

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

NEPR

Received:

May 9, 2022

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IN RE: INTERRUPCIÓN DE SERVICIO
ELÉCTRICO DE 6 DE ABRIL DE 2022

CASE NO. NEPR-IN-2022-0002

SUBJECT:

**Submission in Compliance with Request
for Information on April 6th Incident and
Second Updated Report, and Request for
Confidential Treatment**

**MOTION TO SUBMIT SECOND UPDATED REPORT, PUBLIC EXECUTIVE
SUMMARY, DOCUMENTS AND INFORMATION IN RESPONSE TO REQUEST FOR
INFORMATION, AND REQUEST FOR CONFIDENTIAL TREATMENT**

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COME now **LUMA Energy, LLC** (“ManagementCo”) and **LUMA Energy ServCo, LLC** (“ServCo”) (jointly referred to as the “Operator” or “LUMA”), and respectfully state and request the following¹:

1. On April 6th 2022, a failure in the electric system led to a fire at the Costa Sur transmission substation, which resulted in a power outage of the entire electrical system (hereinafter, the “April 6th Incident”).

2. On April 8th 2022, this Honorable Puerto Rico Energy Bureau (“Energy Bureau”) issued a Resolution and Order whereby it initiated an investigation of the April 6th Incident (“April 8th Order”).

3. On April 12th, 2022, in compliance with the April 8th Order, LUMA submitted the Preliminary Report of the April 6th Incident. The Preliminary Report included the information that

¹ Capitalized terms not defined herein shall have the meaning ascribed to them in LUMA’s *Motion Submitting Updated Report and Request for Confidential Treatment*, filed in this Energy Bureau on April 18th, 2022.

LUMA had gathered thus far, preliminary findings and assessments of the April 6th Incident, and a summary of the corrective actions taken by LUMA.

4. On April 14th, 2022, to aid the Energy Bureau in its investigation and supplement the Preliminary Report, LUMA filed a *Motion to Supplement Preliminary Report on April 6th Incident*. Therein, LUMA submitted two (2) video recordings, including a screen camera from the Costa Sur transmission substation, which shows the moment of the explosion, and an aerial view video recorded the morning after the April 6th Incident.

5. On April 18th, 2022, in compliance with the April 8th Order, LUMA filed a *Motion Submitting Updated Report and Request for Confidential Treatment*. Therein, LUMA submitted the Updated Report of the April 6th Incident, which provided an update on the following topics:

- i. Overview of third-party industry expert hired to assist with analysis;
- ii. Outage investigation update and proactive maintenance plan/strategy;
- iii. System analysis update including adding dynamic stability analysis into model; and
- iv. Ongoing restoration activities at Costa Sur.

6. In the Updated Report, LUMA disclosed that, given the highly technical and extensive nature of the investigation and the desire to conduct an exhaustive, comprehensive, and scientific review, it was not possible to establish a fixed date for completion of the root cause investigation and analysis, and the submission of the Final Report. Nevertheless, LUMA agreed to provide an update to the Energy Bureau on the schedule, scope, and status of the investigation on or before May 9th, 2022 (the “Second Updated Report”).

7. On April 22nd, 2022, the Energy Bureau issued a Resolution and Order instructing LUMA and PREPA to submit, on or before May 6th, 2022, at noon, certain documents and

information in connection with the April 6th Incident. The Energy Bureau also required LUMA and PREPA to include a sworn statement stating that the documents produced are exact copies of the original documents and that the information provided is true and correct (“April 22nd Order”).

8. On May 7th, 2022, LUMA filed a *Motion for Brief Extension of Time to Submit Documents and Information in Response to Request for Information*. Therein, LUMA requested an extension until May 9, 2022, to submit the documents and information in compliance with the April 22nd Order issued by the Energy Bureau. Considering there is an overlap in the subject matter of both submissions, LUMA stated that it would be more beneficial for this Energy Bureau to receive both the Second Updated Report and the responsive documents and information to the Energy Bureau’s requests at the same time.

9. On May 6th, 2022, the Energy Bureau entered a Resolution and Order granting LUMA until May, 9, 2022, to submit the documents and information in compliance with the April 22nd Order and the Second Updated Report.

10. In compliance with the April 22nd Order, LUMA hereby submits with this Motion all documents and information in its possession and control identified as of today, responsive to the Energy Bureau’s request for documents and information. LUMA also includes a sworn statement signed by Darrell Wilvers, LUMA’s Director of Asset Management, stating that the documents produced are exact copies of the original documents and that the information provided is true and correct. The documents and information are being submitted electronically to the Energy Bureau, given the technical impossibility of uploading them to the electronic docket. Further, LUMA submits the documents and information under seal of confidentiality and requests that the Energy Bureau receive and maintain the same confidentially.

11. Further, as advanced by LUMA in previous filings, to be transparent with its customers and regulator about its operations, LUMA hereby submits the Second Updated Report of the April 6th Incident. LUMA submits the Second Updated Report under seal of confidentiality and requests that the Energy Bureau receive and maintain the same confidentially.

12. Considering that Section 15.10 of Regulation No. 8543 allows for the release to the public of information after an investigation has concluded, LUMA respectfully submits that the documents and information responsive to the April 22nd Order and the Second Updated Report should be designated as confidential material that should be protected from disclosure after the investigation of the April 6th Incident concludes. The documents and information responsive to the April 22nd Order and the Second Updated Report are protected from disclosure as CEII, *see e.g.*, 6 U.S.C. §§ 671-674; 18 C.F.R. §388.113 (2020), and pursuant to the Bureau's Policy on Management of Confidential Information. *See* Energy Bureau's Policy on Management of Confidential Information, CEPR-MI-2016-0009, issued on August 31, 2016, as amended by Resolution dated September 16, 2016.

13. Under separate cover and expediently, within the next ten days, as allowed by Section A.2 of the Energy Bureau's Policy on Management of Confidential Information," LUMA will submit a memorandum of law in support of this request to file the documents and information responsive to the April 22nd Order and the Second Updated Report of the April 6th Incident under seal of confidentiality.

14. Further, LUMA submits a public executive summary of the Second Updated Report as Exhibit 1 to this Motion.

WHEREFORE, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned and **receive and accept** the documents submitted concurrently with this Motion

and declaration that is being filed in compliance with the April 22nd Order, **accept and treat confidentially** the Second Updated Report of the April 6th Incident that is being filed with this Motion, and **accept** the public executive summary of the Second Updated Report as Exhibit 1 to this Motion.

RESPECTFULLY SUBMITTED.

We hereby certify that we filed this Motion using the electronic filing system of this Energy Bureau and that we will send an electronic copy of this Motion to attorneys for PREPA, Katuska Bolaños-Lugo, kbolanos@diazvaz.law, and Joannely Marrero-Cruz, jmarrero@diazvaz.law.

In San Juan, Puerto Rico, this 9th day of May 2022.



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Exhibit 1



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NEPR-IN-2022-04

Costa Sur Outage Event of 04/06/2022 Progress Report Summary

May 9, 2022



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Summary

In compliance with the Puerto Rico Energy Bureau's Resolution and Order issued April 8th, 2022 in case number NEPR-IN-2022-0002 and as part of our commitment to keep the Puerto Rico Energy Bureau (PREB) aware of the status of LUMA's investigation, LUMA will provide data analyzed of the April 6th outage event.

LUMA has made it clear that it is committed to providing additional updates during each phase of the investigation, and to working with Puerto Rico Electric Power Authority (PREPA) and other generators to gather the necessary evidence. As has been stated publicly, a scientific and rigorous investigation is being conducted by a team led by Dr. Richard Brown of Exponent, who will collect and analyze the data from various internal and external parties in order to provide a complete analysis of the factors that contributed to the April 6th outage. To be clear, it is not currently possible to provide an exact cause of the April 6th outage event given that a thorough investigation of the root causes and of the contributing factors that led to the island wide outage is still ongoing.

Investigation Update

Since beginning operations on June 1st, 2021, LUMA has been focused on addressing legacy infrastructure issues and the fragile nature of Puerto Rico's electric grid that suffered years – if not decades – of neglect under the past operator. LUMA is committed to investigating all the factors that may have led and contributed to the April 6th event and is determined to identify and understand the root cause(s) of the April 6th event, the role played by the fragile nature of the grid, and the series of improvement(s) that must be taken by LUMA, PREPA, and other actors to mitigate against similar incidents occurring again.

This specific update provides a partial Protection and Control analysis based on the information available and describes the system's behavior during the electrical system disturbance that caused a widespread outage on Wednesday, April 6th, 2022. This report and its findings are based on data that LUMA has analyzed through May 5th, 2022. However, after requests on April 7th, April 13th, and May 2nd, PREPA provided additional data from its systems to the Energy Bureau on May 6th. The investigation team is reviewing the additional data provided by PREPA and will provide additional findings in future reports.

Based on the data available through May 5th, 2022, the following preliminary findings have been made:

Sequence of April 6th Event: Technical Explanation

1. Costa Sur's generator unit #5 was connected to the transmission system by closing OCB #0082.
2. Approximately five seconds later, unit #5's protection system operated due to an unknown event. This sent a command to OCB #0082 to open.
3. During the opening sequence, a fault eventually occurred within OCB #0082 causing a failure. The breaker failure relay correctly isolated the fault as designed.
4. This failure caused conductive gases and particles to engulf the surrounding area, resulting in multiple faults on the 230 kV system at Costa Sur.
5. These subsequent 230 kV line faults were correctly isolated from the system by line-fault protection at remote substations.

6. The failure of the circuit breaker and the resulting subsequent faults caused the generators at Costa Sur and EcoEléctrica to be disconnected from the power system. This resulted in the removal of approximately 800 MW generation capacity from the system, corresponding in an approximate reduction from 2,300 MW to 1,500 MW.
7. The sudden generation reduction resulted in the remaining generators to decelerate.
8. The generation deceleration triggered underfrequency load shedding, but this load shedding was not sufficient to prevent the island from blacking out.
9. System stability and underfrequency load shedding issues are under investigation and will be addressed in the Root Cause Analysis (RCA) report.

Restoration Update

In addition to the data provided, this report also provides a summary update on Costa Sur restoration activities. LUMA is determined to address the conditions that led to this event and continue improving immediate reliability issues by making the necessary repairs at Costa Sur Substation. In preparation of restoring the 230 kV bus #6 and replacing damaged circuit breakers #0074 and #0082, the following critical restoration activities were completed as of May 5th, 2022:

Electrical Restoration

1. Performed high-voltage auxiliary switch cleaning and adjustments on #51120A, #50320A, and #0019.
2. Maintenance occurred on OCBs #51120 and #50220.
3. Bus #6 Megger tested, commissioned, connected to PTs and OCB #50220.
4. Current transformers tested on high-voltage auxiliary switches #51120, OCB #50220, and ACB #50320.
5. Removed high-voltage auxiliary switches #0082A and #0074A.
6. Removed last remaining circuit breaker tank from #0074.
7. High-voltage PT and secondary PT disconnect switch installations and wire pulls.
8. Bus #6 replaced, and wiring completed of protection relay in Control Room.
9. Cable pulled for SCADA panel.

April 6th Investigation: Next Steps

This current update is the third report provided by LUMA since the April 6th outage event as part of the overall efforts to investigate the root cause and contributing factors to the island wide outage event. The current findings presented in this progress report may be revised as additional information and analysis warrants. This update reflects the information available and analyzed through Thursday, May 5th.

A more complete and thorough investigation of the April 6th outage event will also require PREPA's future, timely, and full cooperation to determine the exact root cause of the event, and to better understand the contributing operational factors that led to such a significant series of cascading failures.

Overall, the remaining elements of the investigation schedule will include the following:

- System-wide stability analysis – July 18, 2022
- Breaker failure forensics analysis – August 19, 2022

- Costa Sur power plant control and protection system analysis – September 9, 2022
- Root Cause Analysis (RCA) report – September 23, 2022.

It is important to note that the data provided does not address issues related to systemic and historical neglect and maintenance deficiencies that have plagued the electric system in Puerto Rico, and the role and factor they directly played in the April 6th outage event. These issues will be addressed in the upcoming RCA report.

LUMA's Commitment

LUMA's goal prior to and since the April 6th event remains to repair, rebuild, and restore the electric grid the people of Puerto Rico depend on every single day. The investigative actions taken by LUMA related to the April 6th event reflect our ongoing commitment to transform the electric grid and provide the level of energy reliability our 1.5 million customers expect and deserve.