

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

**NEPR**

**Received:**

**Mar 1, 2023**

**6:49 PM**

IN RE:  
LUMA'S RESPONSE TO HURRICANE  
FIONA

**CASE NO. NEPR-MI-2022-0003**

**SUBJECT: Motion Submitting Eight Update on  
Stabilization Plan**

**MOTION SUBMITTING EIGHT UPDATE ON STABILIZATION PLAN FOR  
TEMPORARY EMERGENCY GENERATION CAPACITY**

**TO THE HONORABLE PUERTO RICO ENERGY BUREAU:**

**COME NOW LUMA Energy, LLC** ("ManagementCo"), and **LUMA Energy ServCo, LLC** ("ServCo"), (jointly referred to as "LUMA"), and respectfully state the following:

1. In a Resolution and Order of October 7, 2022 ("October 7<sup>th</sup> Order") with the subject "Baseload Generation Dispatch Status-Post Hurricane Fiona," this honorable Puerto Rico Energy Bureau ("Energy Bureau") convened a Technical Conference to discuss concerns raised by LUMA in a letter dated October 6, 2022, regarding Resource Adequacy and potential Generation resource deficiencies following Hurricane Fiona. Per the October 7<sup>th</sup> Order, the topics to be discussed at the Technical Conference were "Dispatch Status of the available Baseload Generation post Hurricane Fiona and (ii) the identified temporary emergency mitigation measures thought to address the generation deficiencies arising from Hurricane Fiona."<sup>1</sup>

2. On October 12, 2022, the Energy Bureau entered a Resolution and Order whereby it ordered LUMA to develop a stabilization plan as a direct response to Hurricane Fiona, in coordination with the Federal Emergency Management Agency ("FEMA") and the Puerto Rico

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<sup>1</sup> The Technical Conference was held as scheduled on October 11, 2022. During the Technical Conference, the Energy Bureau and consultants for the Energy Bureau posed questions to LUMA's representatives.

Electric Power Authority (“PREPA”) “to address any baseload generation inadequacy or shortfall that affects the dispatch availability and has the potential to cause load shedding or a blackout event of the electric system (“Stabilization Plan”)” (“October 12<sup>th</sup> Order”).

3. Per the October 12<sup>th</sup> Order, LUMA was directed to submit the 1<sup>st</sup> and the 15<sup>th</sup> day of each month from the notice of the Order, an updated report addressing the efforts conducted by LUMA to assure the completion of the Stabilization Plan.

4. On October 27<sup>th</sup>, 2022, the Energy Bureau issued a Resolution and Order whereby it set a technical conference for November 1, 2022 (“October 27<sup>th</sup> Order”) in connection with the first update on the Stabilization Plan. The Energy Bureau stated that it is particularly interested in “learning about the (1) U.S. Army Corps of Engineers (“USACE”) Generation Assessment underway, (2) Emergency Temporary Generation under a potential FEMA Public Assistance Emergency assignment that can expeditiously mitigate the impact of Hurricane Fiona, and (3) Replacement of Emergency Temporary Generation that seeks to phase out the temporary generation with permanent capacity, noting that this permanent capacity is consistent with the approved Integrated Resource Plan (“IRP”).” *See* October 27<sup>th</sup> Order at page 1.

5. As per the October 27<sup>th</sup> Order, the Technical Conference was held as scheduled on November 1<sup>st</sup>. LUMA representatives appeared to discuss the Stabilization Plan and answered questions by this Energy Bureau.

6. On October 31<sup>st</sup>, 2022, LUMA submitted the First Update on the Stabilization Plan.

7. On November 15, 2022, LUMA submitted a Second Update on the Stabilization Plan (“Second Update”). In addition, LUMA submitted supplemental information to the Second Update arising from a joint press conference of November 15<sup>th</sup>, 2022, where the Governor of Puerto Rico, the Hon. Pedro Pierluisi and the Federal Coordinator for the Federal Emergency

Management Agency (“FEMA”), Nancy Casper, announced that FEMA’s power stabilization initiative aims to install between 600 to 700 MW of temporary emergency generation capacity through the mobilization of power generation maritime barges and temporary land-based generators. *See Supplemental Submission to Second Update on Stabilization Plan to Inform of Announcement by the Puerto Rico Government and FEMA on Temporary Emergency Generation Capacity*, filed on November 15, 2022.

8. On December 1<sup>st</sup>, 2022, LUMA submitted the Third Update on the Stabilization Plan.

9. LUMA filed the Fifth Update on the Stabilization Plan on January 17<sup>th</sup>, 2023.

10. On January 31, 2023, LUMA submitted the Sixth Update on the Stabilization Plan.

11. On February 14, 2022, LUMA submitted the Seventh Update on the Stabilization Plan.

12. In compliance with the October 12<sup>th</sup> Order, LUMA hereby submits as *Exhibit I*, the Eight Update on the Stabilization Plan (“Eight Update”). The Eight Update includes, among others, a summary of the status of Stabilization Plan with reference to the tasks performed in the past weeks in coordination with FEMA and PREPA, as well as a summary of LUMA’s internal efforts. Furthermore, the Eight Update identifies current operational issues and concerns and provides an update on LUMA’s risk analyses.

**WHEREFORE**, LUMA respectfully requests that this Energy Bureau **take notice** of the aforementioned, **accept** the Eight Update submitted as **Exhibit 1** to this Motion, and **deem** that LUMA complied with that portion of the October 12th Order that requires submission of bi-monthly updated reports on the Stabilization Plan.

**RESPECTFULLY SUBMITTED.**

In San Juan, Puerto Rico, this 1<sup>st</sup> day of March, 2023

I hereby certify that this motion was filed using the electronic filing system of this Energy Bureau. I also certify that copy of this motion will be notified to the Puerto Rico Electric Power Authority, through its attorney of record: [jmarrero@diazvaz.law](mailto:jmarrero@diazvaz.law).



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*Exhibit 1*  
*Eight Update on Stabilization Report*



# Generation Stabilization Plan Discussion

March 1, 2023

# Agenda

- I. Executive Summary
- II. Area of Focus Past Two Weeks
- III. Generation Operational Issues and Concerns as of Report Date
- IV. Risk Analysis Update



# Executive Summary

- **FEMA Task Force's current focus on procurement of emergency generators at Palo Seco and San Juan. This activity currently on critical path for emergency generation being online.**
  - Procurement activities and contract development steps are underway
  - Determination of specific types of generators at each site predecessor activity to LUMA and PREPA completing site design work
  - USACE provided an updated timeline this past week for the Palo Seco site. Part of this timeline includes development of technical specifications to be provided to the PREPA and LUMA teams for Palo Seco
- **PREPA changes to scheduled maintenance outages increasing risk of loss of load events in March and April**
  - This concern flagged in early February
  - Aguirre 1 return to service date had been delayed again
  - Palo Seco 3 previously scheduled 16-week outage has been broken into a 4-week outage in March and a later 12-week outage in fall which increases operational risk of a forced outage in the summer
  - Several outages in March and April are currently scheduled back-to-back which allows very little tolerance for schedule deviations and raises risk of insufficient generation resources
- **Genera PR has been approved as generation operator and will be participating in all planning meetings with FEMA/LUMA/PREPA**





# Executive Summary – Schedules for Palo Seco and San Juan

## Palo Seco Updated Schedule

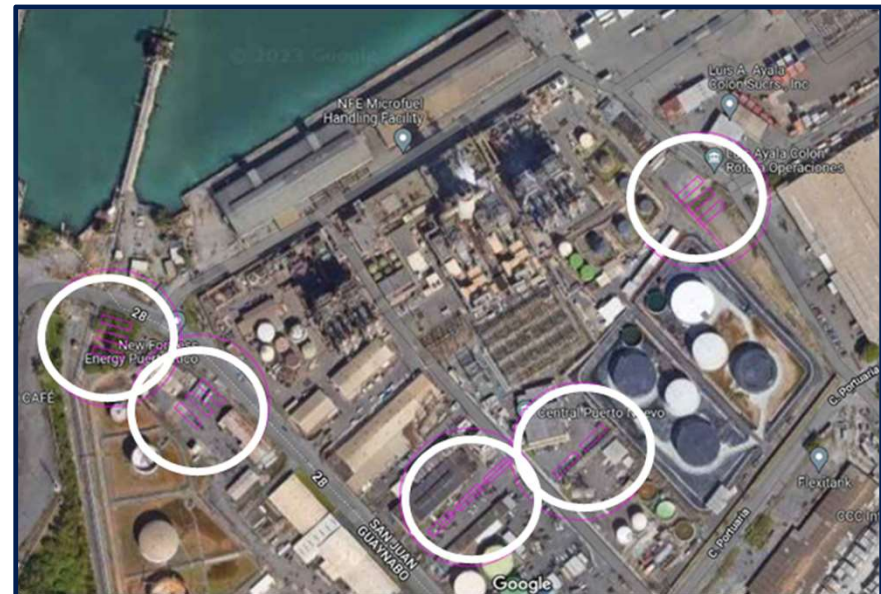
- Equipment Contract Award: Week of 2/27/23
- Notice to Proceed : Week of 3/6/2023
- Expect generators on site: 3/26/2023
- Earliest expected commissioning date: 4/10/2023



Palo Seco - A preliminary site evaluation for generation unit placement was completed.

## San Juan Schedule Remains the Same:

- Expect generators on site: 4/28/2023
- Earliest expected commissioning date: 5/19/2023



San Juan – A preliminary site evaluation for generation unit placement.



## Area of Focus Past Two Weeks - Work planning, equipment testing, and repairs continue

13.8 kV Junction  
Box and Buss Ducts



- Testing is being performed by LUMA and PREPA as required to verify functionality and safe operation of existing equipment
- There are construction complexities in using the existing equipment and structures, which are being addressed. (e.g., height and accessibility of Junction Box and Buss Ducts in picture)
- Substation Engineering teams conducting pre-requisite work (e.g. testing and repairing breakers and switches, oil-fill of transformers)
- Final specifications from USACE are predecessor to further work
- LUMA has not identified any major issues preventing interconnection of generators (risk remains until equipment specified and on-site)

### Multiple projects that must be performed in parallel and required outages increase risk of adequate resource availability

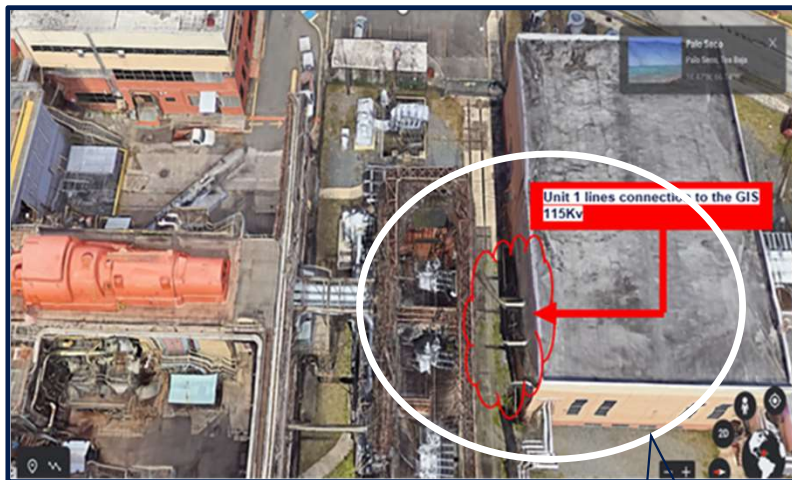
- LUMA has requested, and FEMA considering, modified contract scopes of work to support outage schedules that mitigate this risk

# A Look at Palo Seco – Primary Site

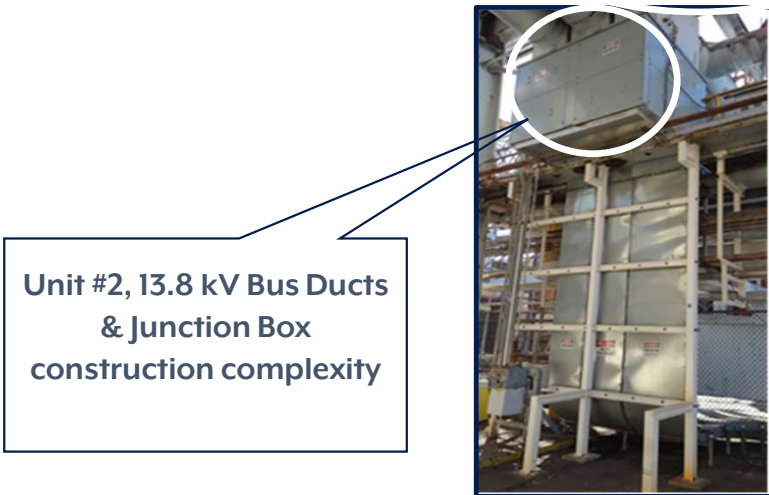
Planning and preliminary work being done by LUMA/PREPA/USACE teams in preparation of equipment delivery



MPT Block #3 115kV underground cable connection



Unit 1 lines connection to the GIS 115Kv



Unit #2, 13.8 kV Bus Ducts & Junction Box construction complexity



Detail of Unit # 1 connection to the Gas Insulated 115Kv Switchgear

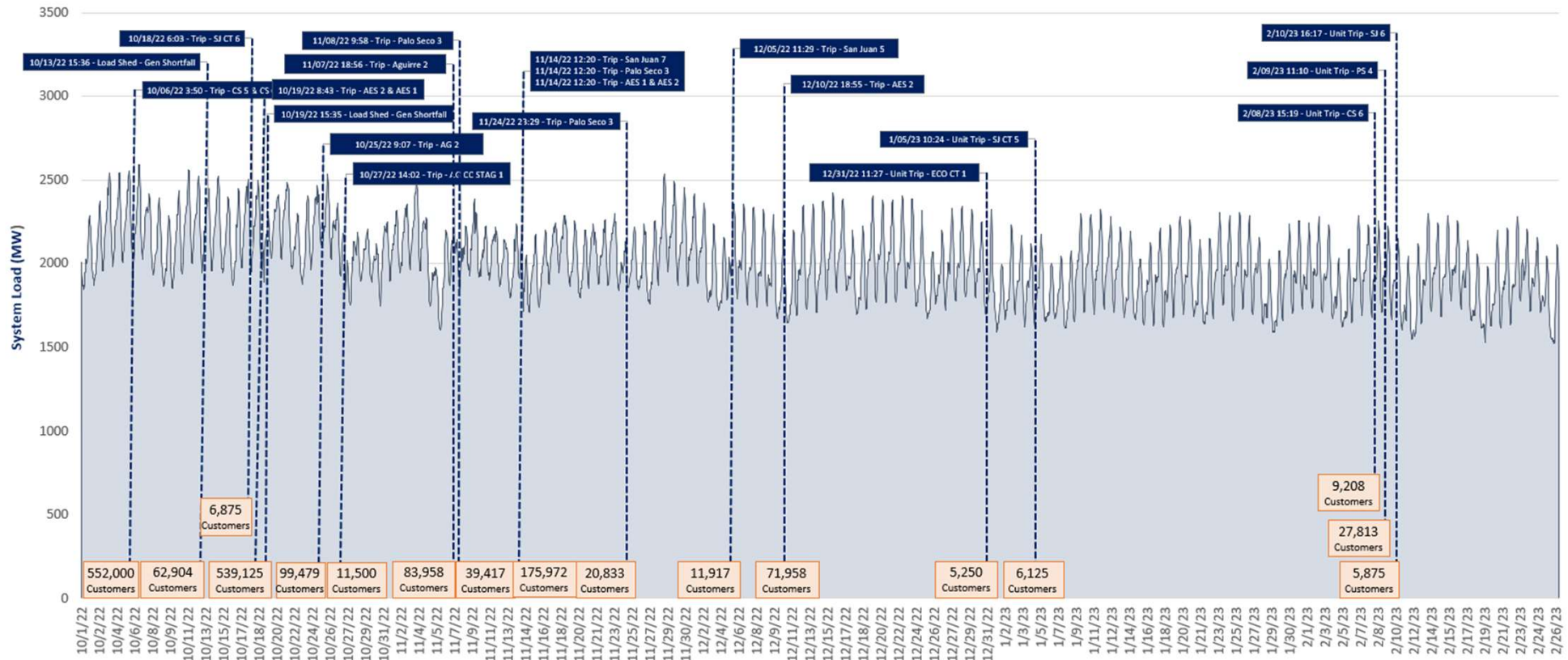




# Eighteen Load-Shed Events Have Occurred Since October 1, 2022

Updated until 2/26/2023

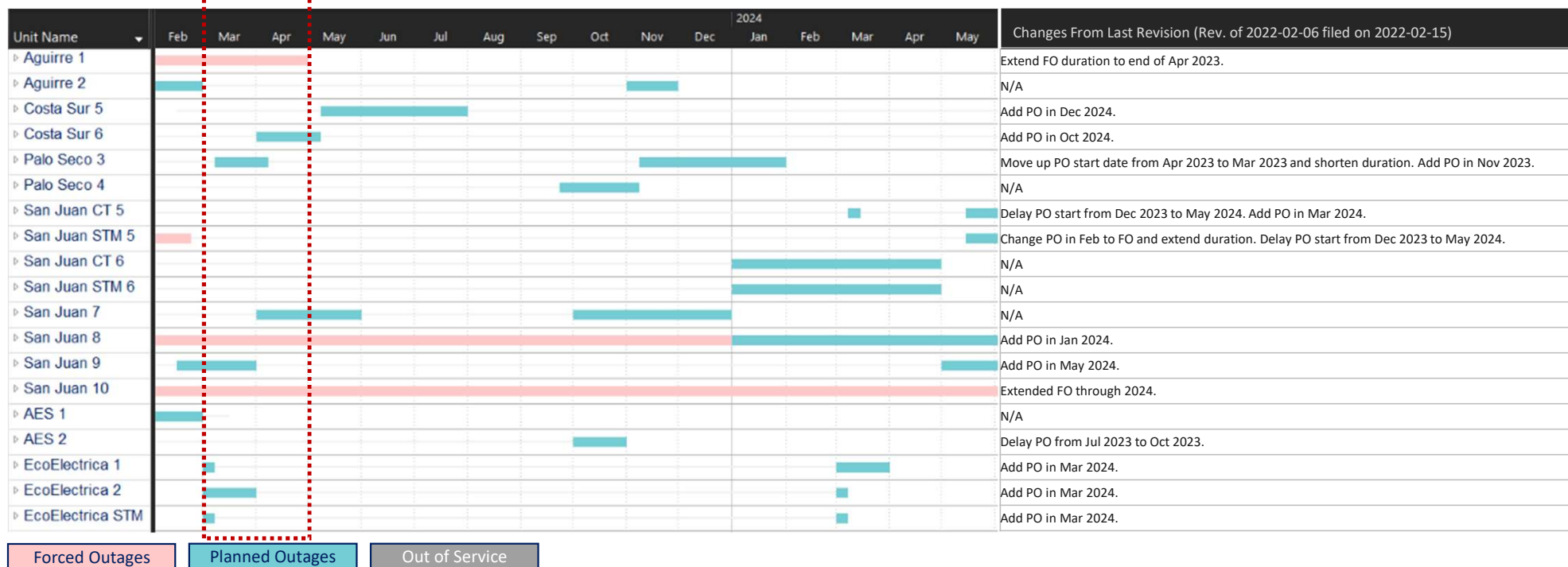
Generation Load Shed Events



- Three (3) load shed events occurred in February.
- No load shed events in the last two weeks



# Generation Planned Outages



Note: Reflects PREPA outage schedule update of February 24 and known Ecoeléctrica and AES outage schedule

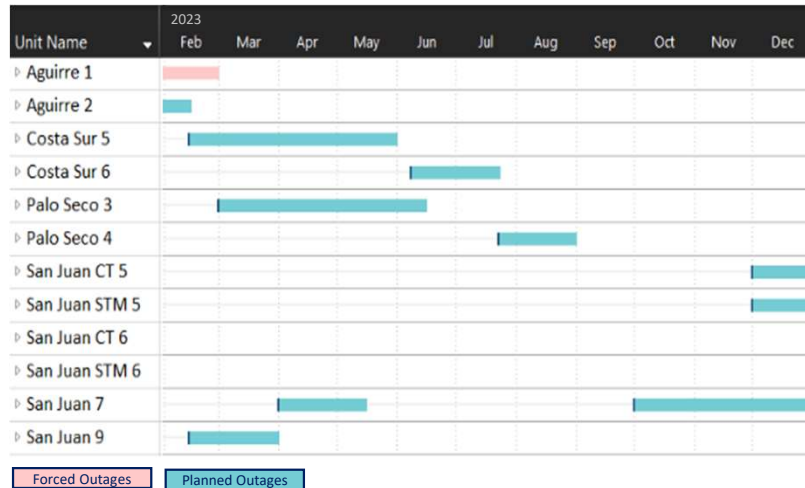
- Several outages re-scheduled from summer to spring or fall months to reduce overall resource adequacy risks
- Several back-to-back outages planned for March and April. Assumed completion dates create additional risk of overlapping outages due to delayed return dates.
- System Operations and PREPA will work to adjust to any unexpected outage or operational issues



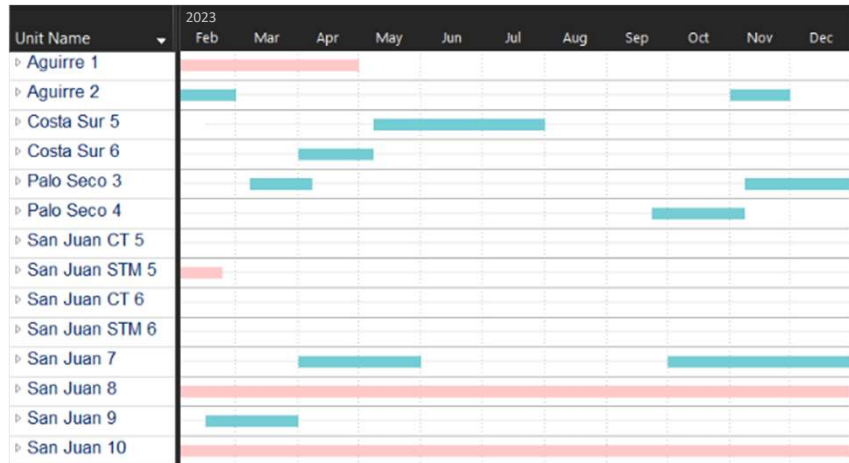
# History of Planned Outage (PO) Schedule Changes in PREPA Units

Schedule Revisions	Aguirre 1	Aguirre 2	Costa Sur 5	Costa Sur 6	Palo Seco 3	Palo Seco 4	San Juan CT 5	San Juan STM 5	San Juan CT 6	San Juan STM 6	San Juan 7	San Juan 8	San Juan 9	San Juan 10
Baseline Rev. 10-26-22														
Rev. 10-28-22								Extend PO				Add OOS through 2023		Add OOS through 2023
Rev. 12-08-22	Extend FO duration	Move up FO start	Delay PO start	Move up PO start	Delay PO start	Extend PO	Delay PO start	Extend PO duration			Delay PO start			
Rev. 01-05-23		Delay PO start	Move up PO start	Shorten PO duration		Delay PO Start	Add PO in Dec 2023	Extend PO duration						
Rev. 01-17-23		Add PO in Nov 2023									Extend PO duration	Change OOS to FO		Change OOS to FO
Rev. 02-06-23									Add PO in 2024	Add PO in 2024				
Rev. 02-24-23	Extend FO duration to end of Apr 2023.				Move up PO start date from Apr 2023 to Mar 2023 and shorten duration. Add PO in Nov 2023.		Add PO in Mar 2023. Delay PO start from Dec 2023 to May 2024.	Change PO in Feb to FO and extend duration. Delay PO start from Dec 2023 to May 2024.						

Rev. 10-28-22, filed on November 1, 2022



Rev. 02-24-23



# Risk Analysis – Observations to date

Risk	Observation
<b>Resource Adequacy</b>	<ul style="list-style-type: none"> <li>As provided in the <a href="#">2/15/23 Resource Adequacy Update</a>, available capacity remains a significant concern and loss-of-load events are expected to increase as seasonal temperatures increase demand</li> <li>FEMA's contribution of 350 MW will reduce the loss-of-load risks</li> </ul>
<b>PREPA Operations</b>	<ul style="list-style-type: none"> <li>PREPA successful completion of required maintenance during Planned Outages will improve availability and forced outage rates throughout the summer hurricane season</li> <li>Aguirre 1 further delayed return to service date; unit has now been out of service for 11 months</li> </ul>
<b>March - April Outage Performance</b>	<ul style="list-style-type: none"> <li>March and April outage execution remains a concern, although there is some flexibility to defer outage start dates, if necessary, in order to avoid overlapping outage schedules</li> </ul>
<b>Emergency Generation Operations</b>	<ul style="list-style-type: none"> <li>Timing of FEMA emergency generation continues to evolve. FEMA's current delivery schedule results in earliest commissioning in April and May</li> <li>Equipment specifications critical to site engineering and preparation progress</li> <li>Supply chain constraints throughout the global utility industry continue to be a risk factor</li> </ul>
<b>Summer Outlook 2023</b>	<ul style="list-style-type: none"> <li>Several outages have been moved out of the summer season which reduces overall LOLE risks, but creates some additional risk in March and April</li> <li>System remains vulnerable to N-1 contingency</li> </ul>

