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Received:
Feb 11, 2020
5:49 PM

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

IN RE: REQUEST FOR APPROVAL OF AMENDED AND RESTATED POWER PURCHASE AND OPERATING AGREEMENT WITH ECOELÉCTRICA AND NATURAL GAS SALE AND PURCHASE AGREEMENT WITH NATURGY	**CASE NO.:** NEPR-AP-2019-0001 **SUBJECT:** PREPA's Petition for Confidential Treatment

MOTION IN COMPLIANCE WITH RESOLUTION AND ORDER DATED JANUARY 17, 2020

TO THE PUERTO RICO ENERGY BUREAU:

COMES NOW the Puerto Rico Electric Power Authority through the undersigned legal representation and respectfully sets forth and pray:

On January 17, 2020, the Energy Bureau[1] entered a Resolution and Order directing PREPA to file redacted versions of the documents attached to the December 19 Motion. In compliance with said order, PREPA herein submits the four exhibits filed under seal with the December 19 Motion in redacted versions. *See* attachments 1 – 4.

WHEREFORE, PREPA requests the Energy Bureau to note the filing of the attached documents in compliance with the Resolution and Order dated January 17, 2020.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 17th day of January 2020.

/s Katiuska Bolaños
Katiuska Bolaños
kbolanos@diazvaz.law
TSPR 18888

[1] Capitalized terms not defined herein shall have the same meaning provided in the *Resolution and Order* dated January 17, 2020.

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TSPR 16187

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CERTIFICATE OF SERVICE

It is hereby certified that, on this same date I have filed the above motion using the Energy Bureau's Electronic Filing System, at the following address: http://radicacion.energia.pr.gov and that a courtesy copy of the filing was sent via e-mail to: ccf@tcm.law.

In San Juan, Puerto Rico, this 17th day of January 2020.

/s Katiuska Bolaños
Katiuska Bolaños

EXHIBIT C
FUEL PRICE

"**Fuel Price**" (per MMBtu) shall be equal to the Unit Cost *plus* Unit Fuel Cost, *where*:

(a) Unit Cost:

Except as otherwise provided in Clause 13.3:

During the Transitional Supply Period and months 1-12 of the Initial Contract Term, $8.50/MMBtu (the "**Base Cost**")

During months 13-24 of the Initial Contract Term, $7.50/MMBtu

During months 25 until the end of Initial Contract Term, $6.50/MMBtu

During any Extension Term, an amount per MMBtu to be agreed

(b) Unit Fuel Cost:

Gas Index Price multiplied by one hundred fifteen percent (115%).

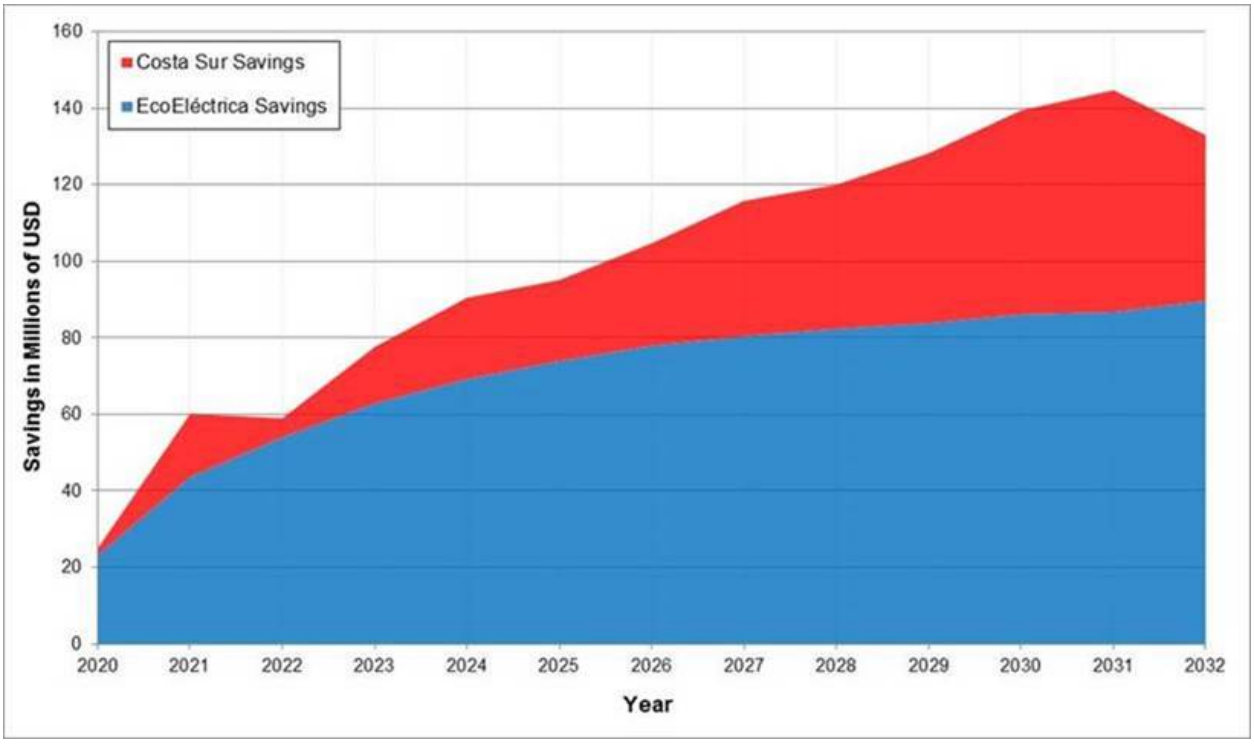
"**Gas Index Price**" with respect to any Day, means the final settlement price (in USD per MMBtu) for the New York Mercantile Exchange's Henry Hub natural gas futures contract for the month in which the Day occurs.

In addition to the Fuel Price per MMBtu calculated in accordance with the formula set forth above, Buyer shall pay each month during the Initial Contract Term the applicable monthly instalment of the Natural Gas Manufacturing Surcharge described in Article XII, in accordance with the provisions of Article XIII.

PROJECTED SAVINGS PER YEAR

	Savings		
	EcoElectrica	*Costa Sur*	*Total*
2020	23,200,000	1,800,000	25,000,000
2021	43,600,000	16,500,000	60,100,000
2022	54,000,000	5,000,000	59,000,000
2023	62,800,000	14,800,000	77,600,000
2024	69,200,000	21,300,000	90,500,000
2025	73,900,000	21,200,000	95,100,000
2026	77,900,000	26,800,000	104,700,000
2027	80,400,000	35,400,000	115,800,000
2028	82,300,000	37,700,000	120,000,000
2029	83,800,000	44,400,000	128,200,000
2030	86,100,000	53,300,000	139,400,000
2031	86,700,000	58,000,000	144,700,000
2032	89,600,000	43,400,000	133,000,000

Average	**70,300,000**	**29,200,000**	**99,500,000**



Puerto Rico
Electric Power
Authority

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EcoEléctrica and Naturgy Proposed Contract Extensions

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ECOELÉCTRICA POWER PLANT

Plant Overview

- Combined Cycle Gas Turbine Plant in Peñuelas, Ponce region
- Plant's facilities include an LNG storage tank with capacity of one-million barrels, two desalination plants, and receiving dock for LNG
- Capacity: 507 MW
- Commercial Operation Date: March 2000
- Natural gas is supplied through the Peñuelas LNG Terminal, owned by Naturgy
  - [redacted]

Current Operational Metrics

- Original heat rate: [redacted]
- Average operational values:
  - Heat rate: [redacted]
  - Availability: 90%
  - Average Capacity Factor: 75%

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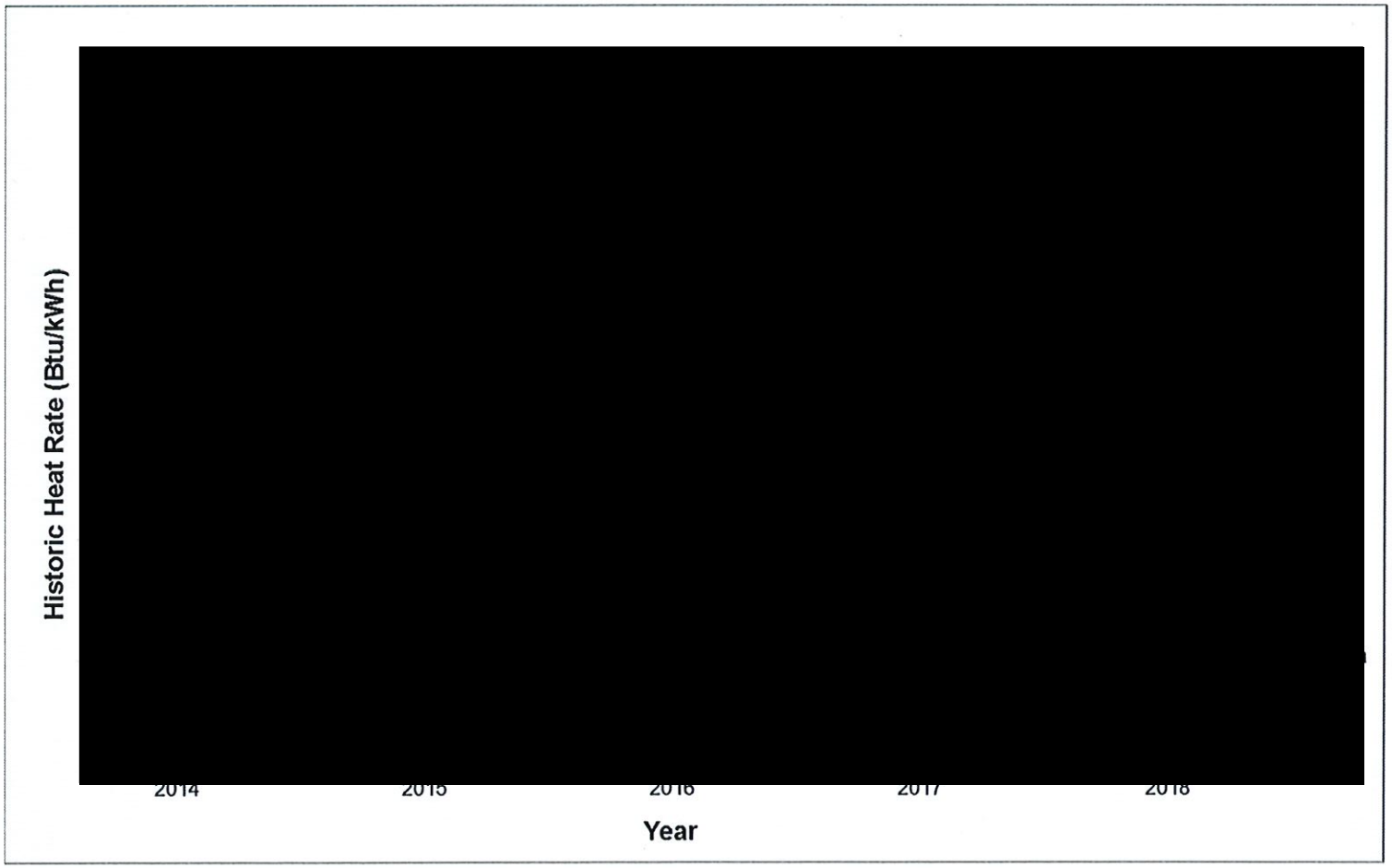
ECOELÉCTRICA POWER PLANT

- The following chart compares the historic heat rate of EcoEléctrica to PREPA's other base-load power plants



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ECOELÉCTRICA POWER PLANT

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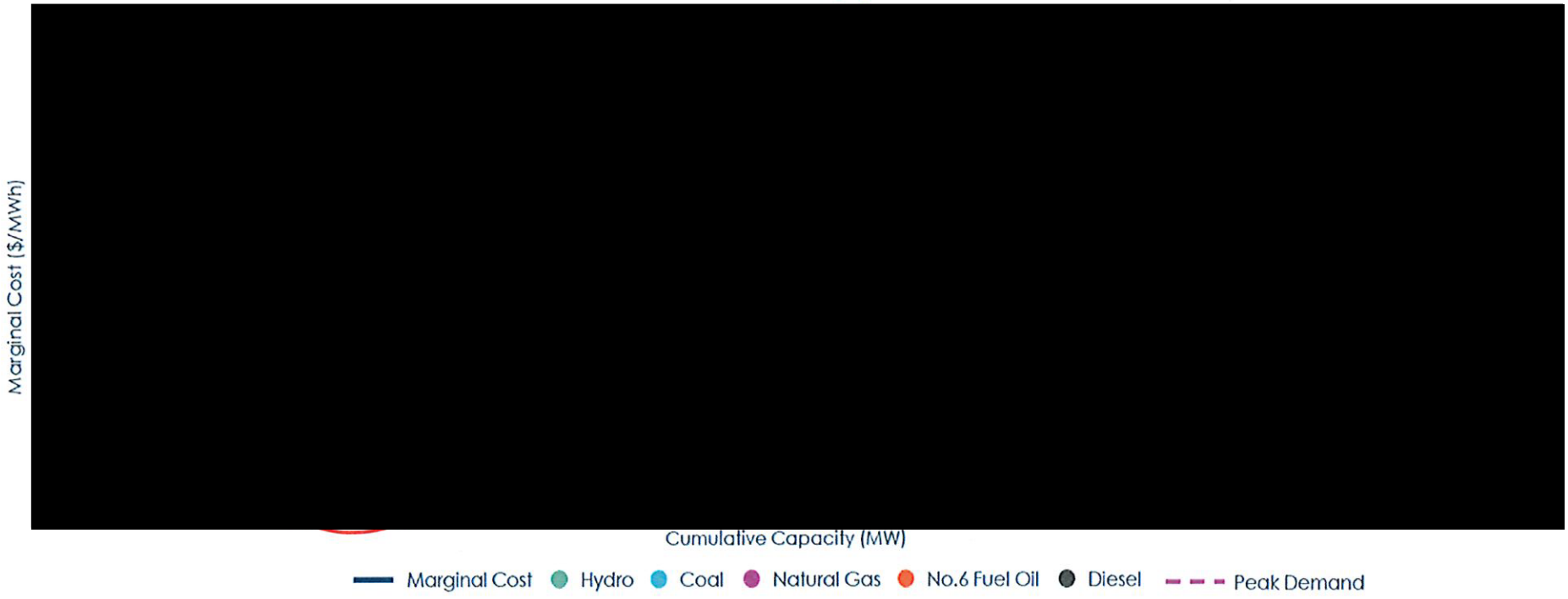
- The chart below provides economic dispatch merit order positions for PREPA units
  - Compares marginal facility operation cost to total unit/system capacity
  - EcoEléctrica is one of the cheapest units to operate in Puerto Rico

Indicative Generation Fleet Dispatch Stack



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CONTRACT NEGOTIATION STRATEGY

PREPA pursued negotiations with EcoEléctrica and Naturgy as one holistic agreement that would improve PREPA's operations and financials

Negotiations focused on the following items:

1) **Meet or exceed Fiscal Plan savings targets**
   - Fiscal plan targets $80 million in savings for fiscal year 2020 for conventional PPOAs renegotiations (EcoEléctrica and AES)

2) **Increase, not decrease, flexibility for PREPA**
   - PREPA is transitioning to renewable energy, making grid improvements, and building new facilities
   - New contracts should help make this transition easier

PREPA has used the ongoing draft IRP as a high level guide and for negotiation leverage

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CONTRACTS COMPARISON

Key Element

	Existing Contract	Proposed Contract
PPOA with EcoEléctrica		
Contract Term	March 2022	[redacted]
Nature of Contract	Capacity Payment + Energy Payment	
Available Capacity	507 MW	
Capacity Payment Amount	Approximately $225 M per year at 507 MW (corresponding to $235 M per year at 530 MW)	
Energy Payment	Average of 5.6 cents/kWh per year > 76% capacity factor costs increase to above 10 cents/kWh	
Availability Adiustment	Penalty and bonus for low and high availability	
Max / Min Dispatch Level	Set at 54% and 76% of available capacity. At >76% capacity factor, fuel expenses incur an 80% markup	
Maximum Start-ups	Limit of 50 starts per year	
GSA with Naturgy		
Contract Term	December 2020	
Facilities Covered	Costa Sur	
Pricing Formula	Pricing currently includes a hedge to No. 6 fuel oil	
Minimum Annual Contract Quantity	45 TBtu (Costa Sur only)	

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CONTRACT SAVINGS

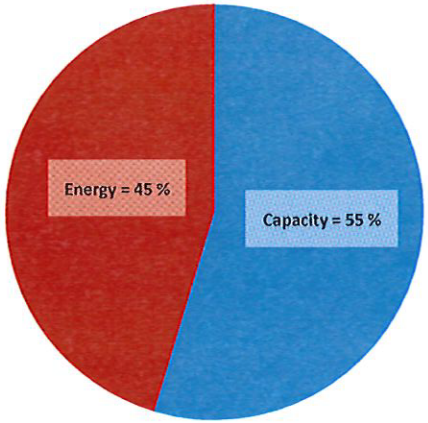
EcoEléctrica is Already One of the Lowest Cost Generators in Puerto Rico – This Contract Reduces Costs Further

1. **EcoEléctrica Payments Reduction:**

- [redacted]

Breakdown Between Eco Capacity and Fuel Payments

Existing Contract



Proposed Contract

[redacted]

2. **Costa Sur Fuel Savings:**

- [redacted]

Total savings average $100 million per year

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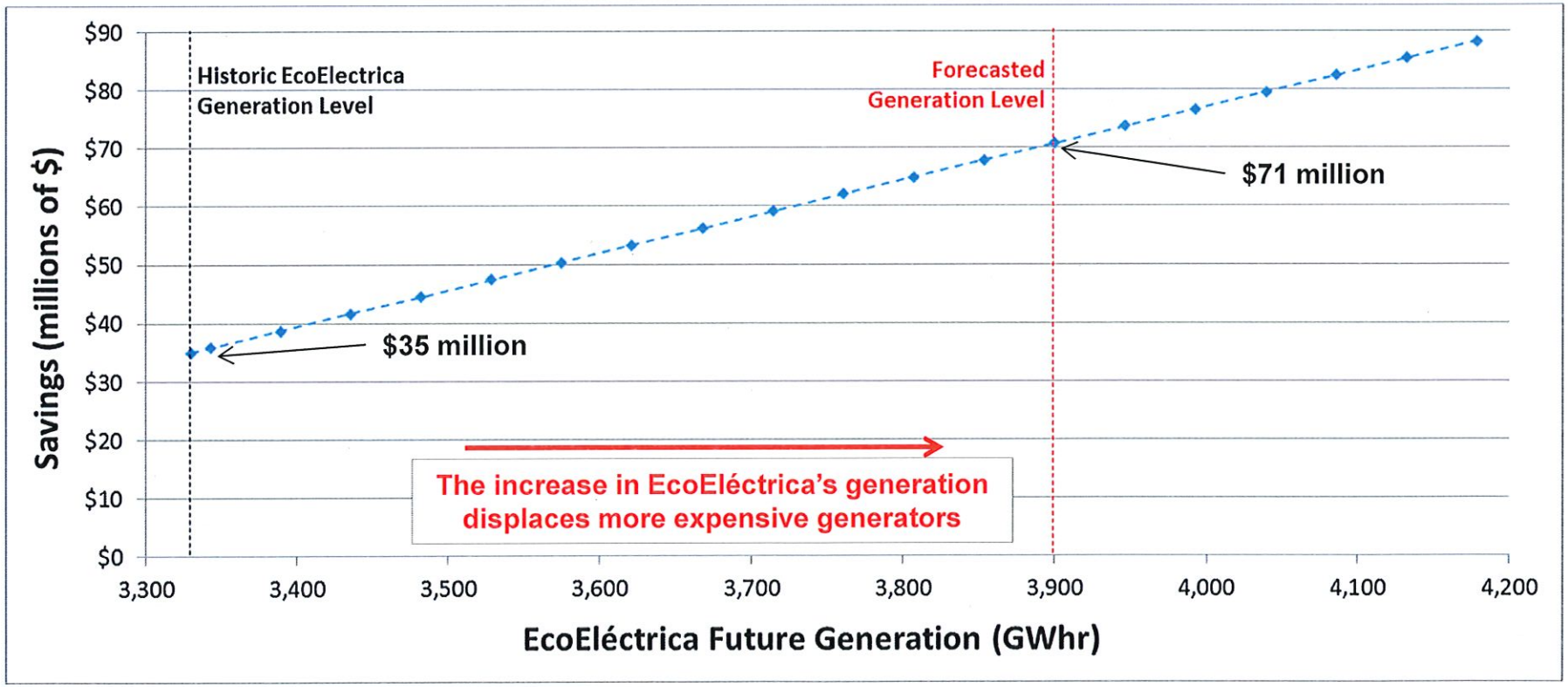
CONTRACT SAVINGS

EcoEléctrica Savings at Various Generation Levels



- Savings for EcoEléctrica are estimated to be **$71 million per year**
- Even if EcoEléctrica is dispatched at a similar level to the past, savings are estimated to be $35 million per year for PREPA
- Savings for Costa Sur average to **$29 million annually**

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CONTRACT DISCUSSION

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The proposed contracts will also result in and provide for the following:

1) **Increased flexibility for PREPA - contracts are better suited for renewable generation growth**

- PPOA increases the starts per year for future cycling operation and obligates EcoEléctrica to provide a specific menu of ancillary services
- GSA includes take or pay relief through exercisable macro-level options

  i.e., Costa Sur retirement, falling demand, generation from renewables (>15%)
- If ECO cycles more due to more renewables, new contracts will result in lower payments than under existing contract
  - Higher percentage of payments are allocated to fuel (64% in proposed contract versus 45% in existing contract) rather than capacity

2) **Increased grid reliability**

- Increased dispatch of EcoEléctrica, one of the most reliable generators in Puerto Rico, will result in less generation needed from unreliable generators

FINANCIAL CALCULATIONS – RESULTS

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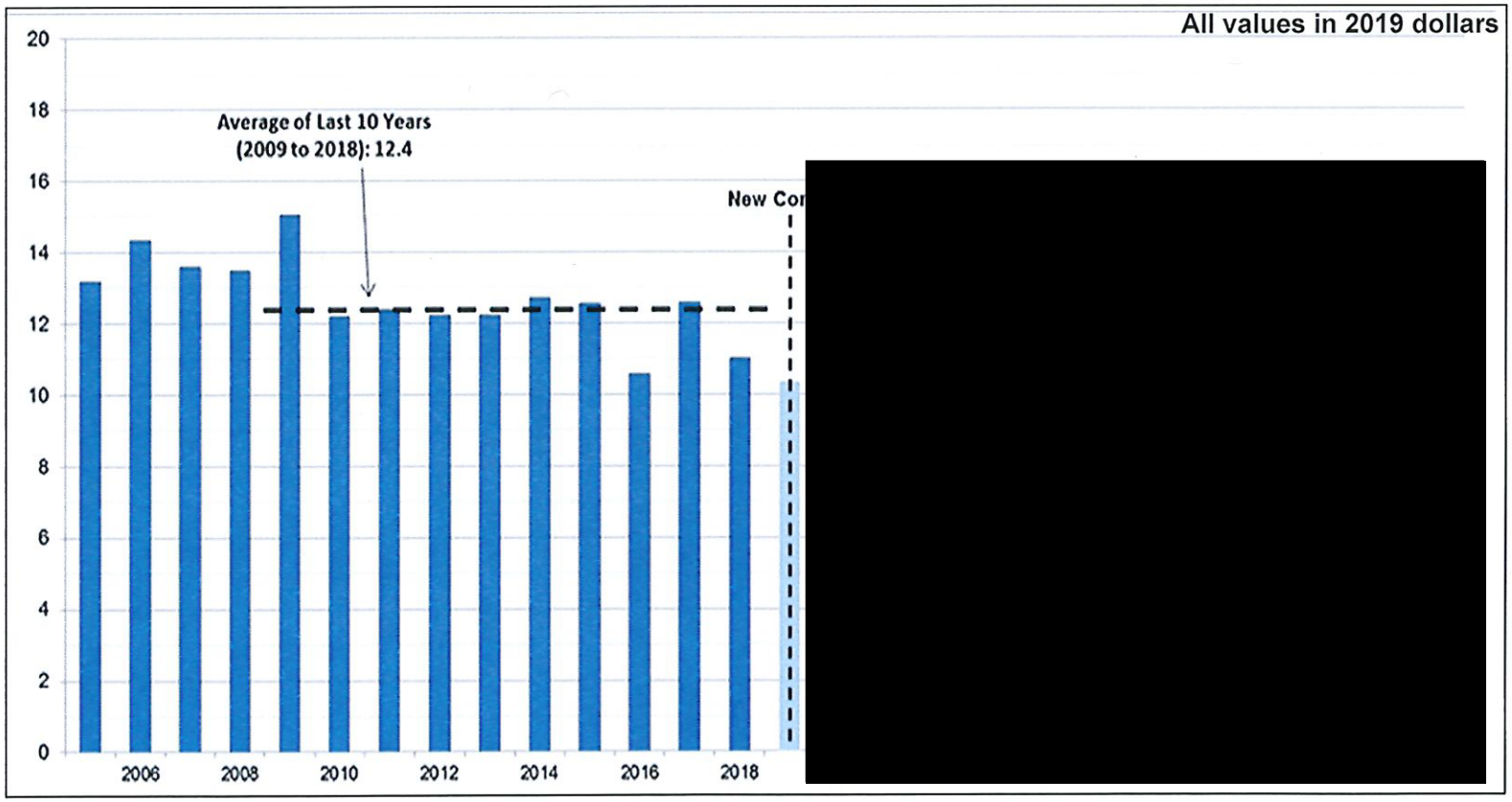
EcoEléctrica Historical Payments Compared to Forecasted (cents/kWh)

Reduction in contract payments of 1.7 cents/kWh



Historic capacity factor approximately 76%, forecasted at 84% (per PREPA dispatch center)

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ALTERNATIVE CASE – [redacted]

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[redacted]

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ALTERNATIVE CASE – [redacted]

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[redacted]

Puerto Rico Electric Power Authority

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ALTERNATIVE CASE – [redacted]

[redacted]

CONFIDENTIAL

Prepared by

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Chicago, Illinois 60603-5780

FINAL

EcoEléctrica and Naturgy Contract Renegotiations

Prepared for

The Puerto Rico Electric Power Authority

Document No. CS-0022
S&L Project No. 13741-017/018
November 19 2019

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VERSION LOG

Version	Issue Date
Draft	5 August 2019
Revision	16 August 2019
Revision	22 October 2019
Final	19 November 2019

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TABLES AND FIGURES

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ACRONYMS AND ABBREVIATIONS

Term	Definition or Clarification
BLS	U. S. Bureau of Labor Statistics
CPI	Consumer Price Index
EAF	Equivalent Availability Factor
FERC	Federal Energy Regulatory Commission
GSA	Gas Sales Agreement
IRP	Integrated Resource Plan
LNG	Liquefied Natural Gas
Max ACQ	Maximum Annual Contracted Quantity of Natural Gas
Min ACQ	Minimum Annual Contracted Quantity of Natural Gas
MMBtu	Metric million British thermal unit
MMcf	Metric Million cubic feet
O&M	Operations and Maintenance
PPOA	Power Purchase and Operating Agreement
PREB	Puerto Rico Energy Bureau
PREPA	Puerto Rico Electric Power Authority
PROMESA	Puerto Rico Oversight, Management, and Economic Stability Act
PURPA	Public Utility Regulatory Policies Act of 1978
QF	Qualifying Facility

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EXECUTIVE SUMMARY

The EcoEléctrica Power Plant is a 507-megawatt cogeneration facility owned by Naturgy, ENGIE SA, and Mitsui & Co., located in Peñuelas, Puerto Rico. Commercial operation began in March 2000. EcoEléctrica supplies approximately 15% of Puerto Rico's electricity. The EcoEléctrica plant is one of the most reliable, lowest cost, and efficient generators in Puerto Rico. PREPA entered into a Power Purchase and Operating Agreement (PPOA) with EcoEléctrica in 1995. Gas for EcoEléctrica is provided through the Peñuelas LNG import terminal, which has been operating since 2000. Currently, this is the only LNG terminal on the island with the capability to import, store, regasify, and export natural gas. The Peñuelas LNG import terminal is owned by Naturgy.

PREPA's Costa Sur Power Plant is an 820-megawatt facility located adjacent to EcoEléctrica that began commercial operation in the late 1960s. Costa Sur is currently the only PREPA-owned facility capable of firing natural gas. PREPA entered into a Gas Sales Agreement (GSA) with Naturgy for the supply of natural gas to Costa Sur Units 5 and 6 in 2012. Naturgy supplies natural gas to Costa Sur via a short pipeline from EcoEléctrica. As of May 2018, Costa Sur has been burning exclusively natural gas.

Over the last year, PREPA has been in discussion with both EcoEléctrica and Naturgy, the fuel supplier and majority shareholder of the EcoEléctrica facility, to negotiate amendments and extensions to the existing PPOA and existing GSA in such a way that lowers electricity costs to Puerto Rican ratepayers, improves the reliability of the electrical system, and aligns with PREPA's long-term renewable goals. In our opinion, the proposed amended PPOA and GSA with EcoEléctrica and Naturgy, respectively, achieve PREPA's objectives. For this reason, we recommend PREPA finalize and accept the amended contracts.

PROPOSED AMENDMENTS

Contract negotiations were pursued aiming to separate capacity and energy payments in the existing PPOA into two contracts. In the amended contracts, capacity payments are established under an amended and restated PPOA with EcoEléctrica, while the current energy payment in the existing PPOA changes to a direct fuel payment through the amended GSA with Naturgy. This amended GSA now covers the supply of natural gas to both EcoEléctrica and PREPA's adjacent Costa Sur facility.

The key differences between the existing and proposed amended PPOA and GSA are shown in the table as follows.

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Table ES-1 — Comparison of Existing and Proposed Contract Terms

	Existing Contract	Proposed Amendments
PPOA with EcoEléctrica		
Contract Term	March 2022	[redacted]
Nature of Contract	Capacity Payment + Energy Payment	[redacted]
Available Capacity	507 MW	[redacted]
Capacity Payment Amount	Approximately $230 M per year at 507 MW (corresponding to $241 M per year at 530 MW)	[redacted]
Energy Payment	Compensation for net electrical output of the facility intended to cover fuel expenses. Average of 5.6 cents/kWh per year. Above a 76% capacity factor fuel costs increase to approximately 80% higher	[redacted]
Availability Adjustment	Penalty and bonus for low and high availability	[redacted]
Max / Min Dispatch Level	Set at 54% and 76% of available capacity. Above a 76% capacity factor and fuel costs increase to 'spot price', approximately 80% higher.	[redacted]
Maximum Start-ups	Limit of 50 starts per year	[redacted]
GSA with Naturgy		
Contract Term	December 2020	[redacted]
Facilities Covered	Costa Sur	[redacted]
Pricing Formula	Pricing currently includes a hedge to No. 6 fuel oil	[redacted]
Minimum Annual Contract Quantity	45 TBtu (Costa Sur only)	[redacted]

IMPACT OF PROPOSED AMENDMENTS

The key items in the proposed amendments and their impacts are listed below:

Financial Savings: We estimate that the terms of the proposed amendments would amount to savings for PREPA of approximately $[redacted] per year, of which $[redacted] are derived from EcoEléctrica and $[redacted] are derived from Costa Sur. Savings tied to Costa Sur are expected to be modest over the first five years, averaging approximately $[redacted] per year. Given this, total savings are expected to be approximately $[redacted] per year over the next five years. Note that these savings figures meet the Fiscal Plan's savings target of $[redacted] assigned to the renegotiation of existing PPOAs. We break total savings into three sources, as is discussed as follows:

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1) The combined charges for EcoEléctrica are reduced. PREPA negotiated a reduction in the capacity payment equal to $[redacted] annually (offset by an availability bonus). However, these savings are partially offset by increased fuel costs. We estimate the net reduction corresponds to approximately $[redacted] annually in savings for PREPA. This value is calculated by comparing expected payments under each contract structure at the historical average generation level of [redacted] MWh (a [redacted]% capacity factor). Note that since the available capacity increases from [redacted] MW to [redacted] MW in the new contract, this generation level corresponds to two different capacity factors for each contract, [redacted]% for [redacted] MW (existing contract) and [redacted]% for [redacted] MW (proposed contract). The total calculated cost for each contract structure is shown below:

Table ES-2 — Comparison of Existing and Proposed Contract Costs

	Existing Contract Structure	Proposed Contract Structure
Generation (MWh)	3,330,452	
Available Capacity (MW)	507 MW	[redacted] MW
Capacity Factor	75.0%	[redacted]%
Capacity Payment (millions of USD)	$225.0 M	$[redacted] M[1]
Total Fuel Payment (millions of USD)	$186.7 M	$[redacted] M
Total Payment (Million USD)	$411.7 M	$[redacted] M
Difference (Million USD)	**$[redacted] M**	

1) Capacity payment includes discount, offset by the estimated availability bonus

2) Existing financial limitations on the dispatch of the EcoEléctrica facility are removed. Under the existing contract, if PREPA dispatches EcoEléctrica at capacity factors higher than [redacted]%, PREPA must to pay a higher fuel cost for generation above the [redacted]% threshold. The specific cost of this additional fuel varies based on both market conditions and Naturgy's internal costs, but the most recent Puerto Rico Integrated Resource Plan (IRP) lists this cost ($ per MMBtu) at approximately 80% higher than the contracted fuel cost. For this reason, at times when EcoEléctrica's capacity factor would go above [redacted]%, PREPA sometimes chooses to dispatch other facilities instead of EcoEléctrica on the basis of economics. The proposed contract removes this fuel pricing feature so that now natural gas utilized for generation at EcoEléctrica will be the same cost per MMBtu regardless of the facility's capacity factor. The PREPA Dispatch Center has indicated that they expect this change will allow PREPA to dispatch EcoEléctrica at an [redacted]% capacity factor going forward. They also indicated that this generation is likely to come from the Aguirre steam facility, the marginal generator on the island, even with existing transmission constraints.

   Increasing the generation of EcoEléctrica from [redacted] MWh (corresponding to the average historic capacity factor of [redacted]%) to [redacted] MWh (corresponding to the facility operating at an [redacted]% capacity factor) will cost PREPA and additional $[redacted] in natural gas costs. However, the additional [redacted] million MWh generated at EcoEléctrica will not be generated at Aguirre, which will save PREPA a total of $[redacted] in Aguirre's fuel expenses and just over $1[redacted] in Aguirre's variable operations and maintenance (O&M) costs, for a net total savings of $[redacted] annually.

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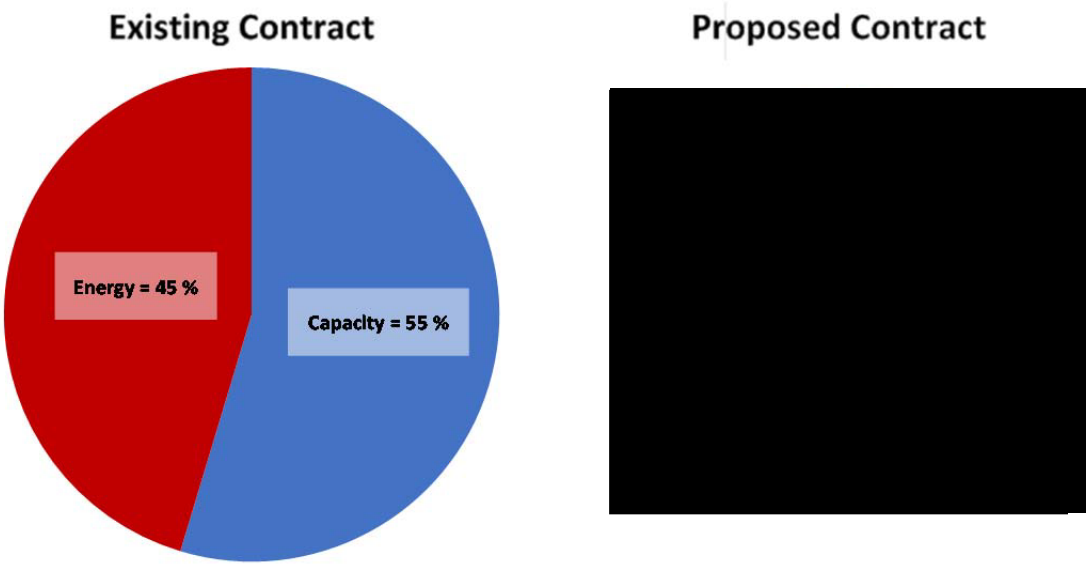
3) The existing GSA for Costa Sur has a built-in pricing hedge to oil, which was removed in the proposed contract. Given that natural gas prices are forecasted to remain much lower than oil prices over the next decade, we estimate that removing the hedge to oil and reducing the adder fee will result in average savings for PREPA of approximately $[redacted] per year for the Costa Sur facility. These savings are based upon fuel commodity price forecasts. Note that savings are expected to be modest over the first five years, averaging approximately $[redacted] per year, and increase in the future due to the forecasted widening of the spread between natural gas and oil prices.

Increased Flexibility: The proposed contracts give PREPA more flexibility than the current agreements, particularly related to addressing potential challenges that arise from increased renewable energy generation. This flexibility is described below:

1) Under the existing contracts, a greater percentage of the total payment to EcoEléctrica goes to cover the fixed capacity charge. The proposed contracts' financial structure would result in a greater percentage of the total payments to EcoEléctrica's operation going towards variable fuel costs. The following graphic compares the cost breakdown of the existing contract with the proposed contracts.

Figure ES-1 — Existing Versus Proposed Contract Payment Breakdown



As a result of a greater percentage of overall payments being tied to the variable fuel costs, the total cost to PREPA for EcoEléctrica's operation would fall significantly if EcoEléctrica was dispatched less. This situation will become more common as additional renewable energy plants are installed across Puerto Rico. For this reason, we expect the total MWh generation for EcoEléctrica to fall in the future. Under the proposed contract structure, reduced generation results in a reduction of the total payments to EcoEléctrica; thus, we are of the opinion that the proposed contracts' payment structure better aligns with PREPA's long-term renewable energy goals.

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2) The proposed contract also increases the number of allowed starts of EcoEléctrica per year. Under the current contract, there is a limit of 50 starts per year. The proposed contract specifies that this will be increased. Increasing the number of allowed starts of the EcoEléctrica facility gives PREPA the flexibility that it needs to use EcoEléctrica as a cycling facility in the future as more renewable generation is installed.

3) The GSA includes options to reduce PREPA's take or pay obligations. PREPA has the option to reduce take or pay obligations if: a) Costa Sur is shut down; b) demand on the island falls; or c) if renewable energy generation increases to a point where less natural gas is needed for EcoEléctrica or Costa Sur. These options are not tied together in that PREPA could potentially exercise all three at different times if the associated criteria were met. These take or pay reduction options allow PREPA additional flexibility going forward to better match the amount of natural gas purchased to the needs of the electrical grid at that time.

Increased Reliability: As described above, the existing PPOA with EcoEléctrica charges PREPA more for natural gas (in the form of an energy payment), in the event the facility is dispatched above a [redacted]% capacity factor. The proposed contract with EcoEléctrica removes this feature. PREPA's Dispatch Center has indicated that removing this financial constraint from the existing contract will allow EcoEléctrica to be dispatched at a higher capacity factor, estimated at approximately [redacted]% capacity factor. Given that EcoEléctrica has historically been the most reliable generator in Puerto Rico, dispatching EcoEléctrica at a higher level will result in less generation being needed from other, less reliable generators on the island. In our opinion, this should increase the electrical reliability of PREPA's power grid.

If the proposed contracts with EcoEléctrica and Naturgy are not pursued, we consider two alternative strategies that PREPA can take.

Strategy A: [redacted]

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[redacted]

Strategy B: [redacted]

1) [redacted]

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[redacted]

Sargent & Lundy considers the proposed contracts with EcoEléctrica and Naturgy to be in the best interest of PREPA for the aforementioned reasons. Not only would the contracts place PREPA in a better position financially and operationally, but the proposed contracts represent the best option currently available to PREPA. Given the constraints and limitations that are in place for PREPA, we recommend that PREPA finalize and accept the renegotiated PPOA and GSA to realize the savings and impact to ratepayers described herein.

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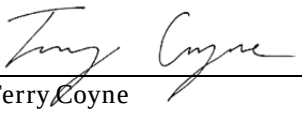

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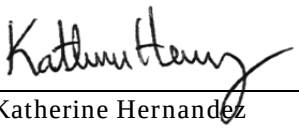

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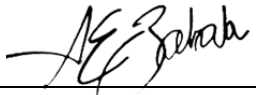

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November 19, 2019
Date

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1. INTRODUCTION

The EcoEléctrica Power Plant is a 507-megawatt cogeneration facility owned by Naturgy, ENGIE SA, and Mitsui & Co., located in Peñuelas, Puerto Rico. Commercial operation began in March 2000. EcoEléctrica supplies approximately 15% of Puerto Rico's electricity. Gas for EcoEléctrica is provided through the Peñuelas LNG import terminal, which has been operating since 2000. Currently, this is the only LNG terminal on the island with the capability to import, store, regasify, and export natural gas. The Peñuelas LNG import terminal is owned by Naturgy.

The EcoEléctrica plant consumes approximately 93 million cubic feet (MMcf) of gas per day. EcoEléctrica also delivers 186 MMcf of regasified LNG to Costa Sur through a renegotiated gas supply agreement. The LNG terminal's capacity could be further expanded by an additional 93 MMcf by putting a fourth gasifier into service. However, a major increase in the terminal's capacity could require modifications, possibly including a second LNG storage tank. The site has space for a second storage tank but permitting would be required for its construction.

The EcoEléctrica plant is one of the most reliable, lowest cost, and efficient generators in Puerto Rico. Historically, the facility has had an availability factor higher than 90% and a capacity factor of approximately 76%. Note that under the existing contract, if PREPA dispatches EcoEléctrica at capacity factors higher than 76%, PREPA must pay a higher fuel cost for any generation above the 76% threshold. For this reason, at times when EcoEléctrica's capacity factor goes above 76% it has, on occasion, been more economical for PREPA to dispatch other facilities even though EcoEléctrica was more efficient. To illustrate EcoEléctrica's efficiency compared to other facilities on the island, Figure 1-1 is provided.

It should be noted that EcoEléctrica has historically seen minimal historical degradation in its heat rate. The heat rate of the original facility was approximately 7,500 Btu/kWh and today, 20 years later, the heat rate has only risen to 7,671 Btu/kWh. This minimal degradation in heat rate is an indication of how well the facility has been maintained since it first began operation, in addition to upgrades that have been made to the facility to improve efficiency. We have every indication that the facility will continue to be maintained at a high level going forward.

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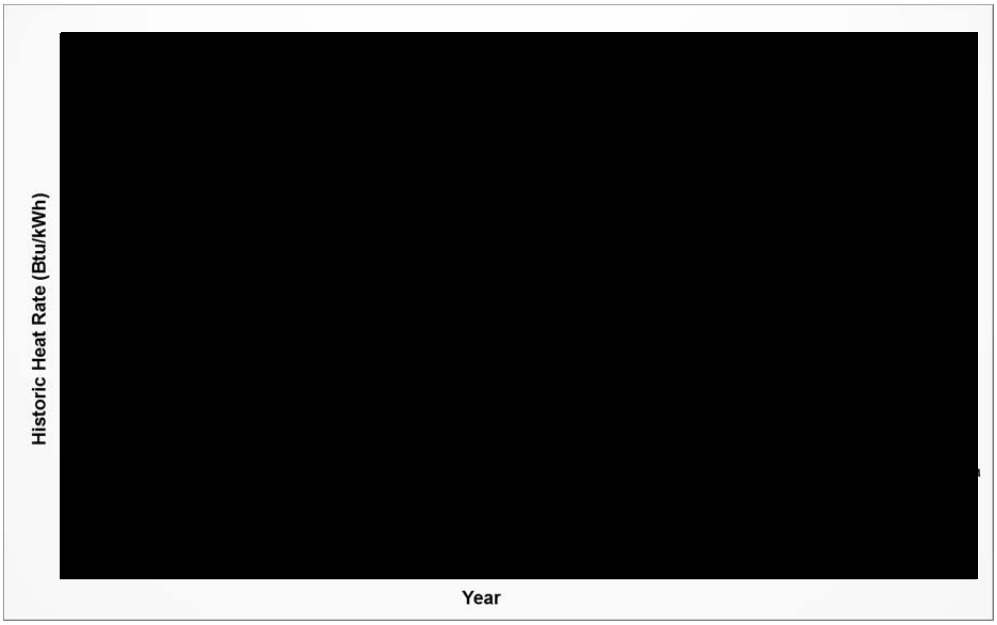
Figure 1-1 — Historic Heat Rate Comparison of Various Generators in Puerto Rico



EcoEléctrica's high efficiency and the relatively low cost for natural gas as compared to other fuels make EcoEléctrica one of the cheapest generator's for PREPA to dispatch. Figure 1-2 provides an estimate of the marginal cost of different generators on the island. Generators on the lower left have the lowest costs and should theoretically be dispatched first in a scenario where economics were the only dispatch consideration. Generators to the right have higher marginal costs and, from an economic perspective, should only be dispatched as the electricity demand rises enough to require their operation. EcoEléctrica is at the bottom left, indicating that it is one of the lowest cost generators to operate in Puerto Rico.

Figure 1-2 —Puerto Rico Indicative Generation Fleet Dispatch Stack

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PREPA's Costa Sur Power Plant is an 820-megawatt facility located adjacent to EcoEléctrica that began commercial operation in the late 1960s. Costa Sur is currently the only PREPA-owned facility capable of firing natural gas. PREPA entered into a Gas Sales Agreement (GSA) with Naturgy for the supply of natural gas to Costa Sur Units 5 and 6 in 2012. Naturgy supplies natural gas to Costa Sur via a short pipeline from EcoEléctrica. As of May 2018, Costa Sur has been burning exclusively natural gas.

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2. CONTRACT DISCUSSION

2.1 ORIGINAL CONTRACTS

2.1.1 EcoEléctrica Power Purchase and Operating Agreement

EcoEléctrica first entered into a Power Purchase and Operating Agreement (PPOA) with PREPA in 1995. The original contract was structured such that payments to EcoEléctrica were split between a fixed capacity payment and a variable energy payment. The capacity payment was originally meant to help pay for the facility's operating expenses, capital expenditures, original construction loan debt (which has been paid in full), and other related items. Meanwhile, the variable energy payment was structured to cover EcoEléctrica's fuel expenses. Under the existing contract, EcoEléctrica buys gas from Naturgy and is reimbursed by PREPA through the energy payment. The key terms of the existing PPOA are summarized below.

- Contract term ends on March 31, 2022
- Contract payment structure: Total Payment = Capacity Payment + Energy Payment
- The capacity payment amount is equal to approximately $230 million annually (2019 dollars)
- Maximum annual starts are set at 50 per year
- The maximum dispatch level of the plant is set at 76%. As previously mentioned, generation produced above this level incurs a higher fuel price that results in a higher energy payment (approximately 80% higher)
- Availability adjustment: the following availability adjustments apply based on EcoEléctrica's equivalent availability factor (EAF) for the rolling period comprising the last twelve billing periods. This availability adjustment is multiplied with the base monthly capacity payment. For months where EcoEléctrica has low availability, the result is that the facility is penalized through a reduced capacity payment.

Table 2-1 — Equivalent Availability Adjustment Factor

Range					Equivalent Availability Adjustment Factor (or EAAF)
		EAF	≥	93%	101%
93%	>	EAF	≥	89%	101% - ((93%-EAF) x 1.25)
89%	>	EAF	≥	86%	96% - ((89%-EAF) x 1.5)
86%	>	EAF	≥	71%	91.5% - ((86%-EAF) x 2)
71%	>	EAF	≥	61%	61.5% - ((71%-EAF) x 3)
61%	>	EAF			0%

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2.1.2 Natural Gas Sales and Purchase Agreement

PREPA first entered into a natural gas sale and purchase agreement with Gas Natural Aprovisionamientos SDG S.A. (now Naturgy) for the supply of natural gas to Costa Sur Units 5 and 6 on March 28, 2012[1]. The agreement was amended three times (10 March 2014, 11 May 2015, and 16 August 2017). Key terms of the Agreement are summarized below.

- Contract term ends on December 31, 2020
- Maximum annual contracted quantity (Max ACQ): 72 TBtu
- Minimum annual contracted quantity (Min ACQ): 45 TBtu
- Pricing formula: the price for delivered natural gas is equal to the lesser of the two equations below

Equation 1: $(F_{\#61-11} + 1.29) \cdot HRN_F$

Equation 2: $\left[\frac{(\mathbf{0.1215 \cdot F_{\#6603} + 1.125})}{2} + \frac{(\mathbf{1.15 \cdot HH + 5.95})}{2}\right] \cdot HRN_F$

Where:

$F_{\#61\text{-}11}$ Unweighted average for relevant month of New York No. 6 Fuel Oil Cargo Price in Platt's ($/MMBtu)

$F_{\#6603}$ 6-month prior unweighted average of New York No. 6 Fuel Oil Cargo Price in Platt's ($/bbl)

HH Final settlement price of the Henry Hub natural gas futures ($/MMBtu)

HRN_F Heat rate normalization factor, a constant equal to 0.97

2.2 RENEGOTIATED CONTRACTS

EcoEléctrica and Naturgy pursued renegotiations aiming to separate current capacity and energy payments into two contracts. Capacity payments are established under an amended and restated PPOA with EcoEléctrica, while the current energy payment in the existing PPOA changes to a direct fuel payment through the amended Gas Sales Agreement (GSA) between PREPA and Naturgy. This amended GSA now covers the supply of natural gas to both EcoEléctrica and PREPA's adjacent Costa Sur facility.

[1] http://energia.pr.gov/wp-content/uploads/2018/08/Memorial-Explicativo-R-del-S-219-CEPR.pdf

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2.2.1 Proposed Amended and Restated PPOA Terms

The key differences between the existing PPOA and the proposed amended terms are shown in the table below.

Table 2-2 — Comparison of Existing and Proposed PPOA Terms

	Existing PPOA	Proposed Amended PPOA	Notes
Contract Term	March 2022	[redacted]	[redacted]
Nature of Contract	PREPA to purchase dependable generation capacity and electricity produced by EcoEléctrica	[redacted]	[redacted]
Contract Payment Structure	Capacity Payment + Energy Payment	[redacted]	[redacted]
Capacity Payment Amount	$230 M per year at 507 MW (corresponding to $241 M per year at 530 MW)	[redacted]	[redacted]
Energy Payment	Compensation for net electrical output of the facility to cover fuel expenses. Average of 5.6 cents/kWh per year. Above a 76% capacity factor fuel costs increase approximately 80% higher	[redacted]	[redacted]
Availability Adjustment	As shown in Table 2-1	[redacted]	[redacted]
Maximum / Minimum Dispatch Level	Set at 54% and 76% of available capacity. Above a 76% capacity factor, fuel costs increase to 'spot price', approximately 80% higher.	[redacted]	[redacted]
Maximum Start-ups	Limit of 50 starts per year	[redacted]	[redacted]
Start-up Costs	PREPA pays EcoEléctrica's start-up costs until the units synchronize to the grid	[redacted]	[redacted]

Note: All dollar values above are in 2019 dollars

Select terms of the renegotiated PPOA with EcoEléctrica are further summarized as follows:

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Payment Structure:

- [redacted]
- [redacted]
- [redacted]
- [redacted]

Availability Adjustment:

- [redacted]
- [redacted]
- [redacted]

Force Majeure:

- [redacted]

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- [redacted]

2.2.2 Proposed Amended GSA Terms

The key differences between the existing GSA and the proposed amended terms are shown in the table below.

Table 2-3 — Comparison of Existing and Proposed GSA Terms

	Existing GSA	Proposed Amended GSA	Notes
Contract Term	December 2020	[redacted]	[redacted]
Facilities Covered	Costa Sur	[redacted]	[redacted]
Pricing Formula	As shown in Section 2.1.2, pricing currently considers the price of No. 6 fuel oil and the price of natural gas	[redacted]	[redacted]
Minimum Annual Contract Quantity	45 TBtu (Costa Sur only)	[redacted]	[redacted]

Select terms of the renegotiated GSA with Naturgy are further summarized below:

Minimum/Maximum Gas Quantities:

[redacted]

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Pricing Formula:

As described in Table 2-3, the [redacted]

Where:

HH [redacted]

Adder [redacted]

[redacted]

Table 2-4 — Proposed GSA Adder Fees

Dates	Adder ($/MMBtu)
Start of Contract – December 31, 2020	$[redacted]
January 1, 2021 – December 31, 2021	$[redacted]
January 1, 2022 – December 31, 2022	$[redacted]
January 1, 2023 – September 30, 2032	$[redacted]

If Puerto Rico is granted a Jones Act waiver for LNG imports, Naturgy would drop the adder down to $[redacted]/MMBtu.

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3. FINANCIAL DISCUSSION

3.1 MODELING INPUTS AND ASSUMPTIONS

Sargent & Lundy modeled the financial implications of the proposed contracts with both EcoEléctrica and Naturgy. The model accounts for the key contractual terms discussed in the previous section.

Our financial analysis also made several financial and technical assumptions. These are provided below:

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

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3.2 ECOELÉCTRICA FINANCIAL ANALYSIS

3.2.1 Sensitivity Analysis Scenarios

Sargent & Lundy investigated two different financial scenarios using the inputs and modeling assumptions listed above. Both scenarios are based on [redacted]:

1. [redacted]

2. [redacted]

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3.2.2 Financial Analysis Results

The results of the financial analysis are presented in the following section for each scenario investigated. Note that all values are presented in 2019 dollars. Additionally, the following table summarizes the results for each scenario. Historical data from ten years (2009 to 2018) is also provided for comparison purposes.

Table 3-1 — Comparison of Financial Scenario Results

	Average Capacity Payment	Capacity Factor	Annual Capacity Payment	Annual Fuel (or Energy) Payment	Total Annual Payment
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Current Contract, Historical Averages 2009-2018 (507 MW)	-	75%	$230.2 M	$186.7 M	$416.9 M

3.2.2.1 Scenario 1A: Expected Future EAF Level

Capacity Payments (Scenario 1A)

[redacted]

Fuel Payments (Scenario 1A)

[redacted]

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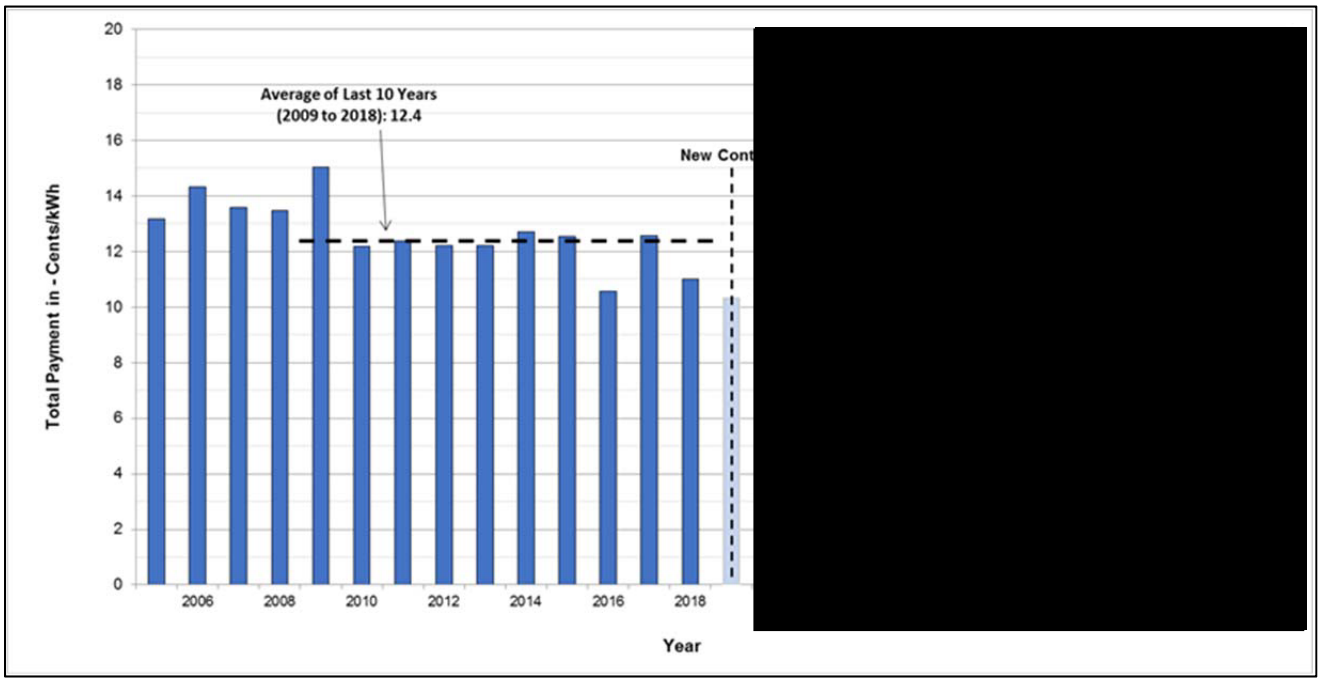
Combined Payments (Scenario 1A)

[redacted]:

[redacted]

[redacted]

Figure 3-1 — Scenario 1A Combined Payments per kWh, Historical Comparison



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[redacted]

Figure 3-2 — Scenario 1A Breakdown of Payments

[redacted]

3.2.2.2 Scenario 1B: Expected Future EAF Level, Lower Capacity Factor Sensitivity Case

[redacted]

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Capacity Payments (Scenario 1B - Lower Capacity Factor)

[redacted]

Fuel Payments (Scenario 1B - Lower Capacity Factor)

[redacted]

Combined Payments (Scenario 1B - Lower Capacity Factor)

[redacted]

[redacted]

[redacted]

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3.2.2.3 Scenario 2: Low Future EAF Level

Capacity Payments (Scenario 2)

[redacted]

Fuel Payments (Scenario 2)

[redacted]

Combined Payments (Scenario 2)

[redacted]

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3.3 COSTA SUR FINANCIAL ANALYSIS

[redacted]

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3.4 OVERALL SAVINGS CALCULATIONS

[redacted]

Table 3-2 — Comparison of Existing and Proposed Contract Costs

	Existing Contract Structure	Proposed Contract Structure
Generation (MWh)	[redacted]	
Available Capacity (MW)	507 MW	[redacted] MW
Capacity Factor	75.0%	[redacted] %
Capacity Payment (cents/kWh)	$225.0 M	$[redacted]
Total Fuel Payment (cents/kWh)	$186.7 M	$[redacted]
Total Payment (Million USD)	$411.7 M	$[redacted]
Difference (Million USD)	**$[redacted]**	

1) [redacted]

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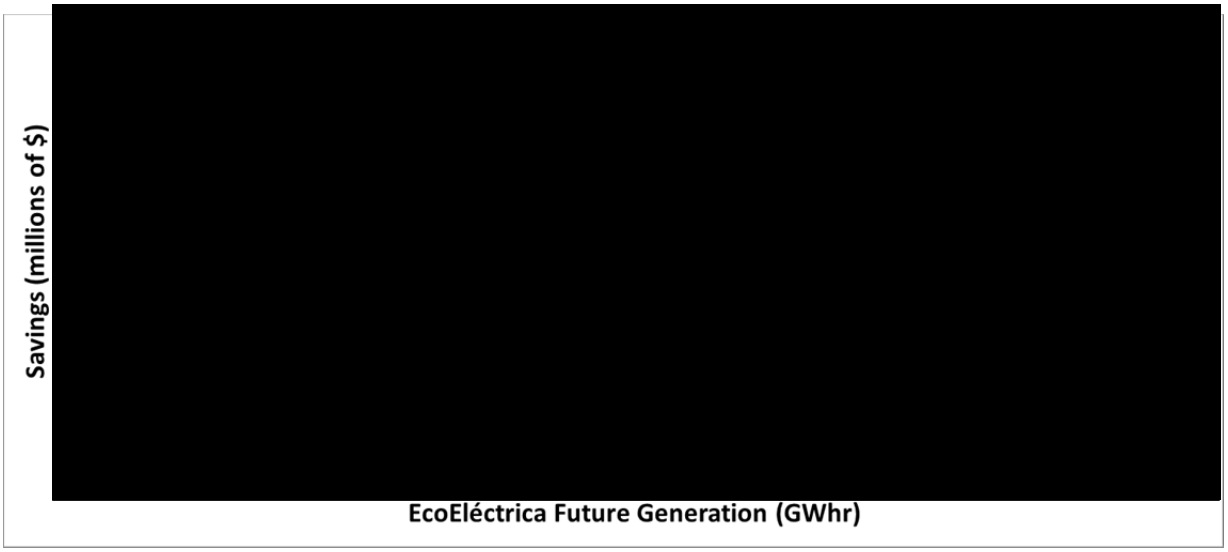
2) *Dispatch savings derived from increasing EcoEléctrica's dispatch level*

Under the existing contract, if PREPA dispatches EcoEléctrica at capacity factors higher than 76%, PREPA must pay a higher fuel cost for generation above the 76% threshold. The specific cost of this additional fuel varies based on both market conditions and Naturgy's internal costs, but the most recent IRP lists this cost ($ per MMBtu) at approximately 80% higher than the contracted fuel cost. For this reason, at times when EcoEléctrica's capacity factor would go above 76%, PREPA sometimes chooses to dispatch other facilities instead of EcoEléctrica on the basis of economics. [redacted]

Figure 3-3 — Forecasted Savings for PREPA as a Function of EcoEléctrica Generation



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3) *Costa Sur fuel savings from removing the fuel oil hedge in the fuel pricing formula and reducing the adder fee*

[redacted]

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4. ALTERNATIVE OPTIONS TO CONTRACT RENEWAL

This section discusses alternatives to contract renewal. We consider two specific scenarios:

A) The proposed contracts with both EcoEléctrica and Naturgy are not pursued. PREPA plans on closing the EcoEléctrica facility following the end of the facility's PPOA in 2022. This scenario is considered in the IRP.

B) [redacted]

4.1 SCENARIO A: [redacted]

In this scenario, the proposed contracts with EcoEléctrica and Naturgy are not accepted and PREPA decides to close the facility following the end of its existing PPOA in 2022. This scenario is considered in the IRP. The IRP suggests that following the closure of EcoEléctrica, a new combined cycle would be built at Costa Sur to replace the lost generation from EcoEléctrica. [redacted]

1. [redacted]

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2. [redacted]

3. [redacted]

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4. [redacted]

5. [redacted]

[redacted]

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4.2 SCENARIO B: [redacted]

[redacted]

- [redacted]
  - [redacted]
  - [redacted]
  - [redacted]
- [redacted]
  - [redacted]
  - [redacted]

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3. [redacted]

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