects will require the least amount of capital, be the quickest to implement, and have the potential for the greatest cost savings to the ratepayer.

Fast-forwarding the conversion effort for certain LGA to run on cheaper and cleaner fuels, such as LNG, instead of continuing to use ULSD or heavy fuel oil would allow the system to remain reliable and more sustainable while creating substantial savings for the customers as the energy system transformation is completed. Savings would be realized not only in the reduction of fuel costs but also in the reduction of operation and maintenance costs⁸ and the reduction in revenue losses stemming from fewer maintenance outages.

An efficient methodology to maximize and achieve savings is conducting the conversion works in a priority-based approach. After an evaluation of the capacity of each of the LGA that could be converted to dual-fuel, using LNG as the primary fuel, Genera suggests PREB that the following approach is followed:

1. **Savings impact to the ratepayer:** Units that are prepared to run on LNG and only require simple infrastructure changes (mainly replacement of parts) should be prioritized over other LGA units that require conversion.
2. **Time to implementation:** Units in which fuel can be swapped, or that can be converted in a shorter time should be converted sooner than others that require more time.
3. **Capital Investment:** Units that require the least amount of capital to convert should be converted sooner than others that require more capital investment. Fuel swap initiatives should have priority here.
4. **Commitment to no stranded costs.** In either Fuel Swap or Fuel Conversion initiatives, ensuring that any costs incurred beyond the then-allowed in the IRP, budgets, or other regulatory parameters are not acceptable.

⁸ Genera is currently estimating savings of ~ \$24MM for swapping from diesel to LNG.

5. **Commitment to reduction in maintenance.** In either initiative, fuel swap or fuel conversion, there will be a focus on reducing long-term maintenance costs as a part of the project.

Using the above prioritization methodology, a fuel swap or fuel conversion plan could be implemented in the following phases:

Phase 1 – Fuel Swaps

Units are already designed for dual-fuel

- Mayagüez - 220 MW
- Palo Seco Mobile Packs - 81 MW

Phase 2 – Conversion

Units that require capital investment to prepare to use dual-fuel

- Cambalache - 165 MW

Phase 3 – Modernization

Units that require higher capital investments than a conversion to upgrade and modernize to use dual-fuel:

- Aguirre Combined Cycle Units - 609 MW

All fuel conversions and modernizations are subject to PREB and regulatory approvals.

c. Methodology Used to Determine Estimated Savings

Genera will compare the delivered LNG cost into the converted facility each year versus the ULSD delivered price. The LNG delivered price will be based on the current supplier of LNG into the converted facility, and the ULSD price will be based on the then-current ULSD supplier to other LGA. Fuel savings will be calculated after all capital costs are recovered or accounted for.

d. Estimated Cost Savings

The estimated savings from a ULSD to LNG fuel swap initiative at the 220 MW LGA in Mayaguez is around \$75 million in annual savings. These savings were calculated using the following conservative data inputs:

1. A lower-than-normal capacity factor of 25% to 50%
2. A four-year forward delivered price average for ULSD of \$110 per barrel, \$19.00 MMBtu (current market price for ULSD is ~\$135 per barrel delivered, \$23.25 per MMBtu)
3. A four-year forward delivered price of natural gas at \$11.00 per MMBtu (current market price for natural gas is ~\$10.00 per MMBtu delivered)

Estimated savings from each conversion project will differ depending upon capital investment, time to market, supply agreements and general market conditions present during the useful life of the converted facility.

e. Implementation Timeline

The initial step to unlock the substantial savings that can be generated by converting units to operate with LNG as the primary fuel is PREB's leave. Assuming, for purposes of this evaluation, that Genera is granted leave to begin the Mayaguez swap by February 1, 2024, the construction needed for the fuel swap could be completed around May 1, 2024, and the unit can be commissioned to be dispatched mainly in LNG in the Summer 2024.⁹ Thus, a first tier of substantial savings can be realized in FY2024, and with this project alone, the savings for FY2025 could be around \$75 MM.

The Phase 2 and Phase 3 projects' start dates and completion estimates are contingent on PREB approval.

⁹ Nevertheless, the final approval that will allow the units to operate in the new alternative fuel is leave and permitting from environmental agencies.

VIII. ASSET ENHANCEMENT INITIATIVE

8. INITIATIVE: ASSET SUPPLEMENTING INITIATIVES

a. History / Background

Genera has identified certain Legacy Generation Assets suitable for the “addition of power generation equipment which is more fuel efficient and/or can operate on an alternative and more economical fuel”¹⁰ that would result in substantial fuel savings. Such power generation equipment may include new, smaller capacity units that could utilize existing fuel supply infrastructure in a particular LGA. The two most important objectives of this initiative are (i) expected fuel savings and (ii) minimal or no upfront capital investment (i.e., which would result in minimal or no stranded costs at the end of the useful life of the supplemental power generation equipment). The latter would be achieved by leasing generation units instead of outright acquisition.

b. Approach / Strategy

The anticipated leasing cost of the units will be covered by the fuel savings achieved on each implementation. Other than any fuel delivery interconnection and other minimal upgrades, no other stranded cost(s) are envisioned.

All works related to asset supplementing initiatives must be evaluated are subject to PREB and regulatory approvals.^[A1]

c. Methodology Used to Determine Estimated Savings

Genera will use the concept of substituted fuel costs to compute achieved fuel savings. The substituted fuel cost methodology will compare the cost of the lower fuel cost (i.e., LNG) to the next higher fuel cost substituted by the new generation (i.e., fuel oil or diesel, depending on unit dispatch and availability). Fuel savings will be calculated after all capital costs are recovered or accounted for.

¹⁰ OMA, Fuel Const Savings Initiative definition.

f. Estimated Cost Savings

Estimated cost savings will be on a project-by-project basis using the methodology described in point C above.

d. Implementation Timeline

The precise timeline is unknown at this time, but the first project implementation could begin as early as 4QFY24.

Exhibit B
P3 Authority April 26th Letter



April 26, 2024

Genera PR, LLC

Regulatory and Planning Team
regulatory@genera-pr.com

with copy to:

Genera PR LLC

Attention: General Counsel
legal@genera-pr.com

Re: Fuel Optimization Plan

Ladies and Gentlemen:

Reference is made to the Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement (“LGA O&M Agreement”) dated as of January 24, 2023, by and among the Puerto Rico Electric Power Authority (“PREPA”), the Puerto Rico Public-Private Partnerships Authority (“P3A”) and Genera PR LLC (“Genera”).

On February 16, 2024, P3A the January 30, 2024, version of the Fuel Optimization Plan (“January 30 FOP”), submitted by Genera pursuant to paragraph (t) of Section 4.2 of the LGA O&M Agreement. The January 30 FOP approval was subject to the following comments:

- (1) All incentives associated with the implementation of the January 30 FOP must be calculated net of implementation costs, including system upgrade costs.
- (2) Any savings achieved by the implementation of initiatives financed by federal grants (including, without limitation, federal disaster, and mitigation funding programs from FEMA) are not subject to incentive payments.
- (3) P3A supports implementing the Price Risk Management Initiative, as described in Section IV of the January 30 FOP: Fuel Portfolio Optimization Initiative. This is subject to the outcome of the proceeding currently held by the Puerto Rico Energy Bureau (“PREB”) for those purposes.¹ Furthermore, P3A concurs with Genera that it should be compensated for its efforts and actions taken towards the implementation of the Price Risk Management Initiative. Notwithstanding,

¹ See *In Re: Design of Fuel Procurement Hedging Strategy Program for the Puerto Rico Electric Power Authority*, Case No. NEPR-MI-2022-0004.

using the formula to calculate cost savings, as described in Section IV(5)(b) of the January 30 FOP, is not the appropriate mechanism at this time for this purpose. Similarly, using budgeted fuel cost as the baseline for calculating cost savings is also inappropriate.

- (4) The Fuel Swap and Fuel Conversion Initiative described in Section VII of the January 30 FOP: Fuel Change Initiative, are considered in isolation of the baseload units, whose performance/availability maybe subject to penalties under the LGA O&M Agreement. As integration of the available resources is an energy regulatory matter, P3A defers to PREB the final determination with respect to this subject.
- (5) It is not clear whether the system upgrades described in Sections VII and VIII of the January 30 FOP: Fuel Change Initiative and Asset Enhancement Initiative, respectively, are consistent with the current approved Integrated Resource Plan ("IRP").² Genera did not address this issue in the January 30 FOP. Since this is an energy regulatory matter, P3A also defers to PREB the final determination with respect to this subject.
- (6) The formula described in Section III(1)(c) of the January 30 FOP is not consistent with the methodology to determine estimated savings related to the reduction of the Ultra-Low Sulfur Diesel ("ULSD") fixed premium, as presented therein.³ The formula should read as follows:

$$\text{Savings} = (\text{FY23 ULSD Premium} - \text{FY24 ULSD Premium}) \times 2024 \text{ Barrels}$$

On April 15, 2024, PREB issued a Resolution and Order in Case No. NEPR-MI-2023-0004, In re: Genera PR, LLC Fuel Optimization Plan ("April 15 R&O") in which it stated:

"The comments in the P3A Letter about the February 21 FOP are more significant than mere suggestions. They indicate that the February 21 FOP deviates from the P3A expectations and highlight enough differences between the parties to suggest that unless the comments are incorporated in the February 21 FOP, the document should be considered as not approved in accordance with the LGA O&M Agreement."⁴

To that effect, PREB determined that "significant discrepancies persist between P3A and Genera about the February 21 FOP. Such discrepancies prevent PREB from considering the February 21 FOP as a final document approved by P3A and amenable to evaluation by the Energy Bureau in accordance with the LGA O&M Agreement and applicable law."⁵ As such, PREB ordered Genera to:⁶

² See Final Resolution and Order on the Puerto Rico Electric Power Authority Integrated Resource Plan, In Re: Review of the Puerto Rico Electric Power Authority Integrated Resource Plan, Case No. CEPR-AP-2018-0001, August 24, 2020.

³ January 30 FOP, at 12-13.

⁴ April 15 R&O, at 5. Emphasis in the original. Genera submitted the approved FOP to PREB on February 21, 2024. As such, PREB referenced the January 30 FOP as the February 21 FOP.


⁵ *Id.*, at 4.

⁶ *Id.*, at 5.

- (1) Resolve any ongoing discrepancies with P3A about the February 21 FOP or as necessary;
- (2) Amend the February 21 FOP to incorporate the relevant comments outlined in the P3A letter; and
- (3) Submit an updated version of the February 21 FOP to the PREB within ten (10) business days from the issuance of the April 15 R&O.

Pursuant to the provisions of the April 15 R&O, on April 19, 2024, Genera submitted to P3A a Transmittal Letter ("April 19 Transmittal Letter") through which it presented a revised January 30 FOP ("Revised FOP"). Genera also addressed the P3A February 16, 2024, comments in light of PREB's April 15 R&O.

After reviewing the Revised FOP and Genera's arguments contained in the April 19 Transmittal Letter, and with respect to the comments contained in the February 16, 2024 letter, P3A determines:

- 
- (1) P3A concurs with Genera that Sections VII(7)(c) and VIII(8)(c) of the January 30 FOP and the Revised FOP state that fuel savings will be calculated after all capital costs are recovered or accounted for. However, to resolve this comment, P3A requests Genera to add a new paragraph (e) to Section II of the Revised FOP: Structure of the Fuel Optimization Plan, to reiterate in this section that all incentives associated with the implementation of the Revised FOP will be calculated net of implementation costs, including system upgrade costs.
 - (2) P3A agrees that Genera could be compensated for its own efforts and actions taken towards implementing the initiatives described in the Revised FOP. As such, P3A supports evaluating each project to be financed by federal grants (including, without limitation, federal disaster and mitigation funding programs from FEMA) on a case-by-case basis to determine the level of compensation Genera might be eligible for, as approved by P3A and by the PREB. With this modification, P3A considers this comment resolved.
 - (3) P3A restates that Genera should be compensated for its efforts and actions taken towards the implementation of the Price Risk Management Initiative. P3A further reiterates its comment that using the formula to calculate cost savings, as described in Section IV(5)(b) of the January 30 FOP, is not the appropriate mechanism at this time for this purpose. Similarly, using budgeted fuel cost as the baseline for calculating cost savings is also inappropriate. As such, to consider this comment resolved, P3A requests Genera to substitute the provisions of Section IV(5)(b) of the Revised FOP (i.e., Methodology for Estimated Cost Savings) with language stating that PREB will determine the final compensation mechanism through Case No. NEPR-MI-2022-0004, In Re: Design of Fuel Procurement Hedging Strategy Program for the Puerto Rico Electric Power Authority or any other applicable regulatory proceeding.
 - (4) P3A does not object the Fuel Swap and Fuel Conversion Initiative described in Section VII of the Revised FOP: Fuel Change Initiative, subject to the provisions

of the Generation OMA and on the PREB's determination that the actions described therein are consistent with the then current approved Integrated Resource Plan ("IRP")⁷ and with any other regulatory requirements. As such, P3A considers this comment resolved.

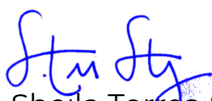
- (5) P3A supports the system upgrades described in Sections VII and VIII of the Revised FOP: Fuel Change Initiative and Asset Enhancement Initiative, respectively, subject to the PREB's determination that they are consistent with the then current approved IRP and with any other regulatory requirements.
- (6) Genera modified the formula described in Section III(1)(c) of the Revised FOP in accordance with the February 15, 2024, P3A comment. As such, P3A considers this comment resolved.

Based on the previous discussion, P3A **APPROVES** the Revised FOP, subject to the modifications described in comments (1) and (3) above.

As stated in the February 16, 2024, P3A's letter to Genera, with its initial Fuel Optimization Plan, and the updates approved herein, Genera takes the first steps towards making the fuel acquisition and management a more efficient process with the goal of reducing electricity prices in the island, while providing a more reliable and stable service to all customers. As such, P3A considers the Revised FOP a live document that will evolve as these initial initiatives are implemented and Genera develops new ones to further contribute to the stated goal. As stated in previous communications, P3A looks forward to these future developments.

If you have any questions, please feel free to contact us at Administrator@p3.pr.gov or (787) 722-2525.

Kindly,



Sheila Torres-Sterling
Chief Legal Counsel
Puerto Rico Public-Private Partnership Authority

CC:
Brannen McElmurray brannen@genera-services.com

⁷ See Final Resolution and Order on the Puerto Rico Electric Power Authority Integrated Resource Plan, In Re: Review of the Puerto Rico Electric Power Authority Integrated Resource Plan, Case No. CEPR-AP-2018-0001, August 24, 2020.

Exhibit C
P3 Authority Approved FOP



FUEL OPTIMIZATION PLAN

Draft submitted to Administrator on April 19, 2024

Draft Form Disclaimer

Please be advised that the information contained in this draft document is confidential and intended solely for discussion with the Puerto Rico Public-Private Partnerships (“P3 Authority” or “Administrator”) and the Puerto Rico Energy Bureau (“PREB”). If you are not the intended recipient, please notify Genera immediately and delete this document from your system. This document is a work in progress and is protected under commercial considerations. Any unauthorized use, disclosure, copying, or distribution of this document is strictly prohibited.

This disclaimer will be amended after the P3 Authority and PREB approve the document as final. Genera reserves the right to request PREB leave to produce a final public version of this document for public access and a sealed version that may only be accessed by the P3 Authority and PREB.

Disclaimer

The information provided in this plan is presented in accordance with the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("OMA"), which was signed on January 24, 2023, by the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3 Authority" or "Administrator"), and Genera PR LLC ("Genera"). Additionally, this plan adheres to the requirements of the Puerto Rico Energy Bureau of the Public Service Regulatory Board ("PREB"), as outlined in the matter of In Re: Genera PR, LLC Fuel Optimization Plan with docket number NEPR-MI-2023-0004. For further information, please refer to <https://energia.pr.gov/en/dockets/?docket=nepr-mi-2023-0004>.

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I. EXECUTIVE SUMMARY

PREPA's customers have experienced fluctuations in fossil fuel markets, resulting in increased fuel costs that are reflected in their monthly bills. As part of its role under the OMA, Genera is responsible for managing fuels for the Legacy Generation Assets and is committed to presenting a plan to the Administrator and PREB that outlines the Fuel Cost Savings Initiatives and expected methods for achieving estimated fuel savings during the OMA's term.

This Fuel Optimization Plan outlines Genera's vision and strategy to improve the management of fuels consumed by the Legacy Generation Assets¹ on the island of Puerto Rico for fiscal year 2024 ("FY2024"). The main objectives of this plan are to optimize the use and consumption of fuels by the Legacy Generation Assets and reduce the price of the associated fuels via specific and targeted fuel initiatives. The plan below provides specific details on multiple initiatives, how Genera will implement these initiatives and how these initiatives will be measured. These initiatives will be implemented in parallel with the overall improvement in the reliability and efficiency of the Legacy Generation Assets in compliance with Puerto Rico's public energy policy as implemented by PREB, the Integrated Resource Plan,² and related orders.³ The initiatives herein proposed will reduce the costs that customers pay for fuel adjustments, thus alleviating their energy bill spending until the diversification of generation technologies, led by renewable resources, is materialized.

Genera will achieve these objectives with the execution of these various Fuel Cost Savings Initiatives classified into four focus categories starting in FY2024:

¹ Pursuant to the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("OMA"), dated January 24, 2023, executed by and among PREPA, the Puerto Rico Public-Private Partnerships Authority ("P3 Authority" or "Administrator") and Genera, Genera is the sole operator and administrator of the fossil-fueled base-load generation plants and combustion turbine peaking units owned by PREPA (the "Legacy Generation Assets" or "LGA").

² Final Resolution and Order on the Puerto Rico Electric Power Authority Integrated Resource Plan approved by PREB on August 24, 2020 and available at <https://energia.pr.gov/wp-content/uploads/sites/7/2020/08/AP20180001-IRP-Final-Resolution-and-Order.pdf>

³ Any capitalized terms that are not defined will be given the meaning provided to them in the OMA.

FUEL ACQUISITION INITIATIVES

Fuel Acquisition Initiatives focus on reducing transport, testing, delivery, and storage costs of existing fuels within the current portfolio, which are liquified natural gas (“LNG”), heavy fuel oil (“HFO,” commonly referred to as “Bunker C”) and ultra-low sulfur diesel (“ULSD”). These initiatives will incorporate various forms of infrastructure optimization projects, including logistics-related market negotiations and modifications to subsequent requests for proposals (“RFPs”) that will achieve dollar cost savings and fuel supply chain reliability. The main Fuel Acquisition Initiatives are:

- Reducing ULSD adder
- Incorporate ULSD fuel supply reliability enhancements
- Change the fuel oil escalator and reduce the fuel oil adder
- Spot purchase

FUEL CREDIT AND PORTFOLIO OPTIMIZATION INITIATIVES

These initiatives incorporate risk management strategies and tools focused on mitigating volatility across the fuels portfolio and providing better protection against fuel price fluctuations. Genera will introduce price risk management with a conservative approach over the coming months and years, as the history of this concept has been marked by skepticism and highly criticized for its failure to contribute to lower fuel prices. The following Fuel Credit and Portfolio Optimization Initiatives are:

- Market-price risk management
 - Backwardation / contango market structures
 - Futures market-price caps
 - Futures market options
- Credit risk / payment-term management

FUEL SWAP AND CONVERSION INITIATIVES

Fuel Conversion Initiatives focus on the conversion of certain Legacy Generation Assets from burning diesel fuel to burning LNG. Fuel Swap Conversions and Initiatives focus on alternate fuel sources to maximize efficiency.

ASSET ENHANCEMENT INITIATIVES

Asset enhancement initiatives will focus on adding new equipment within the physical vicinity of the Legacy Generation Assets that are more fuel efficient and/or operate on any new alternative fuel (including natural gas and hydrogen) and reduce fuel costs within the overall system operation.

II. STRUCTURE OF THE FUEL OPTIMIZATION PLAN

Every initiative detailed throughout this Fuel Optimization Plan is organized in the following manner:

- **History and Background**

This section will provide some historical background on how this area has been managed to set the baseline for the newly adopted strategies in the following section.
- **Approach and Strategy**

This section will outline Genera's specific strategies for adopting the initiative to save on fuel costs.
- **Methodology Used to Determine Estimated Savings**

This section provides a methodology for calculating cost savings for the specific initiative. These methodologies will be different across specific initiatives and could also change and be different over different time horizons for a specific initiative.
- **Estimated Cost Savings**

This section provides estimated cost savings for the year the initiative is projected to be implemented.

- Implementation Timeline

This section provides a timeline of implementation for when the strategies associated with the initiative will be executed.

a. Summary of Cost Savings Initiatives

Below is a summary of all cost savings initiatives within each category, the estimated timing of implementation, and estimated dollar savings per fiscal year.

GENERA PR FUEL OPTIMIZATION PLAN						
CATEGORY	INITIATIVE	FY2024	FY2025	FY2026	FY2027	FY2028
Fuel Acquisition	REDUCE THE FIXED PREMIUM FOR ULTRA LOW SULFUR DIESEL (ULSD)	\$10.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	FUEL RELIABILITY ENHANCEMENTS FOR ULSD	\$6.0	\$1.0	\$1.0	\$1.0	\$1.0
Fuel Acquisition	REDUCE THE FIXED PREMIUM FOR FUEL OIL	\$0.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD	\$5.4	\$5.4	\$5.4	\$5.4	\$5.4
Fuel Optimization	PRICE RISK MANAGEMENT	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Fuel Optimization	PAYMENT TERM MANAGEMENT	\$0.0	\$2.0	\$6.0	\$8.0	\$8.0
Fuel Conversion	FUEL SWAP AND CONVERSION PROJECTS	\$0.0	\$75.0	\$75.0	\$75.0	\$75.0
Asset Enhancement	ASSET SUPPLEMENTING INITIATIVES	\$0.0	\$100.0	\$100.0	\$100.0	\$100.0
TOTAL ESTIMATE		\$21.4	\$187.4	\$191.4	\$193.4	\$193.4
	Evaluation / Planning Phase					
	Partial Implementation					
	Active Cost Savings Initiative					

Estimates are in millions of dollars per year

Cost savings estimates beyond fiscal year 2025 have a lower confidence level. As better insight becomes available, the plan will be updated.

b. Process to Review the Fuel Optimization Plan

This Fuel Optimization Plan may require modifications from time to time. Genera anticipates new initiatives and modifications of existing initiatives that will be introduced to the stakeholders and regulators throughout the life of the OMA. All reviews will be made in accordance with Section 4.2 (t) of the OMA and PREB orders.

Given the fuel market and its worldwide reach and volatility, during the first Contract Year, Genera may identify opportunities to adjust the scope or implementation of these programs on a trial basis to evaluate the effectiveness in cost-reducing even further. Upon a determination by Genera of a cost reduction opportunity within the term of any fiscal year, the changes

or modifications to the Fuel Optimization Plan shall be submitted to the Administrator and PREB for approval.

c. Conflicts

Any disagreements between Administrator and Operator regarding this Fuel Optimization Plan will be resolved pursuant to Section 4.2 (t) of the OMA.

d. Fuel Optimization Report and Fuel Optimization Payment

This Fuel Optimization Plan and the methodologies for calculating Actual Fuel Savings detailed herein will serve as the basis for Genera's annual Actual Fuel Savings calculations and the resulting Fuel Optimization Payment. Genera will present this information in a detailed Fuel Optimization Report, pursuant to Annex II, Section III (B)(6) of the OMA. The latter will also be followed to submit requests for payment of the Fuel Optimization Payment.

e. Regulatory Approval and Compliance

All projects proposed in this plan for the implementation of initiatives (such as fuel changes, conversions, upgrades, asset enhancement or modernization of the LGA) are subject to PREB approval. This ensures alignment with the operational Integrated Resource Plan and Puerto Rico's energy policy as established by applicable laws and regulations.

f. Implementation Costs

All incentives associated with the implementation of the FOP will be calculated net of implementation costs, including system upgrade costs.

III. FUEL ACQUISITION INITIATIVES

Introduction

Liquid fuels and natural gas are the two categories of fuel used for power generation in the Legacy Generation Assets. LNG, transported and supplied in its liquid form, is used at two locations: San Juan and Costa Sur power plants. Heavy fuel oil is used in the San Juan, Palo Seco, Costa Sur and Aguirre steam plants. Lastly, ULSD is used as a backup fuel in the four steam plants mentioned above and all emergency generation units across the Island.

Historically, PREPA purchased fuels using the general price concept of:

$$\text{final price} = \text{escalator} + \text{fixed premium} + \text{applicable taxes}$$

The escalator, sometimes referenced as price postings, will fluctuate up or down with the international oil price. To minimize the impact of price volatility of the international oil market in the final price of liquid fuels, changes to the reference price postings (escalator) must be evaluated to reduce basis and arbitrage risk. That is, by using a reference posting that better represents the market and the quality of the product being acquired, less volatility and dislocation of prices will occur. Note that price movement, including escalation in relation to the international price of oil, is unavoidable to a large degree. Some type of price risk management could be implemented to cap or minimize such escalation but at a certain cost (more on this subject in Section 10).

The fixed premium is affected mainly by intrinsic and extrinsic factors. The main intrinsic factor is the logistics costs associated with transport to the LGA sites. Supplying the required amount of fuels, at its mandated quality, to all the generation facilities has been challenging throughout the years due to logistics constraints, such as the limited receiving capacity of reserve tanks and restricted navigation capacity at receiving ports and docks. The need for a large storage terminal to receive medium capacity vessels (break bulk) and an ocean-going, US flag, dedicated barge for deliveries to the plants is a fixed cost that can only be recovered via the fixed premium. Optimizing key elements of the logistics chain is needed to ensure a reliable supply of liquid fuels, which

in turn could result in fuel cost savings. Changes to the acquisition process and the final supply contracts are necessary to achieve said improvements.

Extrinsic factors affecting the fixed premium are mainly:

- international freight rates,
- arbitrage and basis risk between the index price and the reference posting, quality differentials,
- credit risk,
- payment terms (cost of working capital),
- insurance and
- bonds

Factors affecting the escalator and the fixed premium are further discussed in the following sections, along with the corresponding optimization initiatives.

1. INITIATIVE: REDUCE THE FIXED PREMIUM FOR ULSD

a. Introduction and Background:

As part of the preparations for the new State Implementation Plan (“2022 SIP”) submitted by the Government of Puerto Rico to the Environmental Protection Agency (“EPA”) in the winter of 2022, PREPA changed the quality of most of the diesel being contractually acquired by PREPA from high and low sulfur diesel to ULSD for all generation plants. Palo Seco was the only plant requiring ULSD before the 2022 SIP. The expedited negotiations with the current diesel supplier, at that moment Novum Energy Trading, to change contractual specifications to the ULSD resulted in a significant increase in fixed premium of almost \$3.00/bbl effective in July 2022 to the end of the existing contract in November 2022, which was extended by mutual agreement to November 2023.

b. Approach and Strategies:

The reduction of the fixed premium for ULSD will occur annually during each year’s RFP for new fuel suppliers. A new ULSD RFP for FY2024 is ongoing, with active negotiations underway with two potential suppliers. Even with fuel reliability enhancements (see initiative no. 2 below), a new fixed premium is estimated to materialize in the \$2.75–\$3.00 range of savings per barrel. Genera will target additional optimization initiatives in future ULSD RFPs. These initiatives include but not be limited to (1) an increase in the number of potential bidders to create a more competitive bidding process, (2) Genera taking more control of the overall logistics chain (see initiatives 6, 7 & 8 below) and (3) Genera evaluating the adoption of additional on-site ULSD storage (see initiative 5 below).

c. Methodology used to determine estimated savings:

The methodology used for estimated cost savings for the reduction of the ULSD fixed premium will be as follows:

- The FY2024 methodology will compare the then-current fiscal year ULSD premium (FY2023 contract) to the new negotiated number for FY2024 based upon the then-annualized volume of

ULSD consumption across the generation system while the supplier's contract is in effect (estimated date is November 17, 2023, until November 16, 2024). For example, the FY2023 ULSD premium is set at \$10.60, with the FY2024 potential ULSD premium set to be somewhere around \$7.75 per barrel. The value difference equates to an estimated savings of \$2.85 per barrel consumed during the FY2024 supplier's contract date range (November 17, 2023 to November 16, 2024). At the end of the supplier contract year, Genera will submit to PREB the following example calculation for review and approval (See subsection (d) below for calculations on estimated savings for FY2024):

- Annualized ULSD volume consumed during supplier contract (November 17, 2023 to November 16, 2024): 1,000,000 barrels
- Cost savings from new supplier adder: \$2.85
- $\$2.85 * 1,000,000 = \$2,850,000$ savings during FY2024 for this initiative

Thus, the formula to calculate the savings is:

$(\text{FY2023 total ULSD premium paid} - \text{FY2024 total ULSD premium paid}) \times 2024 \text{ barrels}$

d. Estimated cost savings:

Using the methodology described above in subsection (c), the estimated savings from FY2024 ULSD premium is estimated to be \$2.85 per barrel (FY2023 of \$10.60 – FY2024 of \$7.75 = \$2.85 per barrel). Based upon the estimated volume of ULSD consumed during the FY2024 supplier's contract effective dates (estimated to be November 17, 2023 to November 16, 2024), the following table represents a range of the estimated dollar savings arising from the FY2024 reduction of the ULSD premium. The targeted range is wide due to the unknown ULSD demand.

ULSD Estimate Cost Savings @ \$2.85 per barrel					
Estimated Volume in BBLs	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000
Estimated Reduction In Adder	\$ 2.85	\$ 2.85	\$ 2.85	\$ 2.85	\$ 2.85
Estimated Annualized \$	\$5,700,000.00	\$7,125,000.00	\$8,550,000.00	\$9,975,000.00	\$11,400,000.00

Estimated total savings for FY2024 by reducing the ULSD premium is projected to be around \$8.5 million to \$10 million in savings.

Estimating cost savings for the future reductions of the ULSD premium will occur annually once the start of the future RFP has commenced. The communication of these future cost savings, if any, will be a part of the annual update of the Fuel Optimization Plan.

e. Implementation Timeline:

The implementation of the FY2024 reduction of ULSD premium will be for one year, starting on November 17, 2023, and until the expiration of the FY2024 ULSD supplier contract on November 16, 2024. Future RFPs should follow similar timing as the RFP process occurs once a year.

2. INITIATIVE: FUEL RELIABILITY ENHANCEMENTS FOR ULSD

a. Introduction and Background:

In November 2022, upon agreeing to extend the current ULSD supply agreement with a supplier, PREPA requested said supplier bring, at PREPA's full cost, a second barge of 50,000 bbls capacity to enhance distribution capabilities for diesel to all plants. This redundancy was needed primarily because the existing supply contract did not impose on the supplier the obligation to have a minimum stock reserve, especially during emergencies, nor the commitment to have a barge in Puerto Rico of a reasonable capacity to operate during normal and emergency periods. Historically, due to unforeseen supply disruptions, PREPA was forced to initiate diesel curtailments into one or more of the plants. The solution to this problem was to bring and pay for a second barge as a contingency.

b. Approach and Strategies:

An additional savings consideration for the FY2024 ULSD RFP premium is the removal of the use of an additional barge currently under operational control by the FY2023 supplier, Novum. Genera is implementing two specific changes in the current ULSD RFP for FY2024 to strengthen and achieve more control in the supply chain logistics, which should guarantee a more reliable and consistent supply of ULSD to all plants. The changes include (1) an increase in the minimum stock reserve to the amount of an additional 50,000 barrels of working capacity for Genera to call on in times of estimated heavier-than-normal ULSD demand and 2) a requirement that the supplier uses a minimum size barge (45,000 – 50,000 barrels) to optimize marine deliveries into all plants capable of receiving ULSD via water. Genera will work to implement other enhancements to future ULSD RFP and their resulting supply agreements in the following years to reduce fuel costs further and optimize operations.

c. Methodology used to determine estimated savings:

The methodology used for estimated cost savings for fuel reliability enhancements will be as follows:

- Compare the actual cost of the barge from December 2022 to November 2023 to not having to pay for the use during the FY2024 ULSD contract.

d. Estimated cost savings:

The additional barge costs Genera an estimated \$6.2 million per year. By removing the need for the second barge, mainly due to Genera's negotiated reserve stock and minimum barge requirements mentioned above in subsection (b) of this section, the FY2024 plan for ULSD will save an additional \$6.2 million.

Estimated total savings for FY2024 by reducing the ULSD premium is estimated to be around \$6.2 million in savings. This is a one-time savings.

Fuel savings for future years as a result of further enhancements to the ULSD supply contract are estimated at about \$1 million.

e. Implementation Timeline:

The fuel reliability enhancements will be implemented after the execution of the FY2024 ULSD RFP.

3. INITIATIVE: CHANGE OF FUEL OIL ESCALATOR AND REDUCTION OF FUEL OIL ADDER

a. Introduction and Background:

Historically, PREPA maintained an escalator for fuel oil purchases that was quite representative of the international price of fuel oil for the quality that PREPA was purchasing. In the 1980s and 1990s, PREPA was buying fuel oil of 2.0% maximum sulfur for Aguirre, San Juan and Palo Seco and 1.5% for Costa Sur. Price escalators for these fuels were the Platts Oilgram Report⁴ New York Harbor (NYH) 1.0% and 2.2% sulfur postings interpolated to the respective maximum sulfur for the specific generation plant. (i.e., 1.5% and 2.0%, as mentioned above). The NYH 1.0% sulfur posting was a widely used, very liquid posting traded at significant daily volumes, making this posting a reliable and efficient indicator of price for medium sulfur fuel oils in the region. Although postings for other regions were available (i.e., there was also a 1.0% sulfur posting for the US Gulf Coast), PREPA chose to continue using the NYH postings due to (a) its larger liquidity and (b) NYH was the largest importer/buyer of 1.0% sulfur fuel oil in the region while the US Gulf Coast was a net exporter.

In the early 2000s, the mandated sulfur specification for all fuel oil generation units was reduced to 0.5% sulfur. PREPA was then forced to change the escalator to the Platts NYH 0.7% and 0.3% sulfur interpolated to 0.5% sulfur. Although this new escalator was quite effective in tracking the value of sulfur of the new low sulfur fuel oil (“LSFO”), the respective postings of 0.7% and 0.3% were not as liquid and heavily traded as the prior 1.0% posting once was. It’s worth noting that LSFO was only consumed in the Northeast region of the US, thus reducing its daily consumption and trading volume.

In 2020, the International Maritime Organization (“IMO”) changed the worldwide sulfur specification for all bunker (marine) fuel oils. In the 3rd quarter of 2021, Platts announced that it would discontinue publishing the NYH 0.7% and 0.3%

⁴ Platts Oilgram Report is an independent publication of worldwide international oil prices published daily by Platts, a S&P Global Company.

sulfur postings effective December 31, 2022, due to low demand and traded volume, and instead would post a single 0.5% sulfur posting for all fuel oils based on the underlining market of marine fuel oils used for bunkering in the NYH. PREPA now uses the Platts NYH Marine 0.5% sulfur posting as the escalator for fuel oil.

This new escalator suffers from two significant deficiencies as an accurate escalator for 0.5% sulfur fuel oil used for power generation. First, the postings reflect only the volume of 0.5% sulfur fuel oil traded in the NYH for marine fuels, which is a relatively more minor volume than power generation used to be. It must be noted that LSFO used for power generation in the New York and Northeast region is almost nonexistent due to environmental regulations and the increase of natural gas as the preferred fuel. Second, it reflects volumes traded in smaller parcels (1000–3000 metric tonnes) of marine fuel sales as opposed to the typical 50,000 metric tonnes parcels used for power generation by PREPA. More importantly, the low volume of trading makes this posting vulnerable to significant volatility and even a certain degree of manipulation by market participants, even for brief periods.

b. Approach and Strategy:

Since almost all fuel oil volumes traded in the international oil market are done based on the more liquid, more transparent postings for crude oil, changing the escalator for the fuel oil purchases to a crude oil posting reference will achieve cost savings. Specifically, switching to a crude oil escalator will achieve cost savings by:

- The new crude escalator should be more accurate in terms of prices for large-scale utilities consuming fuel oil compared to a very small Northeast US fuel oil utility market;
- Allow for suppliers or Genera to more accurately manage the price risk of fuel oil because the current fuel oil price escalator (Platts .5%) has limited forward price discovery (these savings could show up in a supplier's reduced adder and via Genera's price risk management program, see price risk management section, initiative 10 below for further details); and

- Reduce the volatility of the escalator and subsequently reduce the opportunity for targeted price spikes due to manipulation or limited liquidity that have often occurred in the current pricing escalator.

Upon evaluating the various available crude oil postings that better reflect the value of LSFO, Brent Crude Oil appears to be a better choice to change to for the future escalator for fuel oil. All major components used by potential suppliers for blending IMO and power generation that consumes LSFO are traded basis Brent. For example, straight-run feedstocks, ultra-low sulfur cracked fuel oils, viscosity reducers, and even Brazilian LSFO are traded based on Brent crude oil posting references.

c. Methodology used to determine estimated savings:

Various methods will be utilized to assess cost savings by retrospectively reviewing the fiscal year's end. These are:

- Direct comparison of all fuel oil purchases for FY2024 using the awarded supplier's reported escalator + adder for the two posting references below (note each price escalator will have its own unique adder provided by each supplier):
 - a. Platts 0.5% + adder1
 - b. Brent Crude + adder2
- A second methodology for cost savings will be attributed to using Brent crude in our price risk management strategies as a more efficient and liquid price risk management instrument. Initiative 5, listed below, provides the specific cost savings methodologies.

d. Estimated cost savings:

At the time this plan was being presented to PREB, it was not possible to determine the actual FY2024 savings for the comparison of Brent's vs. Platt's actual pricing. A high-level estimated cost savings for the direct comparison of flat price (the Brent + adder1 to the Platts + adder2) is around \$0.25 to \$0.75 per barrel. An example of a reduced price using Brent + adder1 vs. Platts + adder2 using 12 million barrels of expected fuel oil consumption is:

- $\$0.25 * 12,000,000$ barrels of fuel oil = \$3,000,000 savings

After receiving bids from all RFP participants, it was determined that:

- Genera would not be changing the fuel oil escalator from Platts to Brent Crude Oil. The decision not to change was based upon historical and forward market analysis of the Brent Crude market and the Platts USAC .5% market escalators + each respective adder.
- b. The awarded fuel oil contract for FY2024 resulted in an increase in the adder by \$0.64 per barrel (current supplier adder is \$3.66 vs. new supplier at \$4.30)
- i. Current supplier pays \$2.78 for the adder but delivers fuel oil with lower BTU content (148,600 BTUs vs. FY2024 at 150,000 BTUs)
 - a. Note the current supplier's adder is being adjusted up by a BTU content value of \$0.88 per barrel (Based upon Genera PR market analysis)
 - ii. The increase of \$0.64 per barrel is mainly due to the following factors:
 - a. Increase in marine logistics costs
 - b. Increase in storage costs
 - c. Increase in financing costs
 - d. Increase in insurance costs
 - e. Inflationary cost increase for other items
 - f. Arbitrage and alternative product demand (bunker fuel market for global marine markets)

e. Implementation Timeline:

Based on the results from the last RFP and subsequent supply contract awarded in the fall of 2023, Genera decided not to change the escalator, considering the offers received were not deemed favorable. Furthermore, the adder under the existing escalator was not reduced. Therefore, this initiative will not be implemented in FY24. Genera will continue to evaluate available options for future years subject to market conditions and in the best interest of ratepayers.

4. INITIATIVE: SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD

a. Introduction and Background:

Explicit in both Fuel Oil and ULSD contracts is a clause that allows Genera to purchase up to 25% of the estimated fuel for the given contract year. If Genera finds fuel at a lower price than what is offered in the supplier's contract (Article I, Section B(1) for both Fuel Oil and ULSD contracts), then Genera can purchase lower-cost fuel.

b. Approach and Strategy:

Throughout the contractual year for a specific fuel, Genera will continue to monitor the market for spot fuel purchases. If, during that year, Genera identifies another market willing to sell ULSD or Fuel Oil at a cost less than the contractual price of the current supplier, Genera will negotiate with that new supplier to purchase the specific fuel.

c. Methodology used to determine estimated savings:

Compare the newly purchased fuel cost to the price of the contractual cost on the day of purchase (or an average over time if there are multiple purchases), and if the new purchase fuel acquisition cost is less than the current contracted supply, that difference will be considered for cost savings. Example:

- Current Fuel Oil contract starting on November 1, 2023 is Platts .5% + \$4.30 per barrel
- Spot Fuel Oil purchase opportunity is Platts .5% + \$2.80 per barrel
- All volume bought (up to 25% of annual Fuel Oil demand) * \$1.50 per barrel would be considered savings in this example

d. Estimated cost savings:

Estimating cost savings of \$5.4 million for FY2024. The goal is to achieve \$1.00 per barrel savings on 25% of the estimated annual ULSD portfolio of 3,600,000 barrels (equivalent to 900,000 barrels) and \$1.50 per barrel savings on 25%

estimate of the annual Fuel Oil portfolio of 12,000,000 barrels (equivalent to 3,000,000 barrels).

e. Implementation timeline:

This initiative will be implemented during FY2024.

IV. FUEL PORTFOLIO OPTIMIZATION INITIATIVE

5. INITIATIVE: PRICE RISK MANAGEMENT

a. Introduction and Background:

With the exception of isolated instances, PREPA did not consistently manage price exposure in the past. Attempts by PREPA to fix or cap the escalation of prices (moves in the international price of oil or “flat price”) have been repeatedly debated and questioned because of its interpretation as price speculation.

Deliveries of liquid fuels to Legacy Generation Assets are usually made in sizes that can sustain the plants for 5–10 days in Aguirre and 15–20 days in San Juan, Palo Seco, and Costa Sur for fuel oil and diesel. For gas turbine generation stations (peakers), diesel deliveries are made in even shorter periods. This is due to the relatively small reserve capacity for liquid fuels.

Pricing periods for each fuel delivery are based on the three-day average around the delivery date (typically depicted as -1, 0, +1 pricing days). Therefore, the average cost of fuel often corresponds to the average monthly flat price, rendering the use of intra-month hedging⁵ ineffective and even unnecessary under normal circumstances.

b. Approach and Strategies:

The main objective for implementing this price risk management initiative is to manage commodity price volatility and provide stability to fuel prices throughout the year. Consulting services company Deloitte defines commodity price risk as *“the financial risk on an entity’s financial performance or*

⁵ Hedging is a mechanism to manage price exposure using the commodity future financial markets when there is time (different pricing periods), quality (basis risk) and/or location (arbitrage).

profitability based upon fluctuations in the prices of the commodities that are out of the control of the entity due to external market forces.”⁶

The following figure shows the key components of a price risk management program.



Due to the complexity of price risk management programs, understanding how to design and develop such a program for a complex web of entities such as a public-private partnership and the overall importance of gaining buy-in from all stakeholders, Genera anticipates spending a significant time on FY024 in the initial development of the framework, policies, tactical strategies, audit & governance metrics and internal & external reporting of a price risk management program. This initial phase will ensure all stakeholders understand and approve of the overall risks and objectives of this important cost savings initiative. This initiative is still a work in progress, but Genera found it important to share the initial strategy for this first fuel optimization plan.

If an overall framework and price risk management program gets developed and approved in FY2024, there could be opportunities for cost savings. In the case of the Legacy Generation Assets and the portfolio of fuels used for electricity generation, Genera would implement certain price risk

⁶ Deloitte & MCX, Commodity Price Risk Management: A Manual of Hedging Commodity Price Risk for Corporates (2018), available at <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/risk/in-risk-overview-of-commodity-noexp.PDF>.

management strategies to reduce these fluctuations in prices compared to planned and budgeted costs. The tactical methodologies will be simple in approach at first and, if needed, further developed in complexity over time. Implementing a conservative approach to price-risk management will be key during the initial stage of Genera's management of the generation system. Examples of Genera's initial strategies for managing price risk include a budget and time methodology. These strategies are defined as:

- Budget

This type of strategy is used to manage the price of fuel that was defined during a budgetary process. Certain price risk management instruments will be executed at the time of the budgetary process to fix a certain percentage of the forward price of the fuel portfolio (note these numbers will be based upon reviewed, approved, and auditable PROMOD, our equal economic dispatch modeling result produced values). This will show the stability of fuel prices throughout the year since they will have been fixed at a certain level, and any price increases will be abated. However, due to the unknown demand for fuel for a given year, Genera considers it reasonable to implement an approach in which no more than 30% of anticipated fuel demand is fixed at the start of a budgetary year. Limiting the amount of the fuel portfolio to 30% fixed provides a greater level of certainty that you don't run the risk of overbuying a certain fuel. As mentioned above, these tactical strategies will be further refined throughout FY2024 as Genera finalizes the price risk management framework.

- Time

This type of strategy is used to manage the price of fuel on a volumetric basis, meaning by some date in time, a certain percentage of the anticipated fuel demand will be price risk managed (or hedged) at a certain price. The following is a detail of a potential example.

1. Before the start of any quarter, 25% of that quarter's estimated total fuel demand must be hedged 45 days prior to the start of the quarter. Example for Q4-2023 (illustrative purposes only):

- a. Estimate 3,000,000 barrels of fuel oil / 900,000 barrels of ULSD and 18 TBtu of natural gas are expected to be consumed during Q4-2023
- b. Starting 45 days prior to October 1, 2023, if no volume has been price risk managed “hedged” up to this point, this strategy would implement a mandate hedge for 25% of each of the fuels within the fuel portfolio (750,000 barrels of fuel oil, 225,000 barrels of ULSD and 4.5 TBtu of natural gas) at best achievable pricing.

The following risk management instruments would be used opportunistically to manage market price risk across the fuel portfolio utilizing a “Time” or “Budget” strategy described above.

- Futures Market - SWAPS (LNG, Fuel Oil and ULSD)
The use of swaps or price limits to temporarily set price caps could be utilized to control estimated increases in short-term fuel prices for budgetary purposes. The cost of said price caps could, at times, be expensive, especially now with the implied volatility of all the underlying generation fuels. Therefore, a careful analysis would be needed on a case-by-case basis. In this case, resulting cost savings must be limited to or expressed as fuel budget savings.
- Futures Contracts - Fixed Price (LNG, Fuel Oil and ULSD)
The use of futures contracts will also be used opportunistically to control estimated increases in short-term fuel prices for budgetary purposes. Buying fixed-price futures contracts provides more levels of guarantees across the portfolio and will be limited to a lower percentage of total volume due to the uncertainty of the generation unit demand. This will change over time as the system becomes more reliable and the demand profile becomes more assured.
- Backwardation / Contango Market Structures - (Phys. Fuel Oil and ULSD decisions)
Due to limited reserve storage capacity at the plants and the continued forced outages of base generation units, Genera must

consistently keep a high inventory in all reserve tanks. This exposes Genera to “market structure,” otherwise known as “contango” or “backwardation.” When the oil market structure is in contango, the future price of oil is higher than prompt prices, resulting in a positive price exposure (i.e., the weighted average price will be lower than otherwise would have been if purchases were delayed to a future period). On the other hand, when the market structure is in backwardation, the future price of oil is lower than prompt prices, resulting in a negative price exposure (i.e., the weighted average price will be higher than otherwise would have been if purchases were delayed to a future period).

Genera’s exposure to market structure could be managed using two methods: (1) managing end-of-the-month receipts and inventories or (2) hedging intra and inter-month future prices on the underlying price index (ULSD for diesel and Brent for fuel oil).

c. Methodology for Estimated Cost Savings:

The main methodology for estimating cost savings of any of the previously mentioned price risk management strategies will be to compare the budgeted price per barrel and the price per MBTU forecasted for fuel purchases to the actual hedged and fixed price per barrel and price per MBTU realized for a given time frame. The most appropriate time frame will be for each fiscal year.

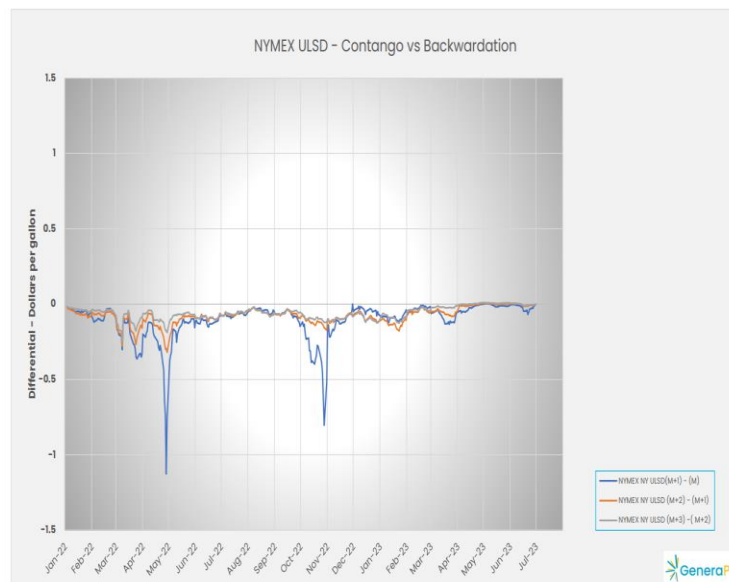
- Example: For FY2024, the prices budgeted for ULSD and fuel oil are set at \$119.28 per barrel and fuel oil at \$96.01 per barrel, respectively.
- One million barrels of ULSD was hedged at \$115 per barrel during various months of FY2024 (either by executing a future, swap, option or any of the previously mentioned financial or physical price risk management instruments).
- The cost savings in this example would be $\$119.28 - \$115 = \$4.28 * 1,000,000$ barrels for a total cost savings of \$4,280,000. *This is irrespective of where the market prices were on the day of physical delivery for the barrel in which the prices were hedged.*

Another methodology that will be used is one that will compare the structure of the underlying forward curve (“contango” or “backwardation”) to make decisions around physical end-of-month or beginning-of-month deliveries “purchases.”

- Example: In the Heating Oil structure below, a decision will be made to commence delivery at the start of August 2023 (\$2.9006 per gallon ULSD) vs. the end of July 2023 (\$2.9169 per gallon for ULSD). The decision to delay delivery until August would save an estimated \$0.016 cents per gallon / \$0.67 per barrel could be achieved by delaying that delivery.
- Note the second chart below showing Heating Oil contracts from January 2022 to June 2023 showing extreme periods of contango or, in this case, backwardation.

Commodity Futures Price Quotes For Heating Oil (NYMEX)
 (Price quotes for NYMEX Heating Oil delayed at least 10 minutes as per NYMEX rules)
 Also available: electronic Session Quotes

Click for Chart	Open	High	Low	Last	Current Session Time
Cash	2.9169	2.9169	2.9169	2.9169	20:25 Jul 27
Aug'23	2.9006	2.9748	2.8862	2.9586	15:44 Jul 28
Sep'23	2.9017	2.9651	2.8777	2.9498	15:59 Jul 28
Oct'23	2.8839	2.9356	2.8552	2.9211	15:59 Jul 28
Nov'23	2.8283	2.8884	2.8184	2.8769	15:59 Jul 28
Dec'23	2.7799	2.8387	2.7759	2.8292	15:54 Jul 28
Jan'24	2.7620	2.8041	2.7549	2.7969	15:49 Jul 28
Feb'24	2.7361	2.7695	2.7242	2.7657	14:30 Jul 28
Mar'24	2.6912	2.7328	2.6893	2.7296	15:02 Jul 28
Apr'24	2.6569	2.6882	2.6547	2.6872	15:01 Jul 28
May'24	2.6351	2.6555	2.6254	2.6555	14:56 Jul 28
Jun'24	2.6058	2.6311	2.5977	2.6293	14:56 Jul 28



PREB will determine the final compensation mechanism through Case No. NEPR-MI-2022-0004, In Re: Design of Fuel Procurement Hedging Strategy Program for the Puerto Rico Electric Power Authority or any other applicable regulatory proceeding.

d. Estimated Cost Savings:

Estimated savings for FY2025 and beyond are mainly dependent upon budgeted prices for each fuel versus market movements in the prices of those fuels during that specific fiscal year. A reasonable approach to estimating savings would be 0.25% to 1% of the total notional value of the fuel budget (equivalent to \$0.25 to \$1.00 per barrel) that could be achieved annually using the previously mentioned price risk management methodologies and financial/physical instruments. FY2025 estimates would range from \$10 to \$20 MM dollars in estimated savings using the ranges defined above.

Total cost savings estimated for price risk management initiatives are estimated to be between \$5 million and \$20 million per year.

IMPLEMENTATION TIMELINE:

This initiative continues to be evaluated in FY2024. The estimate remains that this initiative will be implemented during the second half of FY2024 through the first half of FY2025. During FY2024, the main focus will be on:

- Finalizing a framework and policy for the price risk management program and receiving approval from PREB
- Execute the strategies mentioned above or further develop them in the policy phase as soon as possible after receiving approval from PREB (estimate FY2024 / FY2025).

V. FUEL CREDIT OPTIMIZATION INITIATIVE

6. INITIATIVE: PAYMENT TERMS MANAGEMENT

a. Introduction and Background:

Historically, PREPA has paid high financing costs due to the market's view of its creditworthiness. This is exacerbated by the fact that PREPA requires large amounts of credit (upwards of \$200 million on the fuel oil contract), and it has been requested in the current Fuel Oil RFP that suppliers provide up to 60-day payment terms. These contractual requirements and the current state of the economy have led to high financing costs for all the liquid fuel supply. Most recent analysis shows that there are somewhere around 13% to 15% annualized financing costs for this credit.

b. Approach / Strategies:

Genera will endeavor to pursue all possible avenues available under the current fuels RFP framework to achieve better financing terms and reduce fuel premiums. Future RFPs will ensure that all bidders are provided with options for 60-day, 30-day, and even 15-day financing terms. These financing term improvements could be achieved through the following financing options: 1) due to optimization of the current order to cash process, 2) leveraging outside third-party financing, or 3) through the use of the Operator's own capital. Fuel contracts will be renegotiated and extended or replaced as per government guidelines, with Genera acting as an intermediary providing increased access to the market.

c. Methodology for Estimated cost savings:

The methodology will be to compare suppliers' price offerings under the typical credit and payment terms determined by the RFP process (30 / 60-day terms and various credit limits) and then see if those values will be lowered if the RFP allows for earlier payment terms and lower credit limits.

For example, during one of the RFP processes, a bidder provided the following 30-day and 60-day payment terms for fuel (the numbers have been changed, but the relative difference is the same):

- 30-day price was Escalator + \$10.00 per barrel
- 60-day price was Escalator + \$11.00 per barrel

Genera will seek secondary 3rd party financing options for a 30-day payment term, pay the fuel supplier in 30 days at \$10 per barrel (price premium if paid in 30 days), and if the secondary financing option is cheaper than \$1.00 per barrel for (\$11.00 - \$10.00) for another 30-day credit term, then there will be cost savings to share. Example:

- Product supplier's 30-day price is escalator + \$10.00 per barrel
- Additional financing option for 30-day is \$0.50 per barrel
- All in costs under this example for 60-day payment terms would be escalator + \$10.50 per barrel
- Under this example, there would be \$.50 per barrel of savings for a 60-day payment term (\$11.00 adder under an original supplier) – (\$10.00 adder under original supplier 30-day adder + 3rd party financing of \$0.50); $\$11.00 - \$10.50 = \$0.50$

d. Estimated cost savings:

Estimated savings for FY2025 are around \$.25 to \$.50 a barrel on the liquids fuel portfolio of 16 million barrels, with estimated annual savings of \$4 million to \$8 million dollars.

e. Implementation Timeline:

This initiative will be implemented during FY2025, but there is a chance that this could be adopted during the FY2024 plan.

f. Implementation Timeline:

This initiative will be implemented during FY2025, but there is a chance that this could be adopted during the FY2024 plan.

VI. FUEL CHANGE INITIATIVE

7. INITIATIVE: FUEL SWAP AND FUEL CONVERSION INITIATIVES

a. History / Background

Most generation units comprising the LGA have become inefficient and out of compliance with current EPA and local environmental regulations. As such, and in compliance with PREB's orders and Puerto Rico's public policy requirements, most of the LGA must be retired and decommissioned. Nonetheless, due to the unexpected delays in integrating new generation assets or energy purchase agreements, part of the LGA must remain in service longer than expected and planned⁷. This is necessary to ensure resource adequacy while the transformation and modernization of the energy system is completed (i.e., PPOAs, new generation assets, renewable and storage resources).

The conversions of some of the LGA to burn cleaner, sustainable, and less costly fuel would provide a substantial runway to the full decommissioning and transition plan. These converted dispatchable units could remain as the necessary backup generation to the 50% renewable fleet that is planned, as well as back-up and grid support services provider and peaking units once the target of 100% is met.

Fuel swap initiatives will cover those LGA units where most, if not all, of the capital required to convert the current LGA to run on a different fuel source has been completed. Typically, with these initiatives, the capital required will be limited to additional infrastructure improvements required to receive the new type of fuel (receipt of LNG deliveries versus receipt of other liquid hydrocarbons such as ULSD or fuel oil).

⁷ At this time, the ~600MW solar PV from Tranche 1 renewable energy projects (representing an estimated 138 MW of intermittent energy) are not expected to come online until early 2026 with that date being at risk for delays.

b. Approach / Strategy

Fuel swap initiatives will be the initial focus as those projects will require the least amount of capital, be the quickest to implement, and have the potential for the greatest cost savings to the ratepayer.

Fast-forwarding the conversion effort for certain LGA to run on cheaper and cleaner fuels, such as LNG, instead of continuing to use ULSD or heavy fuel oil would allow the system to remain reliable and more sustainable while creating substantial savings for the customers as the energy system transformation is completed. Savings would be realized not only in the reduction of fuel costs but also in the reduction of operation and maintenance costs⁸ and the reduction in revenue losses stemming from fewer maintenance outages.

An efficient methodology to maximize and achieve savings is conducting the conversion works in a priority-based approach. After an evaluation of the capacity of each of the LGA that could be converted to dual-fuel, using LNG as the primary fuel, Genera suggests PREB that the following approach is followed:

1. **Savings impact to the ratepayer:** Units that are prepared to run on LNG and only require simple infrastructure changes (mainly replacement of parts) should be prioritized over other LGA units that require conversion.
2. **Time to implementation:** Units in which fuel can be swapped, or that can be converted in a shorter time should be converted sooner than others that require more time.
3. **Capital Investment:** Units that require the least amount of capital to convert should be converted sooner than others that require more capital investment. Fuel swap initiatives should have priority here.
4. **Commitment to no stranded costs.** In either Fuel Swap or Fuel Conversion initiatives, ensuring that any costs incurred beyond the then-allowed in the IRP, budgets, or other regulatory parameters are not acceptable.

⁸ Genera is currently estimating savings of ~ \$24MM for swapping from diesel to LNG.

5. **Commitment to reduction in maintenance.** In either initiative, fuel swap or fuel conversion, there will be a focus on reducing long-term maintenance costs as a part of the project.

Using the above prioritization methodology, a fuel swap or fuel conversion plan could be implemented in the following phases:

Phase 1 – Fuel Swaps

Units are already designed for dual-fuel

- Mayagüez - 220 MW
- Palo Seco Mobile Packs - 81 MW

Phase 2 – Conversion

Units that require capital investment to prepare to use dual-fuel

- Cambalache - 165 MW

Phase 3 – Modernization

Units that require higher capital investments than a conversion to upgrade and modernize to use dual-fuel:

- Aguirre Combined Cycle Units - 609 MW

All fuel conversions and modernizations are subject to PREB and regulatory approvals.

c. Methodology Used to Determine Estimated Savings

Genera will compare the delivered LNG cost into the converted facility each year versus the ULSD delivered price. The LNG delivered price will be based on the current supplier of LNG into the converted facility, and the ULSD price will be based on the then-current ULSD supplier to other LGA. Fuel savings will be calculated after all capital costs are recovered or accounted for.

d. Estimated Cost Savings

The estimated savings from a ULSD to LNG fuel swap initiative at the 220 MW LGA in Mayaguez is around \$75 million in annual savings. These savings were calculated using the following conservative data inputs:

1. A lower-than-normal capacity factor of 25% to 50%
2. A four-year forward delivered price average for ULSD of \$110 per barrel, \$19.00 MMBtu (current market price for ULSD is ~\$135 per barrel delivered, \$23.25 per MMBtu)
3. A four-year forward delivered price of natural gas at \$11.00 per MMBtu (current market price for natural gas is ~\$10.00 per MMBtu delivered)

Estimated savings from each conversion project will differ depending upon capital investment, time to market, supply agreements and general market conditions present during the useful life of the converted facility.

e. Implementation Timeline

The initial step to unlock the substantial savings that can be generated by converting units to operate with LNG as the primary fuel is PREB's leave. Assuming, for purposes of this evaluation, that Genera is granted leave to begin the Mayaguez swap by February 1, 2024, the construction needed for the fuel swap could be completed around May 1, 2024, and the unit can be commissioned to be dispatched mainly in LNG in the Summer 2024.⁹ Thus, a first tier of substantial savings can be realized in FY2024, and with this project alone, the savings for FY2025 could be around \$75 MM.

The Phase 2 and Phase 3 projects' start dates and completion estimates are contingent on PREB approval.

⁹ Nevertheless, the final approval that will allow the units to operate in the new alternative fuel is leave and permitting from environmental agencies.

VII. ASSET ENHANCEMENT INITIATIVE

8. INITIATIVE: ASSET SUPPLEMENTING INITIATIVES

a. History / Background

Genera has identified certain Legacy Generation Assets suitable for the “addition of power generation equipment which is more fuel efficient and/or can operate on an alternative and more economical fuel”¹⁰ that would result in substantial fuel savings. Such power generation equipment may include new, smaller capacity units that could utilize existing fuel supply infrastructure in a particular LGA. The two most important objectives of this initiative are (i) expected fuel savings and (ii) minimal or no upfront capital investment (i.e., which would result in minimal or no stranded costs at the end of the useful life of the supplemental power generation equipment). The latter would be achieved by leasing generation units instead of outright acquisition.

b. Approach / Strategy

The anticipated leasing cost of the units will be covered by the fuel savings achieved on each implementation. Other than any fuel delivery interconnection and other minimal upgrades, no other stranded cost(s) are envisioned.

All works related to asset supplementing initiatives must be evaluated are subject to PREB and regulatory approvals.

c. Methodology Used to Determine Estimated Savings

Genera will use the concept of substituted fuel costs to compute achieved fuel savings. The substituted fuel cost methodology will compare the cost of the lower fuel cost (i.e., LNG) to the next higher fuel cost substituted by the new generation (i.e., fuel oil or diesel, depending on unit dispatch and availability). Fuel savings will be calculated after all capital costs are recovered or accounted for.

¹⁰ OMA, Fuel Const Savings Initiative definition.

d. Estimated Cost Savings

Estimated cost savings will be on a project-by-project basis using the methodology described in point C above.

e. Implementation Timeline

The precise timeline is unknown at this time, but the first project implementation could begin as early as 4QFY24.

Exhibit D

Redline version of Amended FOP



FUEL OPTIMIZATION PLAN

Draft submitted to Administrator on ~~January 4, 2023~~ April 19, 2024

Draft Form disclaimer

Please be advised that the information contained in this draft document is confidential and intended solely for discussion with the Puerto Rico Public-Private Partnerships (“P3 Authority” or “Administrator”) and the Puerto Rico Energy Bureau (“PREB”). If you are not the intended recipient, please notify Genera immediately and delete this document from your system. This document is a work in progress and is protected under commercial considerations. Any unauthorized use, disclosure, copying, or distribution of this document is strictly prohibited.

This disclaimer will be amended after the P3 Authority and PREB approve the document as final. Genera reserves the right to request PREB leave to produce a final public version of this document for public access and a sealed version that may only be accessed by the P3 Authority and PREB.

Disclaimer

The information provided in this plan is presented in accordance with the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("OMA"), which was signed on January 24, 2023, by the Puerto Rico Electric Power Authority ("PREPA"), the Puerto Rico Public-Private Partnerships Authority ("P3 Authority" or "Administrator"), and Genera PR LLC ("Genera"). Additionally, this plan adheres to the requirements of the Puerto Rico Energy Bureau of the Public Service Regulatory Board ("PREB"), as outlined in the matter of In Re: Genera PR, LLC Fuel Optimization Plan with docket number NEPR-MI-2023-0004. For further information, please refer to <https://energia.pr.gov/en/dockets/?docket=nepr-mi-2023-0004>.

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I. EXECUTIVE SUMMARY

PREPA's customers have experienced fluctuations in fossil fuel markets, resulting in increased fuel costs that are reflected in their monthly bills. As part of its role under the OMA, Genera is responsible for managing fuels for the Legacy Generation Assets and is committed to presenting a plan to the Administrator and PREB that outlines the Fuel Cost Savings Initiatives and expected methods for achieving estimated fuel savings during the OMA's term.

This Fuel Optimization Plan outlines Genera's vision and strategy to improve the management of fuels consumed by the Legacy Generation Assets¹ on the island of Puerto Rico for fiscal year 2024 ("FY2024"). The main objectives of this plan are to optimize the use and consumption of fuels by the Legacy Generation Assets and reduce the price of the associated fuels via specific and targeted fuel initiatives. The plan below provides specific details on multiple initiatives, how Genera will implement these initiatives and how these initiatives will be measured. These initiatives will be implemented in parallel with the overall improvement in the reliability and efficiency of the Legacy Generation Assets in compliance with Puerto Rico's public energy policy as implemented by PREB, the Integrated Resource Plan,² and related orders.³ The initiatives herein proposed will reduce the costs that customers pay for fuel adjustments, thus alleviating their energy bill spending until the diversification of generation technologies, led by renewable resources, is materialized.

¹ Pursuant to the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("OMA"), dated January 24, 2023, executed by and among PREPA, the Puerto Rico Public-Private Partnerships Authority ("P3 Authority" or "Administrator") and Genera, Genera is the sole operator and administrator of the fossil-fueled base-load generation plants and combustion turbine peaking units owned by PREPA (the "Legacy Generation Assets" or "LGA").

² Final Resolution and Order on the Puerto Rico Electric Power Authority Integrated Resource Plan approved by PREB on August 24, 2020 and available at <https://energia.pr.gov/wp-content/uploads/sites/7/2020/08/AP20180001-IRP-Final-Resolution-and-Order.pdf>

³ Any capitalized terms that are not defined will be given the meaning provided to them in the OMA.

Genera will achieve these objectives with the execution of these various Fuel Cost Savings Initiatives classified into threefour focus categories starting in FY2024:

FUEL ACQUISITION INITIATIVES

Fuel Acquisition Initiatives focus on reducing transport, testing, delivery, and storage costs of existing fuels within the current portfolio, which are liquified natural gas (“LNG”), heavy fuel oil (“HFO,” commonly referred to as “Bunker C”) and ultra-low sulfur diesel (“ULSD”). These initiatives will incorporate various forms of infrastructure optimization projects, including logistics-related market negotiations and modifications to subsequent requests for proposals (“RFPs”) that will achieve dollar cost savings and fuel supply chain reliability. The main Fuel Acquisition Initiatives are:

- Reducing ULSD adder
- Incorporate ULSD fuel supply reliability enhancements
- Change the fuel oil escalator and reduce the fuel oil adder
- Spot purchase

FUEL CREDIT AND PORTFOLIO OPTIMIZATION INITIATIVES

These initiatives incorporate risk management strategies and tools focused on mitigating volatility across the fuels portfolio and providing better protection against fuel price fluctuations. Genera will introduce price-risk management with a conservative approach over the coming months and years, as the history of this concept has been marked by skepticism and highly criticized for its failure to contribute to lower fuel prices. The following Fuel Credit and Portfolio Optimization Initiatives are:

- Market-price risk management
 - Backwardation / contango market structures

- Futures market-price caps
- Futures market options
- Credit risk / payment-term management

FUEL EFFICIENCY INITIATIVES

~~FUEL EFFICIENCY INITIATIVES FOCUS ON IMPROVING THE EFFICIENCY OF THE LEGACY GENERATION ASSETS BY MAKING IMPROVEMENTS TO THE PLANTS THEMSELVES. THESE ENGINEERING PROJECTS WILL INCLUDE A WIDE-RANGING LEVEL OF TASKS, FROM SIMPLY FAST-FORWARDING THE IMPLEMENTATION OF DELAYED MAINTENANCE WORK TO THE REPLACEMENT OF CERTAIN CRITICAL PIECES OF INFRASTRUCTURE OR TO THE INVESTMENT INTO VARIOUS TECHNOLOGIES CAPABLE OF IMPROVING THE OVERALL OUTPUT OF THE GENERATION UNITS UNTIL THEY ARE REPLACED BY OTHER GENERATION TECHNOLOGIES, LIKE RENEWABLE AND STORAGE RESOURCES. THE PRIMARY AIM OF THESE PROJECTS IS TO ENHANCE THE FUEL EFFICIENCY OF THE FOSSIL FUEL GENERATION FLEET, WHICH WILL LOWER THE OVERALL COST OF FUEL TO THE RATEPAYER UNTIL THE FLEET IS RETIRED IN ACCORDANCE WITH THE INTEGRATED RESOURCE PLAN.~~

FUEL SWAP AND CONVERSION INITIATIVES

Fuel Conversion Initiatives focus on the conversion of certain Legacy Generation Assets from burning diesel fuel to burning LNG. Fuel [SWAP](#)[Swap](#)[Conversions](#)[and](#) Initiatives focus on alternate fuel sources to maximize efficiency.

ASSET ENHANCEMENT INITIATIVES

Asset enhancement initiatives will focus on adding new equipment within the physical vicinity of the Legacy Generation Assets that are more fuel efficient and/or operate on any new alternative fuel (including natural gas and hydrogen) and reduce fuel costs within the overall system operation.

II. STRUCTURE OF THE FUEL OPTIMIZATION PLAN

Every initiative detailed throughout this Fuel Optimization Plan is organized in the following manner:

- **History and Background**
This section will provide some historical background on how this area has been managed to set the baseline for the newly adopted strategies in the following section.
- **Approach and Strategy**
This section will outline Genera's specific strategies for adopting the initiative to save on fuel costs.
- **Methodology Used to Determine Estimated Savings**
This section provides a methodology for calculating cost savings for the specific initiative. These methodologies will be different across specific initiatives and could also change and be different over different time horizons for a specific initiative.
- **Estimated Cost Savings**
This section provides estimated cost savings for the year the initiative is projected to be implemented.
- **Implementation Timeline**
This section provides a timeline of implementation for when the strategies associated with the initiative will be executed.

a. Summary of Cost Savings Initiatives

Below is a summary of all cost savings initiatives within each category, the estimated timing of implementation, and estimated dollar savings per fiscal year.

GENERA PR FUEL OPTIMIZATION PLAN						
CATEGORY	INITIATIVE	FY2024	FY2025	FY2026	FY2027	FY2028
Fuel Acquisition	REDUCE THE FIXED PREMIUM FOR ULTRA LOW SULFUR DIESEL (ULSD)	\$10.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	FUEL RELIABILITY ENHANCEMENTS FOR ULSD	\$6.0	\$1.0	\$1.0	\$1.0	\$1.0
Fuel Acquisition	REDUCE THE FIXED PREMIUM FOR FUEL OIL	\$0.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD	\$5.4	\$5.4	\$5.4	\$5.4	\$5.4
Fuel Optimization	PRICE RISK MANAGEMENT	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Fuel Optimization	PAYMENT TERM MANAGEMENT	\$0.0	\$2.0	\$6.0	\$8.0	\$8.0
Fuel Conversion	FUEL SWAP AND CONVERSION PROJECTS	\$0.0	\$75.0	\$75.0	\$75.0	\$75.0
Asset Enhancement	ASSET SUPPLEMENTING INITIATIVES	\$0.0	\$100.0	\$100.0	\$100.0	\$100.0
TOTAL ESTIMATE		\$21.4	\$187.4	\$191.4	\$193.4	\$193.4
	Evaluation / Planning Phase					
	Partial Implementation					
	Active Cost Savings Initiative					
<i>Estimates are in millions of dollars per year</i>						
GENERA PR FUEL OPTIMIZATION PLAN						
CATEGORY	INITIATIVE	FY2024	FY2025	FY2026	FY2027	FY2028
Fuel Acquisition	REDUCE THE FICED PREMIUM FOR ULTRA LOW SULFUR DIESEL (ULSD)	\$10.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	FUEL RELIABILITY ENHANCEMENTS FOR ULSD	\$6.0	\$1.0	\$1.0	\$1.0	\$1.0
Fuel Acquisition	REDUCE THE FICED PREMIUM FOR FUEL OIL	\$0.0	\$2.0	\$2.0	\$2.0	\$2.0
Fuel Acquisition	SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD	\$5.4	\$5.4	\$5.4	\$5.4	\$5.4
Fuel Optimization	PRICE RISK MANAGEMENT	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Fuel Optimization	PAYMENT TERM MANAGEMENT	\$0.0	\$2.0	\$6.0	\$8.0	\$8.0
Fuel Efficiency	FUEL EFFICIENCY INITIATIVE	\$0.0	\$0.0	\$30.0	\$30.0	\$30.0
Fuel Conversion	FUEL SWAP AND CONVERSION PROJECTS	\$0.0	\$75.0	\$75.0	\$75.0	\$75.0
Asset Enhancement	ASSET SUPPLEMENTING INITIATIVES - Work in progress	\$0.0	\$100.0	\$100.0	\$100.0	\$100.0
TOTAL ESTIMATE		\$21.4	\$187.4	\$221.4	\$223.4	\$223.4
	Evaluation / Planning Phase					
	Partial Implementation					
	Active Cost Savings Initiative					
<i>Estimates are in millions of dollars per year</i>						

Cost savings estimates beyond fiscal year 2025 have a lower confidence level. As better insight becomes available, the plan will be updated.

b. Process to Review the Fuel Optimization Plan

This Fuel Optimization Plan may require modifications from time to time. Genera anticipates new initiatives and modifications of existing initiatives that will be introduced to the stakeholders and regulators throughout the life of the

OMA. All reviews will be made in accordance with Section 4.2 (t) of the OMA and PREB orders.

Given the fuel market and its worldwide reach and volatility, during the first Contract Year, Genera may identify opportunities to adjust the scope or implementation of these programs on a trial basis to evaluate the effectiveness in cost-reducing even further. Upon a determination by Genera of a cost reduction opportunity within the term of any fiscal year, the changes or modifications to the Fuel Optimization Plan shall be submitted to the Administrator and PREB for approval.

c. Conflicts

Any disagreements between Administrator and Operator regarding this Fuel Optimization Plan will be resolved pursuant to Section 4.2 (t) of the OMA.

d. Fuel Optimization Report and Fuel Optimization Payment

This Fuel Optimization Plan and the methodologies for calculating Actual Fuel Savings detailed herein will serve as the basis for Genera's annual Actual Fuel Savings calculations and the resulting Fuel Optimization Payment. Genera will present this information in a detailed Fuel Optimization Report, pursuant to Annex II, Section III (B)(6) of the OMA. The latter will also be followed to submit requests for payment of the Fuel Optimization Payment.

e. Regulatory Approval and Compliance

All projects proposed in this plan for the implementation of initiatives (such as fuel changes, conversions, upgrades, asset enhancement or modernization of the LGA) are subject to PREB approval. This ensures alignment with the operational Integrated Resource Plan and Puerto Rico's energy policy as established by applicable laws and regulations. All Pprojects suggested in this plan as part of initiatives implementation (i.e. fuel swapschange, conversions, upgrades or modernization of the LGA) areis subject to PREB approval, to

ensure alignment with the operative Integrated Resource Plan and Puerto Rico energy policy established by applicable laws and regulations.

f. Implementation Costs

f. All incentives associated with the implementation of the FOP will be calculated net of implementation costs, including system upgrade costs.

III. FUEL ACQUISITION INITIATIVES ~~—REDUCING TRANSPORTATION, TESTING, DELIVERY AND STORAGE COSTS~~

Introduction

Liquid fuels and natural gas are the two categories of fuel used for power generation in the Legacy Generation Assets. LNG, transported and supplied in its liquid form, is used at two locations: San Juan and Costa Sur power plants. Heavy fuel oil is used in the San Juan, Palo Seco, Costa Sur and Aguirre steam plants. Lastly, ULSD is used as a backup fuel in the four steam plants mentioned above and all emergency generation units across the Island.

Historically, PREPA purchased fuels using the general price concept of:

$$\text{final price} = \text{escalator} + \text{fixed premium} + \text{applicable taxes}$$

The escalator, sometimes referenced as price postings, will fluctuate up or down with the international oil price. To minimize the impact of price volatility of the international oil market in the final price of liquid fuels, changes to the reference price postings (escalator) must be evaluated to reduce basis and arbitrage risk. That is, by using a reference posting that better represents the market and the quality of the product being acquired, less volatility and dislocation of prices will occur. Note that price movement, including escalation in relation to the international price of oil, is unavoidable to a large degree. Some type of price risk management could be implemented to cap or minimize such escalation but at a certain cost (more on this subject in Section 10).

The fixed premium is affected mainly by intrinsic and extrinsic factors. The main intrinsic factor is the logistics costs associated with transport to the LGA sites. Supplying the required amount of fuels, at its mandated quality, to all the generation facilities has been challenging throughout the years due to logistics constraints, such as the limited receiving capacity of reserve tanks and restricted navigation capacity at receiving ports and docks. The need for a large storage terminal to receive medium capacity vessels (break bulk) and

an ocean-going, US flag, dedicated barge for deliveries to the plants is a fixed cost that can only be recovered via the fixed premium. Optimizing key elements of the logistics chain is needed to ensure a reliable supply of liquid fuels, which in turn could result in fuel cost savings. Changes to the acquisition process and the final supply contracts are necessary to achieve said improvements.

Extrinsic factors affecting the fixed premium are mainly:

- international freight rates,
- arbitrage and basis risk between the index price and the reference posting, quality differentials,
- credit risk,
- payment terms (cost of working capital),
- insurance and
- bonds

Factors affecting the escalator and the fixed premium are further discussed in the following sections, along with the corresponding optimization initiatives.

1. INITIATIVE: REDUCE THE FIXED PREMIUM FOR ULSD

a. Introduction and Background:

As part of the preparations for the new State Implementation Plan (“2022 SIP”) submitted by the Government of Puerto Rico to the Environmental Protection Agency (“EPA”) in the winter of 2022, PREPA changed the quality of most of the diesel being contractually acquired by PREPA from high and low sulfur diesel to ULSD for all generation plants. Palo Seco was the only plant requiring ULSD before the 2022 SIP. The expedited negotiations with the current diesel supplier, at that moment Novum Energy Trading, to change contractual specifications to the ULSD resulted in a significant increase in fixed premium of almost \$3.00/bbl effective in July 2022 to the end of the existing contract in November 2022, which was extended by mutual agreement to November 2023.

b. Approach and Strategies:

The reduction of the fixed premium for ULSD will occur annually during each year’s RFP for new fuel suppliers. A new ULSD RFP for FY2024 is ongoing, with active negotiations underway with two potential suppliers. Even with fuel reliability enhancements (see initiative no. 2 below), a new fixed premium is estimated to materialize in the \$2.75-\$3.00 range of savings per barrel. Genera will target additional optimization initiatives in future ULSD RFPs. These initiatives include but not be limited to (1) an increase in the number of potential bidders to create a more competitive bidding process, (2) Genera taking more control of the overall logistics chain (see initiatives 6, 7 & 8 below) and (3) Genera evaluating the adoption of additional on-site ULSD storage (see initiative 5 below).

c. Methodology used to determine estimated savings:

The methodology used for estimated cost savings for the reduction of the ULSD fixed premium will be as follows:

- The FY2024 methodology will compare the then-current fiscal year ULSD premium (FY2023 contract) to the new negotiated number for FY2024 based upon the then-annualized volume of ULSD consumption across the generation system while the supplier's contract is in effect (estimated date is November 17, 2023, until November 16, 2024). For example, the FY2023 ULSD premium is set at \$10.60, with the FY2024 potential ULSD premium set to be somewhere around \$7.75 per barrel. The value difference equates to an estimated savings of \$2.85 per barrel consumed during the FY2024 supplier's contract date range (November 17, 2023 to November 16, 2024). At the end of the supplier contract year, Genera will submit to PREB the following example calculation for review and approval (See subsection (d) below for calculations on estimated savings for FY2024):
 - Annualized ULSD volume consumed during supplier contract (November 17, 2023 to November 16, 2024): 1,000,000 barrels
 - Cost savings from new supplier adder: \$2.85
 - $\$2.85 * 1,000,000 = \$2,850,000$ savings during FY2024 for this initiative

Thus, the formula to calculate the savings is:

$(\text{FY2023 total ULSD premium paid} - \text{FY2024 total ULSD premium paid}) \times 2024 \text{ barrels}$

d. Estimated cost savings:

Using the methodology described above in subsection (c), the estimated savings from FY2024 ULSD premium is estimated to be \$2.85 per barrel (FY2023 of \$10.60 – FY2024 of \$7.75 = \$2.85 per barrel). Based upon the estimated volume of ULSD consumed during the FY2024 supplier's contract effective dates (estimated to be November 17, 2023 to November 16, 2024), the following table represents a range of the estimated dollar savings arising from the

FY2024 reduction of the ULSD premium. The targeted range is wide due to the unknown ULSD demand.

ULSD Estimate Cost Savings @ \$2.85 per barrel					
Estimated Volume in BBLs	2,000,000	2,500,000	3,000,000	3,500,000	4,000,000
Estimated Reduction In Adder	\$ 2.85	\$ 2.85	\$ 2.85	\$ 2.85	\$ 2.85
Estimated Annualized \$	\$5,700,000.00	\$7,125,000.00	\$8,550,000.00	\$9,975,000.00	\$11,400,000.00

Estimated total savings for FY2024 by reducing the ULSD premium is projected to be around \$8.5 million to \$10 million in savings.

Estimating cost savings for the future reductions of the ULSD premium will occur annually once the start of the future RFP has commenced. The communication of these future cost savings, if any, will be a part of the annual update of the Fuel Optimization Plan.

e. Implementation Timeline:

The implementation of the FY2024 reduction of ULSD premium will be for one year, starting on November 17, 2023, ~~or as soon as the awarded supplier first sells a barrel to Genera,~~ and until the expiration of the FY2024 ULSD supplier contract on November 16, 2024. Future RFPs should follow similar timing as the RFP process occurs once a year.

2. INITIATIVE: FUEL RELIABILITY ENHANCEMENTS FOR ULSD

a. Introduction and Background:

In November 2022, upon agreeing to extend the current ULSD supply agreement with a supplier, PREPA requested said supplier bring, at PREPA's full cost, a second barge of 50,000 bbls capacity to enhance distribution capabilities for diesel to all plants. This redundancy was needed primarily because the existing supply contract did not impose on the supplier the obligation to have a minimum stock reserve, especially during emergencies, nor the commitment to have a barge in Puerto Rico of a reasonable capacity to operate during normal and emergency periods. Historically, due to unforeseen supply disruptions, PREPA was forced to initiate diesel curtailments into one or more of the plants. The solution to this problem was to bring and pay for a second barge as a contingency.

b. Approach and Strategies:

An additional savings consideration for the FY2024 ULSD RFP premium is the removal of the use of an additional barge currently under operational control by the FY2023 supplier, Novum. Genera is implementing two specific changes in the current ULSD RFP for FY2024 to strengthen and achieve more control in the supply chain logistics, which should guarantee a more reliable and consistent supply of ULSD to all plants. The changes include (1) an increase in the minimum stock reserve to the amount of an additional 50,000 barrels of working capacity for Genera to call on in times of estimated heavier-than-normal ULSD demand and 2) a requirement that the supplier uses a minimum size barge (45,000 – 50,000 barrels) to optimize marine deliveries into all plants capable of receiving ULSD via water. -Genera will work to implement other enhancements to future ULSD RFP and their resulting supply agreements in the following years to reduce fuel costs further and optimize operations.

c. Methodology used to determine estimated savings:

The methodology used for estimated cost savings for fuel reliability enhancements will be as follows:

- Compare the actual cost of the barge from December 2022 to November 2023 to not having to pay for the use during the FY2024 ULSD contract.

d. Estimated cost savings:

The additional barge costs Genera an estimated \$6.2 million per year. By removing the need for the second barge, mainly due to Genera's negotiated reserve stock and minimum barge requirements mentioned above in subsection (b) of this section, the FY2024 plan for ULSD will save an additional \$6.2 million.

Estimated total savings for FY2024 by reducing the ULSD premium is estimated to be around \$6.2 million in savings. This is a one-time savings.

Fuel savings for future years as a result of further enhancements to the ULSD supply contract are estimated at about \$1 million.

e. Implementation Timeline:

The fuel reliability enhancements will be implemented after the execution of the FY2024 ULSD RFP.

3. INITIATIVE: CHANGE OF FUEL OIL ESCALATOR AND REDUCTION OF FUEL OIL ADDER

a. Introduction and Background:

Historically, PREPA maintained an escalator for fuel oil purchases that was quite representative of the international price of fuel oil for the quality that PREPA was purchasing. In the 1980s and 1990s, PREPA was buying fuel oil of 2.0% maximum sulfur for Aguirre, San Juan and Palo Seco and 1.5% for Costa Sur. Price escalators for these fuels were the Platts Oilgram Report⁴ New York Harbor (NYH) 1.0% and 2.2% sulfur postings interpolated to the respective maximum sulfur for the specific generation plant. (i.e., 1.5% and 2.0%, as mentioned above). The NYH 1.0% sulfur posting was a widely used, very liquid posting traded at significant daily volumes, making this posting a reliable and efficient indicator of price for medium sulfur fuel oils in the region. Although postings for other regions were available (i.e., there was also a 1.0% sulfur posting for the US Gulf Coast), PREPA chose to continue using the NYH postings due to (a) its larger liquidity and (b) NYH was the largest importer/buyer of 1.0% sulfur fuel oil in the region while the US Gulf Coast was a net exporter.

In the early 2000s, the mandated sulfur specification for all fuel oil generation units was reduced to 0.5% sulfur. PREPA was then forced to change the escalator to the Platts NYH 0.7% and 0.3% sulfur interpolated to 0.5% sulfur. Although this new escalator was quite effective in tracking the value of sulfur of the new low sulfur fuel oil ("LSFO"), the respective postings of 0.7% and 0.3% were not as liquid and heavily traded as the prior 1.0% posting once was. It's worth noting that LSFO was only consumed in the Northeast region of the US, thus reducing its daily consumption and trading volume.

In 2020, the International Maritime Organization ("IMO") changed the worldwide sulfur specification for all bunker (marine) fuel oils. In the 3rd quarter of 2021,

⁴ Platts Oilgram Report is an independent publication of worldwide international oil prices published daily by Platts, a S&P Global Company.

Platts announced that it would discontinue publishing the NYH 0.7% and 0.3% sulfur postings effective December 31, 2022, due to low demand and traded volume, and instead would post a single 0.5% sulfur posting for all fuel oils based on the underlining market of marine fuel oils used for bunkering in the NYH. PREPA now uses the Platts NYH Marine 0.5% sulfur posting as the escalator for fuel oil.

This new escalator suffers from two significant deficiencies as an accurate escalator for 0.5% sulfur fuel oil used for power generation. First, the postings reflect only the volume of 0.5% sulfur fuel oil traded in the NYH for marine fuels, which is a relatively more minor volume than power generation used to be. It must be noted that LSFO used for power generation in the New York and Northeast region is almost nonexistent due to environmental regulations and the increase of natural gas as the preferred fuel. Second, it reflects volumes traded in smaller parcels (1000–3000 metric tonnes) of marine fuel sales as opposed to the typical 50,000 metric tonnes parcels used for power generation by PREPA. More importantly, the low volume of trading makes this posting vulnerable to significant volatility and even a certain degree of manipulation by market participants, even for brief periods.

b. Approach and Strategy:

Since almost all fuel oil volumes traded in the international oil market are done based on the more liquid, more transparent postings for crude oil, changing the escalator for the fuel oil purchases to a crude oil posting reference will achieve cost savings. Specifically, switching to a crude oil escalator will achieve cost savings by:

- The new crude escalator should be more accurate in terms of prices for large-scale utilities consuming fuel oil compared to a very small Northeast US fuel oil utility market;
- Allow for suppliers or Genera to more accurately manage the price risk of fuel oil because the current fuel oil price escalator (Platts .5%) has limited forward price discovery (these savings

could show up in a supplier's reduced adder and via Genera's price risk management program, see price risk management section, initiative 10 below for further details); and

- Reduce the volatility of the escalator and subsequently reduce the opportunity for targeted price spikes due to manipulation or limited liquidity that have often occurred in the current pricing escalator.

Upon evaluating the various available crude oil postings that better reflect the value of LSFO, Brent Crude Oil appears to be a better choice to change to for the future escalator for fuel oil. All major components used by potential suppliers for blending IMO and power generation that consumes LSFO are traded basis Brent. For example, straight-run feedstocks, ultra-low sulfur cracked fuel oils, viscosity reducers, and even Brazilian LSFO are traded based on Brent crude oil posting references.

c. Methodology used to determine estimated savings:

Various methods will be utilized to assess cost savings by retrospectively reviewing the fiscal year's end. These are:

- Direct comparison of all fuel oil purchases for FY2024 using the awarded supplier's reported escalator + adder for the two posting references below (note each price escalator will have its own unique adder provided by each supplier):
 - a. Platts 0.5% + adder1
 - b. Brent Crude + adder2
- A second methodology for cost savings will be attributed to using Brent crude in our price risk management strategies as a more efficient and liquid price risk management instrument. Initiative 5, listed below, provides the specific cost savings methodologies.

d. Estimated cost savings:

At the time this plan ~~is~~was being presented to PREB, it ~~is~~was not possible to determine the actual FY2024 savings for the comparison of Brent's vs. Platt's actual pricing. A high-level estimated cost savings for the direct comparison of flat price (the Brent + adder1 to the Platts + adder2) is around \$0.25 to \$0.75 per barrel. An example of a reduced price using Brent + adder1 vs. Platts + adder2 using 12 million barrels of expected fuel oil consumption is:

- $\$0.25 * 12,000,000$ barrels of fuel oil = \$3,000,000 savings

After receiving bids from all RFP participants, it was determined that:

- Genera would not be changing the fuel oil escalator from Platts to Brent Crude Oil. The decision not to change was based upon historical and forward market analysis of the Brent Crude market and the Platts USAC .5% market escalators + each respective adder.
- b. The awarded fuel oil contract for FY2024 resulted in an increase in the adder by \$0.64 per barrel (current supplier adder is \$3.66 vs. new supplier at \$4.30)
 - i. Current supplier pays \$2.78 for the adder but delivers fuel oil with lower BTU content (148,600 BTUs vs. FY2024 at 150,000 BTUs)
 - a. Note the current supplier's adder is being adjusted up by a BTU content value of \$0.88 per barrel (Based upon Genera PR market analysis)
 - ii. The increase of \$0.64 per barrel is mainly due to the following factors:

- a. Increase in marine logistics costs
- b. Increase in storage costs
- c. Increase in financing costs
- d. Increase in insurance costs
- e. Inflationary cost increase for other items
- f. Arbitrage and alternative product demand
(bunker fuel market for global marine markets)

e. Implementation Timeline:

~~Genera anticipates implementing this change during the FY2024 Fuel Oil RFP but will require feedback from the market before confirming that timing since Genera will need the awarded supplier to respond with both posting references. If the change is not implemented during the FY2024 RFP, Genera anticipates adopting it in the FY2025 Fuel Oil RFP.~~

Based on the results from the last RFP and subsequent supply contract awarded in the fall of 2023, Genera decided not to change the escalator, considering the offers received were not deemed favorable. Furthermore, the adder under the existing escalator was not reduced. Therefore, this initiative will not be implemented in FY24. Genera will continue to evaluate available options for future years subject to market conditions and in the best interest of ratepayers.

4. **INITIATIVE: SPOT PURCHASE OPTION FOR FUEL OIL AND ULSD**

a. Introduction and Background:

Explicit in both Fuel Oil and ULSD contracts is a clause that allows Genera to purchase up to 25% of the estimated fuel for the given contract year. If Genera finds fuel at a lower price than what is offered in the supplier's contract (Article I, Section B(1) for both Fuel Oil and ULSD contracts), then Genera can purchase lower-cost fuel.

b. Approach and Strategy:

Throughout the contractual year for a specific fuel, Genera will continue to monitor the market for spot fuel purchases. If, during that year, Genera identifies another market willing to sell ULSD or Fuel Oil at a cost less than the contractual price of the current supplier, Genera will negotiate with that new supplier to purchase the specific fuel.

c. Methodology used to determine estimated savings:

Compare the newly purchased fuel cost to the price of the contractual cost on the day of purchase (or an average over time if there are multiple purchases), and if the new purchase fuel acquisition cost is less than the current contracted supply, that difference will be considered for cost savings. Example:

- Current Fuel Oil contract starting on November 1, 2023 is Platts .5% + ~~\$104.30~~ per barrel
- Spot Fuel Oil purchase opportunity is Platts .5% + \$52.80 per barrel
- All volume bought (up to 25% of annual Fuel Oil demand) * \$51.50 per barrel would be considered savings in this example

d. Estimated cost savings:

Estimating cost savings of \$5.4 million for FY2024. The goal is to achieve \$1.00 per barrel savings on 25% of the estimated annual ULSD portfolio of 3,600,000 barrels (equivalent to 900,000 barrels) and \$1.50 per barrel savings on 25% estimatedestimate of the annual Fuel Oil portfolio of 3,000,000 barrels (equivalent to 3,000,000 barrels).

e. Implementation timeline:

This initiative will be implemented during FY2024.

IV. ~~FUEL OPTIMIZATION INITIATIVES~~—PORTFOLIO OPTIMIZATION INITIATIVE

5. INITIATIVE: PRICE RISK MANAGEMENT

a. Introduction and Background:

With the exception of isolated instances, PREPA did not consistently manage price exposure in the past. Attempts by PREPA to fix or cap the escalation of prices (moves in the international price of oil or “flat price”) have been repeatedly debated and questioned because of its interpretation as price speculation.

Deliveries of liquid fuels to Legacy Generation Assets are usually made in sizes that can sustain the plants for 5–10 days in Aguirre and 15–20 days in San Juan, Palo Seco, and Costa Sur for fuel oil and diesel. For gas turbine generation stations (peakers), diesel deliveries are made in even shorter periods. This is due to the relatively small reserve capacity for liquid fuels.

Pricing periods for each fuel delivery are based on the three-day average around the delivery date (typically depicted as -1, 0, +1 pricing days). Therefore, the average cost of fuel often corresponds to the average monthly flat price, rendering the use of intra-month hedging⁵ ineffective and even unnecessary under normal circumstances.

~~Moreover, the use of the Fuel Charge Adjustment factor in the utility rate structure makes the ratepayer the *de facto* counterparty of an implicit and very effective hedging mechanism for managing price exposure.~~

a.b. Approach and Strategies:

⁵ Hedging is a mechanism to manage price exposure using the commodity future financial markets when there is time (different pricing periods), quality (basis risk) and/or location (arbitrage).

The main objective for implementing this price risk management initiative is to manage commodity price volatility and provide stability to fuel prices throughout the year. Consulting services company Deloitte defines commodity price risk as *“the financial risk on an entity’s financial performance or profitability based upon fluctuations in the prices of the commodities that are out of the control of the entity due to external market forces.”*⁶

The following figure shows the key components of a price risk management program.



Due to the complexity of price risk management programs, understanding how to design and develop such a program for a complex web of entities such as a public-private partnership and the overall importance of gaining buy-in from all stakeholders, Genera anticipates spending a significant time on FY024 in the initial development of the framework, policies, tactical strategies, audit & governance metrics and internal & external reporting of a price risk management program. This initial phase will ensure all stakeholders understand and approve of the overall risks and objectives of this important

⁶ Deloitte & MCX, Commodity Price Risk Management: A Manual of Hedging Commodity Price Risk for Corporates (2018), available at <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/risk/in-risk-overview-of-commodity-noexp.PDF>.

cost savings initiative. This initiative is still a work in progress, but Genera found it important to share the initial strategy for this first fuel optimization plan.

If an overall framework and price risk management program gets developed and approved in FY2024, there could be opportunities for cost savings. In the case of the Legacy Generation Assets and the portfolio of fuels used for electricity generation, Genera would implement certain price risk management strategies to reduce these fluctuations in prices compared to planned and budgeted costs. The tactical methodologies will be simple in approach at first and, if needed, further developed in complexity over time. Implementing a conservative approach to price-risk management will be key during the initial stage of Genera's management of the generation system. Examples of Genera's initial strategies for managing price risk include a budget and time methodology. These strategies are defined as:

- Budget

This type of strategy is used to manage the price of fuel that was defined during a budgetary process. Certain price risk management instruments will be executed at the time of the budgetary process to fix a certain percentage of the forward price of the fuel portfolio (note these numbers will be based upon reviewed, approved, and auditable PROMOD, our equal economic dispatch modeling result produced values). This will show the stability of fuel prices throughout the year since they will have been fixed at a certain level, and any price increases will be abated. However, due to the unknown demand for fuel for a given year, Genera considers it reasonable to implement an approach in which no more than 30% of anticipated fuel demand is fixed at the start of a budgetary year. Limiting the amount of the fuel portfolio to 30% fixed provides a greater level of certainty that you don't run the risk of overbuying a certain fuel. As mentioned above, these tactical strategies will be further refined throughout FY2024 as Genera finalizes the price risk management framework.

- Time

This type of strategy is used to manage the price of fuel on a volumetric basis, meaning by some date in time, a certain percentage of the anticipated fuel demand will be price risk managed (or hedged) at a certain price. The following is a detail of a potential example.

1. Before the start of any quarter, 25% of that quarter's estimated total fuel demand must be hedged 45 days prior to the start of the quarter. Example for Q4-2023 (illustrative purposes only):
 - a. Estimate 3,000,000 barrels of fuel oil / 900,000 barrels of ULSD and 18 TBtu of natural gas are expected to be consumed during Q4-2023
 - b. Starting 45 days prior to October 1, 2023, if no volume has been price risk managed "hedged" up to this point, this strategy would implement a mandate hedge for 25% of each of the fuels within the fuel portfolio (750,000 barrels of fuel oil, 225,000 barrels of ULSD and 4.5 TBtu of natural gas) at best achievable pricing.

The following risk management instruments would be used opportunistically to manage market price risk across the fuel portfolio utilizing a "Time" or "Budget" strategy described above.

- Futures Market - SWAPS (LNG, Fuel Oil and ULSD)

The use of swaps or price limits to temporarily set price caps could be utilized to control estimated increases in short-term fuel prices for budgetary purposes. The cost of said price caps could, at times, be expensive, especially now with the implied volatility of all the underlying generation fuels. Therefore, a careful analysis would be needed on a case-by-case basis. In this case, resulting cost savings must be limited to or expressed as fuel budget savings.
- Futures Contracts - Fixed Price (LNG, Fuel Oil and ULSD)

The use of futures contracts will also be used opportunistically to control estimated increases in short-term fuel prices for budgetary purposes. Buying fixed-price futures contracts provides more levels of guarantees across the portfolio and will be limited to a lower percentage of total volume due to the uncertainty of the generation unit demand. This will change over time as the system becomes more reliable and the demand profile becomes more assured.

- Backwardation / Contango Market Structures – (Phys. Fuel Oil and ULSD decisions)

Due to limited reserve storage capacity at the plants and the continued forced outages of base generation units, Genera must consistently keep a high inventory in all reserve tanks. This exposes Genera to “market structure,” otherwise known as “contango” or “backwardation.” When the oil market structure is in contango, the future price of oil is higher than prompt prices, resulting in a positive price exposure (i.e., the weighted average price will be lower than otherwise would have been if purchases were delayed to a future period). On the other hand, when the market structure is in backwardation, the future price of oil is lower than prompt prices, resulting in a negative price exposure (i.e., the weighted average price will be higher than otherwise would have been if purchases were delayed to a future period).

Genera’s exposure to market structure could be managed using two methods: (1) managing end-of-the-month receipts and inventories or (2) hedging intra and inter-month future prices on the underlying price index (ULSD for diesel and Brent for fuel oil).

b.c. Methodology for Estimated Cost Savings:

The main methodology for estimating cost savings of any of the previously mentioned price risk management strategies will be to compare the budgeted

price per barrel and the price per MBTU forecasted for fuel purchases to the actual hedged and fixed price per barrel and price per MBTU realized for a given time frame. The most appropriate time frame will be for each fiscal year.

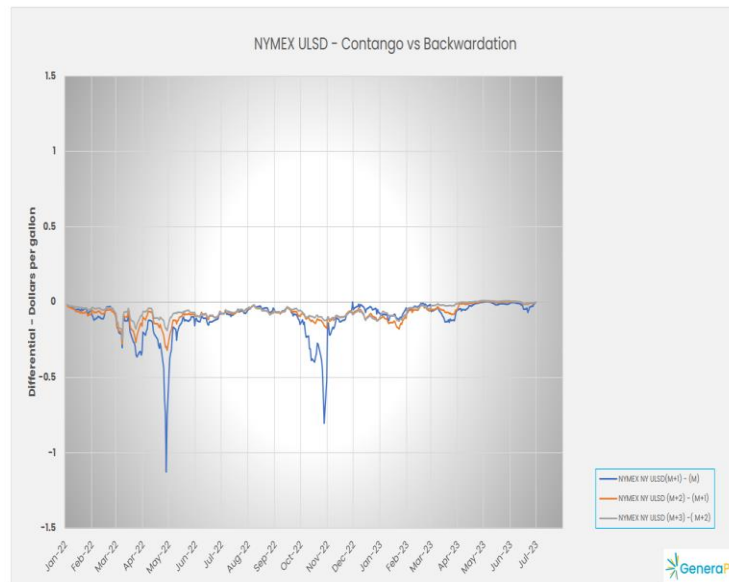
- Example: For FY2024, the prices budgeted for ULSD and fuel oil are set at \$119.28 per barrel and fuel oil at \$96.01 per barrel, respectively.
- One million barrels of ULSD was hedged at \$115 per barrel during various months of FY2024 (either by executing a future, swap, option or any of the previously mentioned financial or physical price risk management instruments).
- The cost savings in this example would be $\$119.28 - \$115 = \$4.28 * 1,000,000$ barrels for a total cost savings of \$4,280,000. *This is irrespective of where the market prices were on the day of physical delivery for the barrel in which the prices were hedged.*

Another methodology that will be used is one that will compare the structure of the underlying forward curve (“contango” or “backwardation”) to make decisions around physical end-of-month or beginning-of-month deliveries “purchases.”

- Example: In the Heating Oil structure below, a decision will be made to commence delivery at the start of August 2023 (\$2.9006 per gallon ULSD) vs. the end of July 2023 (\$2.9169 per gallon for ULSD). The decision to delay delivery until August would save an estimated \$0.016 cents per gallon / \$0.67 per barrel could be achieved by delaying that delivery.
- Note the second chart below showing Heating Oil contracts from January 2022 to June 2023 showing extreme periods of contango or, in this case, backwardation.

Commodity Futures Price Quotes For Heating Oil (NYMEX)
 (Price quotes for NYMEX Heating Oil delayed at least 10 minutes as per NYMEX rules)
 Also available: electronic Session Quotes

Click for Chart	Current Session				
	Open	High	Low	Last	Time
Cash	2.9169	2.9169	2.9169	2.9169	20:25 Jul 27
Aug'23	2.9006	2.9748	2.8862	2.9586	15:44 Jul 28
Sep'23	2.9017	2.9651	2.8777	2.9498	15:59 Jul 28
Oct'23	2.8839	2.9356	2.8552	2.9211	15:59 Jul 28
Nov'23	2.8283	2.8884	2.8184	2.8769	15:59 Jul 28
Dec'23	2.7799	2.8387	2.7759	2.8292	15:54 Jul 28
Jan'24	2.7620	2.8041	2.7549	2.7969	15:49 Jul 28
Feb'24	2.7361	2.7695	2.7242	2.7657	14:30 Jul 28
Mar'24	2.6912	2.7328	2.6893	2.7296	15:02 Jul 28
Apr'24	2.6569	2.6882	2.6547	2.6872	15:01 Jul 28
May'24	2.6351	2.6555	2.6254	2.6555	14:56 Jul 28
Jun'24	2.6058	2.6311	2.5977	2.6293	14:56 Jul 28



PREB will determine the final compensation mechanism through Case No. NEPR-MI-2022-0004, In Re: Design of Fuel Procurement Hedging Strategy Program for the Puerto Rico Electric Power Authority or any other applicable regulatory proceeding.

d. Estimated Cost Savings:

~~ESTIMATED COST SAVINGS:~~

Estimated savings for FY2025 and beyond are mainly dependent upon budgeted prices for each fuel versus market movements in the prices of those fuels during that specific fiscal year. A reasonable approach to estimating savings would be 0.25% to 1% of the total notional value of the fuel budget (equivalent to \$0.25 to \$1.00 per barrel) that could be achieved annually using the previously mentioned price risk management methodologies and financial/physical instruments. FY2025 estimates would range from \$10 to \$20 MM dollars in estimated savings using the ranges defined above.

Total cost savings estimated for price risk management initiatives are estimated to be between \$5 million and \$20 million per year.

IMPLEMENTATION TIMELINE:

This initiative continues to be evaluated in FY2024. The estimate remains that this initiative will be implemented during the second half of FY2024 through the first half of FY2025. During FY2024, the main focus will be on:

- Finalizing a framework and policy for the price risk management program and receiving approval from PREB
- Execute the strategies mentioned above or further develop them in the policy phase as soon as possible after receiving approval from PREB (estimate FY2024 / FY2025).

V. FUEL CREDIT OPTIMIZATION INITIATIVES – CREDIT INITIATIVE**6. INITIATIVE: PAYMENT TERMS MANAGEMENT****a. Introduction and Background:**

Historically, PREPA has paid high financing costs due to the market's view of its creditworthiness. This is exacerbated by the fact that PREPA requires large amounts of credit (upwards of \$200 million on the fuel oil contract), and it has been requested in the current Fuel Oil RFP that suppliers provide up to 60-day payment terms. These contractual requirements and the current state of the economy have led to high financing costs for all the liquid fuel supply. Most recent analysis shows that there are somewhere around 13% to 15% annualized financing costs for this credit.

b. Approach / Strategies:

Genera will endeavor to pursue all possible avenues available under the current fuels RFP framework to achieve better financing terms and reduce fuel premiums. Future RFPs will ensure that all bidders are provided with options for 60-day, 30-day, and even 15-day financing terms. These financing term improvements could be achieved through the following financing options: 1) due to optimization of the current order to cash process, 2) leveraging outside third-party financing, or 3) through the use of the Operator's own capital. Fuel contracts will be renegotiated and extended or replaced as per government guidelines, with Genera acting as an intermediary providing increased access to the market.

c. Methodology for Estimated cost savings:

The methodology will be to compare suppliers' price offerings under the typical credit and payment terms determined by the RFP process (30 / 60-day terms

and various credit limits) and then see if those values will be lowered if the RFP allows for earlier payment terms and lower credit limits.

For example, during one of the RFP processes, a bidder provided the following 30-day and 60-day payment terms for fuel (the numbers have been changed, but the relative difference is the same):

- 30-day price was Escalator + \$10.00 per barrel
- 60-day price was Escalator + \$11.00 per barrel

Genera will seek secondary 3rd party financing options for a 30-day payment term, pay the fuel supplier in 30 days at \$10 per barrel (price premium if paid in 30 days), and if the secondary financing option is cheaper than \$1.00 per barrel for (\$11.00 - \$10.00) for another 30-day credit term, then there will be cost savings to share. Example:

- Product supplier's 30-day price is escalator + \$10.00 per barrel
- Additional financing option for 30-day is \$0.50 per barrel
- All in costs under this example for 60-day payment terms would be escalator + \$10.50 per barrel
- Under this example, there would be \$.50 per barrel of savings for a 60-day payment term (\$11.00 adder under an original supplier) - (\$10.00 adder under original supplier 30-day adder + 3rd party financing of \$0.50); $\$11.00 - \$10.50 = \$0.50$

d. Estimated cost savings:

Estimated savings for FY2025 are around \$.25 to \$.50 a barrel on the liquids fuel portfolio of 16 million barrels, with estimated annual ~~\$~~ savings of \$4 million to \$8 million dollars.

e. Implementation Timeline:

This initiative will be implemented during FY2025, but there is a chance that this could be adopted during the FY2024 plan.

f. Implementation Timeline:

This initiative will be implemented during FY2025, but there is a chance that this could be adopted during the FY2024 plan.

VI. FUEL EFFICIENCY INITIATIVES CHANGE INITIATIVE

7. INITIATIVE: FUEL EFFICIENCY PROJECTS

a. Introduction and Background:

~~In recent years, the investment in the maintenance of Legacy Generation Assets has been substantially reduced. This investment reduction includes the purchase of critical spare equipment, which has caused limitations and extended forced outages of generating units. The delivery time of this equipment is long, sometimes from 1.5 to two years of delivery. This has caused generating units to be unreliable, have operating limitations and a greater number of forced outages. In summary, of a total capacity of 4,528 MW in Legacy Generation Assets, only 2,102 MW is currently operational.~~

~~For this reason, Genera will implement a plan for aggressive repair and replacement of components of generating units plan and for an increase in preventive maintenance. The People of Puerto Rico will see the results of this plan in two and a half years due to the lead time of the critical equipment necessary to bring the units to acceptable reliability standards. The implementation of this maintenance, repair and replacement program for the generating units has its challenges since, currently, with the generation available, it is not possible to take a unit out of service for repair and meet the requirement of ~675 MW, or the amount estimated at that time by the T&D System Operator, of the operational reserve.~~

~~The status of the Legacy Generation Assets before Genera commenced operations on July 1, 2023, is attached as **Annex A**.~~

b. Approach and Strategy

With the scheduled repair plan for generating units under Genera's administration, the units' heat rate, availability, frequency regulation and daily generation reserve will be improved.

Genera will implement an aggressive repair plan for the generating units and for increasing preventive maintenance. The benefits resulting from the repairs and maintenance should be best observed in approximately two and a half years due to the lead time of the critical equipment necessary to bring the units up to date.

In these repairs, priority will be given to replacing critical equipment to maintain the units' availability and improve the efficiency of the generation fleet's boilers, turbines, condensers and other equipment.

Genera has identified close to fifteen pieces of equipment for urgent purchase to improve the availability of the units, such as cold and hot air heater baskets, boiler feed pump bundles, various motors for fans and pumps, and others. Genera also identified the replacement of equipment to improve the efficiency of the units as feedwater heaters, steam coils, equipment for the continuous cleaning of the condenser, air heaters, soft start variable frequency motors, and turbine distributed control system to improve the regulation of the units, gas turbine inlets chillers, water injection to gas turbine compressors, condenser and boiler leak corrections, more use of natural gas and others.

Genera's scheduled turbine repairs, which involve changing high- and low-pressure turbine rotors, can realize an increase in turbine efficiency that translates into significant savings in fuel costs. These repairs and healthy preventive and corrective maintenance will lower costs and the frequency of forced outages.

In parallel with this aggressive repair plan and critical components replacement projects, Genera will implement fuel efficiency initiatives

consisting of multiple capital projects across the entire generation fleet; see the Costa Sur example below in the Estimated Cost Savings section.

All Capital Improvement Projects have been cost estimated using a ROM “Rough Order of Magnitude” of +/- 50%. Genera continues to refine these project cost numbers to appropriate design and construction level estimates (+/- 10% estimates for costs and timing) prior to executing any capital improvement project. During this capital refinement phase, funding will be evaluated from two different sources:

1. Federally funded portfolio (i.e., FEMA, CWA State Revolving Funds).
2. Non-Federally funded portfolio (operating budget)

Once a project plan has been completed (costs, timing, funding sources, and all required approvals), the project will go through a delivery and implementation phase. Upon completion of the capital project, all capital savings will be prioritized to the source of the capital first (“Capital Recovery Fee”). In the case of “Non-Federally” funded projects, capital will be returned to the source of funds for the specific capital project first and only after those funds are returned to the original source will cost savings be considered for the purposes of Actual Fuel Savings. In the case of “Federally Funded” projects, capital will be available for Actual Fuel Savings immediately upon implementation of the capital investment project and will not require the capital to be returned first to the federal source. Genera PR currently estimates most of the capital projects to be multiyear in nature, and the Capital Recovery Fee and the capital savings fees will be distributed on varying time horizons depending upon the actual capital improvement project.

c. Methodology Used to Determine Estimated Savings

The detailed methodologies and timeline used to determine estimated savings for fuel efficiency projects are outlined in the Genera O&M — Generation

Equipment Performance Test Procedure.⁷ The following is a summary of those procedures:

- Comparing the thermal efficiency of the units in fiscal year 2024-2025 and comparing it with the thermal efficiency of the following fiscal year 2025-2026, and so on year after year. It will also compare the frequency regulation, the forced departures of units, and compliance with preventive and corrective maintenance of the units in the fiscal year 2024-2025 and compare with the following fiscal year 2025-2026.
- Maintain corrective and preventive maintenance metrics and improve them.
- Annual Boiler and Turbine Overall efficiency measures evidenced by Performance tests with external personnel.

d. Estimated Cost Savings

It is estimated that the first two years will have no cost savings due to Genera's planning and implementation of all anticipated efficiency projects. By using the methodology described above, bringing into service heaters 6 and 7 at Costa Sur 5 & 6 should generate approximately \$500K per month in fuel savings at each unit based on a 311 MW load and \$11.5/MMBTU cost at Costa Sur units 5 and 6, or 12 million dollars annually for both units. The increase in fuel flow due to the lack of heaters causes an increase in the volume and temperature of gases. This could aggravate the problems in the air heaters. It is estimated that for every 10 °F in the exhaust, the Heat Rate is affected by 0.25%.

Another example of a project at Costa Sur 5 & 6 includes the use of variable frequency drives in the boiler and feedwater pumps. The additional estimated fuel savings under this initiative is estimated to be \$16,477,244 per year.

⁷ Available at <https://energia.pr.gov/wp-content/uploads/sites/7/2023/10/20230928-Motion-to-Submit-Revised-Annual-Performance-Test-Procedure-in-Compliance-with-Resolution-and-Order-Dated-August-29-2023.pdf>

~~Yet another example project at Costa Sur 5 & 6 is one that repairs the turbines to greatly improve the efficiency of the units. As an example, correcting the steam path of turbines 5 and 6 of Costa Sur of 410 MW each brings fuel savings of \$17,606,280 per year in each unit.~~

~~e. Implementation Timeline~~

~~This initiative will be implemented by Genera in FY2024 and FY2025 until all the repairs and replacement of components are finalized.~~

~~VII. FUEL CHANGE INITIATIVES~~

8.7. FUEL SWAP AND FUEL CONVERSION INITIATIVES

a. History / Background

Most generation units comprising the LGA have become inefficient and out of compliance with current EPA and local environmental regulations. As such, and in compliance with PREB's orders and Puerto Rico's public policy requirements, most of the LGA must be retired and decommissioned. Nonetheless, due to the unexpected delays in integrating new generation assets or energy purchase agreements, part of the LGA must remain in service longer than expected and planned⁸. This is necessary to ensure resource adequacy while the transformation and modernization of the energy system is completed (i.e., PPOAs, new generation assets, renewable and storage resources).

The conversions of some of the LGA to burn cleaner, sustainable, and less costly fuel would provide a substantial runway to the full decommissioning and transition plan. These converted dispatchable units could remain as the necessary backup generation to the 50% renewable fleet that is planned, as well as back-up and grid support services provider and peaking units once the target of 100% is met.

Fuel swap initiatives will cover those LGA units where most, if not all, of the capital required to convert the current LGA to run on a different fuel source has been completed. Typically, with these initiatives, the capital required will be limited to additional infrastructure improvements required to receive the new type of fuel (receipt of LNG deliveries versus receipt of other liquid hydrocarbons such as ULSD or fuel oil).

⁸ At this time, the ~600MW solar PV from Tranche 1 renewable energy projects (representing an estimated 138 MW of intermittent energy) are not expected to come online until early 2026 with that date being at risk for delays.

b. Approach / Strategy

Fuel swap initiatives will be the initial focus as those projects will require the least amount of capital, be the quickest to implement, and have the potential for the greatest cost savings to the ratepayer.

Fast-forwarding the conversion effort for certain LGA to run on cheaper and cleaner fuels, such as LNG, instead of continuing to use ULSD or heavy fuel oil would allow the system to remain reliable and more sustainable while creating substantial savings for the customers as the energy system transformation is completed. Savings would be realized not only in the reduction of fuel costs but also in the reduction of operation and maintenance costs⁹ and the reduction in revenue losses stemming from fewer maintenance outages.

An efficient methodology to maximize and achieve savings is conducting the conversion works in a priority-based approach. After an evaluation of the capacity of each of the LGA that could be converted to dual-fuel, using LNG as the primary fuel, Genera suggests PREB that the following approach is followed:

1. **Savings impact to the ratepayer:** Units that are prepared to run on LNG and only require simple infrastructure changes (mainly replacement of parts) should be prioritized over other LGA units that require conversion.
2. **Time to implementation:** Units in which fuel can be swapped, or that can be converted in a shorter time should be converted sooner than others that require more time.
3. **Capital Investment:** Units that require the least amount of capital to convert should be converted sooner than others that require more capital investment. Fuel swap initiatives should have priority here.

⁹ Genera is currently estimating savings of ~ \$24MM for swapping from diesel to LNG.

4. **Commitment to no stranded costs.** In either Fuel Swap or Fuel Conversion initiatives, ensuring that any costs incurred beyond the then-allowed in the IRP, budgets, or other regulatory parameters are not acceptable.
5. **Commitment to reduction in maintenance.** In either initiative, fuel swap or fuel conversion, there will be a focus on reducing long-term maintenance costs as a part of the project.

Using the above prioritization methodology, a fuel swap or fuel conversion plan could be implemented in the following phases:

Phase 1 – Fuel Swaps

Units are already designed for dual-fuel

- Mayagüez - 220 MW
- Palo Seco Mobile Packs - 81 MW

Phase 2 – Conversion

Units that require capital investment to prepare to use dual-fuel

- Cambalache - 165 MW

Phase 3 – Modernization

Units that require higher capital investments than a conversion to upgrade and modernize to use dual-fuel:

- Aguirre Combined Cycle Units - 609 MW

All fuel conversions and modernizations are subject to PREB [and regulatory](#) approvals.

c. Methodology Used to Determine Estimated Savings

Genera will compare the delivered LNG cost into the converted facility each year versus the ULSD delivered price. The LNG delivered price will be based on the current supplier of LNG into the converted facility, and the ULSD price will be based on the then-current ULSD supplier to other LGA. Fuel savings will be calculated after all capital costs are recovered or accounted for.

d. Estimated Cost Savings

The estimated savings from a ULSD to LNG fuel swap initiative at the 220 MW LGA in Mayaguez is around \$75 million in annual savings. These savings were calculated using the following conservative data inputs:

1. A lower-than-normal capacity factor of 25% to 50%
2. A four-year forward delivered price average for ULSD of \$110 per barrel, \$19.00 MMBtu (current market price for ULSD is ~\$135 per barrel delivered, \$23.25 per MMBtu)
3. A four-year forward delivered price of natural gas at \$11.00 per MMBtu (current market price for natural gas is ~\$10.00 per MMBtu delivered)

Estimated savings from each conversion project will differ depending upon capital investment, time to market, supply agreements and general market conditions present during the useful life of the converted facility.

e. Implementation Timeline

The initial step to unlock the substantial savings that can be generated by converting units to operate with LNG as the primary fuel is PREB's leave. Assuming, for purposes of this evaluation, that Genera is granted leave to begin the Mayaguez swap by February 1, 2024, the construction needed for the fuel swap could be completed around May 1, 2024, and the unit can be

commissioned to be dispatched mainly in LNG in the Summer 2024.¹⁰ Thus, a first tier of substantial savings can be realized in FY2024, and with this project alone, the savings for FY2025 could be around \$75 MM.

The Phase 2 and Phase 3 projects' start dates and completion estimates are contingent on PREB approval.

¹⁰ Nevertheless, the final approval that will allow the units to operate in the new alternative fuel is leave and permitting from environmental agencies.

VIII.VII. ASSET ENHANCEMENT INITIATIVES INITIATIVE

9.8. INITIATIVE: ASSET SUPPLEMENTING INITIATIVES

a. History / Background

Genera has identified certain Legacy Generation Assets suitable for the “addition of power generation equipment which is more fuel efficient and/or can operate on an alternative and more economical fuel”¹¹ that would result in substantial fuel savings. Such power generation equipment may include new, smaller capacity units that could utilize existing fuel supply infrastructure in a particular LGA. The two most important objectives of this initiative are (i) expected fuel savings and (ii) minimal or no upfront capital investment (i.e., which would result in minimal or no stranded costs at the end of the useful life of the supplemental power generation equipment). The latter would be achieved by leasing generation units instead of outright acquisition.

b. Approach / Strategy

The anticipated leasing cost of the units will be covered by the fuel savings achieved on each implementation. Other than any fuel delivery interconnection and other minimal upgrades, no other stranded cost(s) are envisioned.

All works related to asset supplementing initiatives must be evaluated fuel conversions and modernizations are subject to PREB and regulatory approvals for approval.

c. Methodology Used to Determine Estimated Savings

Genera will use the concept of substituted fuel costs to compute achieved fuel savings. The substituted fuel cost methodology will compare the cost of the lower fuel cost (i.e., LNG) to the next higher fuel cost substituted by the new

¹¹ OMA, Fuel Const Savings Initiative definition.

generation (i.e., fuel oil or diesel, depending on unit dispatch and availability). Fuel savings will be calculated after all capital costs are recovered or accounted for.

d. Estimated Cost Savings

~~f. Estimated Cost Savings~~

Estimated cost savings will be on a project-by-project basis using the methodology described in point C above.

d.e. Implementation Timeline

The precise timeline is unknown at this time, but the first project implementation could begin as early as 4QFY24.

Annex A

The status of the Legacy Generation Assets as of June 5, 2023, before Genera began operations:

Costa Sur 5 and 6 (820 MW total)

1. Costa Sur 5 (410 MW)

Limited to 203 MW

- ~~Load limitation due to turbine vibrations bearing 1 and 2, between 6-7 mils, bearing 9 (Boiler Feedwater pumps, BFWP 5-1, 9 mils)~~
- ~~Lack of motorized BFWP 5-2 (Needs 2 BFWP for unit total capacity)~~
- ~~Hot well recirculating valve is out of service~~
- ~~Air flow problems caused by ash-clogged air heaters due to fuel contaminated with plastic pellets and other substances, like Paraffin~~
- ~~BFWP pneumatic control recirculation valves not in service (valves operated manually)~~
- ~~High pressure feed water heaters 6 and 7 are not operating because they have many broken tubes (affecting boiler efficiency)~~
- ~~Condenser circulating water pumps (CCWP) motors — Five motors have short-circuited in the last seven months. All five motors were repaired by Cortes Industrial, the only vendor on the island that repairs motors above 500 HP.~~
- ~~Various boiler feed pump (BFP) failures: BFP 5-2 out of service without spare parts, BFP 5-1 in service with over 9 mils vibration, mx 5 mils permitted), Lack of BFP internal parts bundle. These failures present unit limitations and possible causes of force outages.~~

2. Costa Sur 6 (410 MW)

Limited to 250 MW

- ~~Operating on only one CCWP~~
- ~~High-pressure feed water heaters 6 and 7 are not operating because they have many broken tubes (affecting boiler efficiency)~~
- ~~To increase efficiency and lower energy costs, four high-pressure feedwater heaters in both units should be replaced.~~
- ~~Costa Sur has problems with two BFP without spare parts and without a replacement bundle.~~
- ~~Various motors with problems without spares in Costa Sur: CCWP Units 5-6, Vertical Motor 1000HP, Condenser Pump Vertical Motor, BCWP Vertical Motor 700HP; BFP Horizontal Motor 4500HP UNITS 5-6, Horizontal Motor 1750HP IDF UNITS 5-6.~~
- ~~In order to enhance the efficiency of the condenser, it is necessary to have a vacuum in the continuous cleaning system.~~

3. Palo Seco 3 and 4 (432 MW total)

~~Palo Seco 3 (216 MW / limited to 130 MW) / Palo Seco 4 (216 MW / limited to 150 MW)~~

- ~~Load Limitation in both units due to airflow problems caused by ash-clogged air heaters~~
- ~~Broken hydrogen coolers without spare. Unit 4 has an isolated cooler with generator temperature limitations and limited reactive power.~~
- ~~Broken turning gear mechanism without spare (Unit 4).~~

4. San Juan 5 and 6 (440MW total)

- ~~Load limitation (steam turbine condenser vacuum problem)~~

CTG 5	150 MW
STG 5	47 MW
CTG 6	155 MW
STG 6	54 MW
CC SJ	406 MW

~~San Juan 7, 8, 9 and 10 (400 MW total; 100 MW each)~~

- ~~All units are out of service~~

- ~~Need to repair pipe-type cable (output transmission line)~~
- ~~Problems with the main power transformer Unit 10 and the emergency transformer Units 7 and 8~~
- ~~Use the turbine rotor, generator rotor and diaphragms of units 8 and 10 as spare parts for Units 7 and 9~~

5. Aguirre 1 and 2 (900 MW total)

~~Aguirre 1 (450 MW)~~

- ~~Out of service~~
- ~~Generator failure needs rewinding~~
- ~~CCWP motors also cause limitation~~

~~Aguirre 2 (450 MW)~~

- ~~Limited to 325 MW~~
- ~~Main steam line (MSL) fatigue problems~~
- ~~Unit 2 uses a CCWP motor from Unit 1 because Unit 2 has no functional motors~~
- ~~Condenser vacuum problems (24.5 HG mm.)~~

6. Aguirre Combined Cycle (592MW)

- ~~Only 198 MW is currently operational for different reasons (Generator failure, output transformer failure, problems with the Steam Turbine, GT hot gas path inspections, etc.)~~

Aguirre Stag 1	MW
Gas 1 Available	50
Gas 2 Available	48
Gas 3 Out of Service	0
Gas 4 Out of Service	0
STG 1 Out of Service	0
Total Del Sitio	0

Aguirre Stag 2	MW
Gas 1 Out of Service	0
Gas 2 Out of Service	0
Gas 3 Available	50
Gas 4 Available	50
STG 1 Out of Service	0
Total Available	198 MW

● ~~Cambalache Power Plant 247 MW (Available 156 MW)~~

Unit Name	Fuel	Nameplate Capacity (MW)	Status as of November 2023
Cambalache Unit 1	Oil No. 2	82.5	Irreparable Unit
Cambalache Unit 2	Oil No. 2	82.5	Operational
Cambalache Unit 3	Oil No. 2	82.5	Operational

● ~~Mayaguez Power Plant 220 MW~~

- ~~Only 105 MW operating due to various limitations~~
- ~~Unit 2A is out of service, Unit 2 is limited to 20 MW and Unit 3B is limited to 30 MW~~

Mayaguez 220 MW	
Gas 1	55 MW
Gas 2	55 MW
Gas 3	55 MW
Gas 4	55 MW

● ~~Peakers (477 MW Total Nameplate capacity)~~

Palo Seco (213 MW total)	
1. GT 1-1	21
2. GT 1-2	21
3. GT 2-1	0
4. GT 2-2	0
5. GT 3-1	0
6. GT 3-2	0
Mega Gen 1	27
Mega Gen 2	27
Mega Gen 3	27
Total Palo Seco	123
Jobs (44 MW total)	
GT-1	0
GT-2	18
Total Jobs	18
Daguao (44 MW total)	
GT-1	20
GT-2	18
Total Daguao	38
Yabucoa (44 MW total)	
GT 1	0
GT 2	0
Total Yabucoa	0
Aguirre GT-1 y GT-2 (Out of Service) (44 MW total)	0
Vega Baja GT-1 y GT-2 (Out of Service) (44 MW total)	0
Costa Sur GT-1 y GT-2 (Out of Service) (44 MW total)	0
Total Aguirre / Vega Baja / Costa Sur Peaker	0
Total Peaker MW Available	179