

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

NEPR

Received:

Dec 1, 2022

9:28 PM

IN RE:
LUMA'S RESPONSE TO HURRICANE
FIONA

CASE NO. NEPR-MI-2022-0003

SUBJECT: Third Update on Stabilization Plan

**THIRD 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 7th 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 7th 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."¹

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

¹ 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 12th Order”).

3. Per the October 12th Order, LUMA was directed to submit the 1st and the 15th 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. As per the October 12th Order, therefore, the first of such reports is due on November 1, 2022.

4. On October 27th, 2022, the Energy Bureau issued a Resolution and Order whereby it set a technical conference for November 1, 2022 (“October 27th 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 27th Order at page 1. As per the October 27th Order, the Technical Conference was held as scheduled on November 1st. LUMA representatives appeared to discuss the Stabilization Plan and answered questions by this Energy Bureau.

5. On October 31st, 2022, LUMA submitted the first update on the Stabilization Plan.

6. 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 15th, 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

7. In further compliance with the October 12th Order, LUMA hereby submits a Third Update on the Stabilization Plan (“Third Update”). *See* Exhibit 1 (Update of December 1, 2022). The Third Update includes, among others, a summary of the status of Stabilization Plan with reference to the tasks performed in the past two weeks in coordination with FEMA and PREPA, as well as a summary of LUMA’s internal efforts. Furthermore, the Third 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 Third 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 1st day of December, 2022.

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 attorneys of record: jmarrero@diazvaz.law and kbolanos@diazvaz.law.



DLA Piper (Puerto Rico) LLC

500 Calle de la Tanca, Suite 401

San Juan, PR 00901-1969

Tel. 787-945-9107

Fax 939-697-6147

/s/ Margarita Mercado Echegaray

Margarita Mercado Echegaray

RUA NÚM. 16,266

margarita.mercado@us.dlapiper.com

Exhibit 1
Third Update on Stabilization Report



Generation Stabilization Plan Discussion

December 1, 2022

Agenda

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

Executive Summary of Generation Stabilization Plan Status



Executive Summary of Generation Stabilization Plan (GSP) Status

- Generation performance and availability continues to be less than projected by generators and system reserves are significantly below minimum targets, thus increasing the risks of load shed when any single baseload plant experiences a forced outage or trip (highly vulnerable to N-1 contingency)
- On November 15th, 2022, Gov. Pedro Pierluisi and 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
- Regular coordination meetings and joint site visits have taken place and continue with GSP Team, consisting of FEMA, LUMA, and PREPA to validate candidate locations for emergency generators and to order long lead items
- Currently developing a plan and schedule to coordinate emergency generator addition requirements which considers:
 - Analysis and engineering studies required to support emergency generation deployments
 - Coordination of long term (previously planned) repairs or upgrades to switchyards



Past Two Weeks Area of Focus

Past Two Weeks Area of Focus - Stakeholder Coordination

FEMA

- Detailed planning meetings with full GSP Team held at FEMA offices November 15th and 16th
- Initial candidate locations prioritized and kicked off evaluation for interconnection of barges and land-based, mobile generators
- Follow up detailed site inspections occurred November 17th-20th to confirm site suitability; additional visits scheduled this week

PREPA

- Daily updates of plant operational issues
- Ongoing review of outage schedules
- PREPA hosting and facilitating follow-up detailed visits to candidate locations

LUMA

- Preliminary scoping work on interconnection studies
- Tracking condition assessments to monitor risk to resource adequacy
- Weekly updates to Risk Analysis model to reflect evolving condition assessments

PREPA and **LUMA** reviewing inventory levels and opportunities to support emergency generation deployment



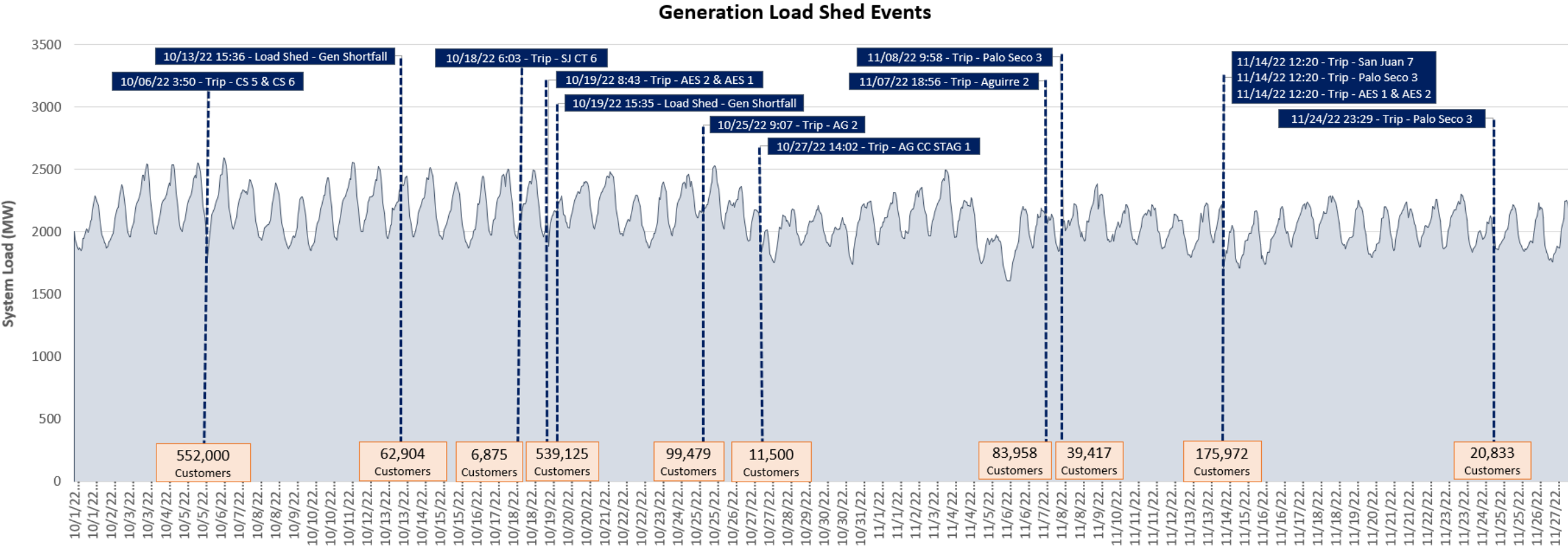
Generation Operational Issues and Concerns as of Report Date

Major Generation Events Since November 15, 2022

Date	Events
11/17/2022	Palo Seco 4 –Unit was synchronized on 11/16/2022at 1727 hours. 20 minutes later the unit was out due to problems with Bunker C pumps, exciter's voltage regulator and high vibrations in turbine bearings. The unit was able to be synchronized again that same day at 2032 hours.
11/18/2022	Palo Seco 4 – forced outage due to the high vibrations in bearings #1 and #2 of the turbine
11/21/2022	San Juan 7 – unit trip due to the loss of Cooling Water Pump 7-1.
11/24/2022	Palo Seco 3 – unit trip with approximately 155 MW, due to the loss of Bunker C pump. There was an automatic load shed that lasted from 2329 hours to 2339 hours.
11/26/2022	AES 2 – unit trip after a sudden ramp down from 247 MW to 40 MW. There was no load shed in the event, and some gas turbines were synchronized to maintain the spinning reserves levels. The preliminary cause of the trip was the loss of the fluidization fan.

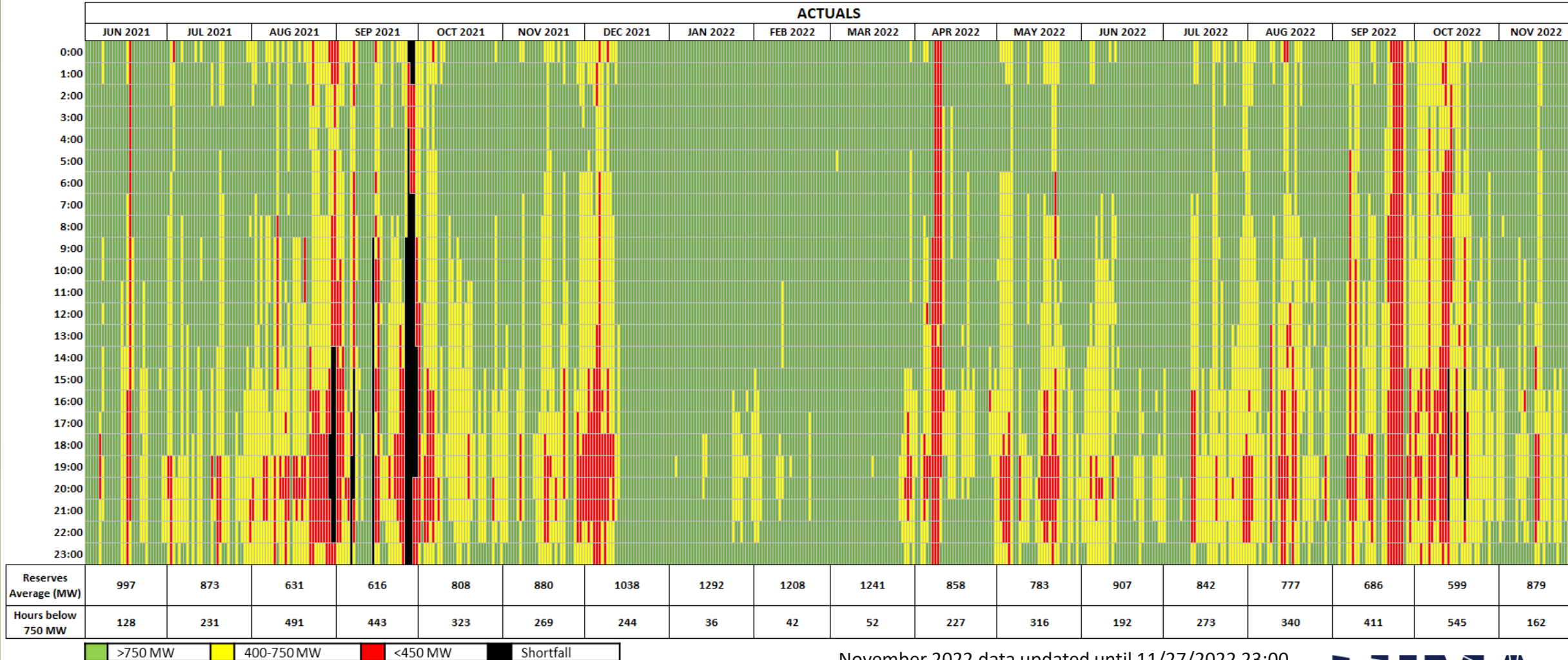
Events that Caused Load Shed Since October 1, 2022

LUMAPR.COM



System Reserves Heat Map: Actual Since June 1, 2021

- January –March is time of low demand which might provide the illusion that generation risks are behind us
- Timely actions are necessary to ensure required outages are completed before demand increases



November 2022 data updated until 11/27/2022 23:00



Reserves Heat Map since September 1, 2022 and Forecast



November data updated until 11/27/2022 23:00

- October plant availability was worse than forecast
 - 545 hours (73% of hours in month) below targeted 750 MW of reserves
- Reserves improved in November
 - 162 hours in the month (23% of the hours in the month) below targeted reserves compared to 295 hours forecast to be less than 750 MW reserves

Generation Planned Outages as of October 28, 2022

LUMAPR.COM

Unit Name	2023																Changes From Last Update (Rev. 2022-10-26)
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
▶ Aguirre 1																	
▶ Aguirre 2																	
▶ Costa Sur 5																	
▶ Costa Sur 6																	
▶ Palo Seco 3																	
▶ Palo Seco 4																	
▶ San Juan CT 5																	
▶ San Juan STM 5																	Add forced outage Sep 15 – Nov 30 2022; Extended Planned Outage Dec 15 – Dec 31 2022
▶ San Juan CT 6																	
▶ San Juan STM 6																	
▶ San Juan 7																	
▶ San Juan 8																	Add out of service Jan 1 – Dec 31 2023
▶ San Juan 9																	
▶ San Juan 10																	Add out of service Jan 1 – Dec 31 2023
▶ AES 1																	
▶ AES 2																	
▶ EcoElectrica 1																	
▶ EcoElectrica 2																	
▶ EcoElectrica STM																	

Forced Outages

Planned Outages

Out of Service



Risk Analysis Update

Risk Analysis – Impact of 500 MW of Emergency Generation

Emergency generation will significantly reduce risk of multiple load sheds

