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

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IN RE: REVIEW OF THE PUERTO RICO ELECTRIC POWER AUTHORITY 'S 10-YEAR INFRASTRUCTURE PLAN – DECEMBER 2020

CASE NO.: NEPR-MI-2021-0002

SUBJECT: Urgent Motion for Reconsideration of the June 4 Order

URGENT MOTION FOR RECONSIDERATION OF THE JUNE 4 ORDER

COMES NOW the Puerto Rico Electric Power Authority¹, through its counsel of record, and respectfully submits and requests as follows:

I. BACKGROUND

1. On November 15, 2021, PREPA filed a *Motion to Submit Fourth Group of Generation Projects* ("November 15 Motion"). With the November 15 Motion, PREPA submitted a comprehensive list of Generation Projects consisting of repair work projects of generation assets and for which PREPA will seek reimbursement under several FEMA programs. November 15 Motion at Attachment A. The Generation Projects list included the generation facility name, location, name and description of the work, and an estimate of costs. *Id.* at p. 3, ¶ 7. PREPA affirmed that it is of the utmost importance that the Energy Bureau approve that PREPA moves forward with the relevant request for reimbursement of the Generation Projects because, among other reasons, the

¹ Capitalized terms not defined herein shall be considered with the meaning provided to them in the November 15 Motion.

People of Puerto Rico should not pay the costs for the Generation Projects if there are funds available to cover those expenses. *Id.* In the November 15 Motion, PREPA asserted that the execution of the Generation Projects would serve the People of Puerto Rico and allow PREPA to follow its responsibility and duty to provide reliable and continuous electric service. *Id.* PREPA moved the Energy Bureau to approve the Generation Projects to enable PREPA to present them to COR3 and FEMA.

2. On November 18, 2021, the Energy Bureau entered a *Resolution and Order* partially addressing the November 15 Motion ("November 18 Order"). In the November 18 Order, the Energy Bureau clarified that all capital projects' expenses require the Energy Bureau's approval. November 18 Order at p. 1. Further, the Energy Bureau stated that

> [t]he Energy Bureau will promptly issue a resolution evaluating the Proposed Generation Projects. However, as a preliminary matter, the Energy Bureau considers that most of the Proposed Generation Projects entail capital and/or maintenance-related investments inconsistent with the approved Integrated Resource Plan (IRP) and Modified Action Plan as well as PREPA's approved budget.

Id.

3. The Energy Bureau emphasized that PREPA must follow the strong energy public policies behind the retirement of specific generation units during the new five (5) years, the reduction of dependence on certain types of fuels and the substitution of the generation infrastructure. *Id.* The Energy Bureau further stated that PREPA must adhere to the operative IRP. *Id.*

4. In the November 18 Order, the Energy Bureau informed that it would

evaluate the Generation Projects with the urgency that circumstances require. *Id.* at p. 2. It also resolved and ordered that PREPA is barred from executing further activities regarding the Generation Projects, provided that PREPA may execute those activities specifically covered in the generation budget approved by the Energy Bureau for Fiscal Year 2021. *Id.*²

5. In the end, the Energy Bureau emphasized that any action taken by PREPA "must be consistent with the Approved IRP and Approved Action Plan." *Id.*

6. On November 29, 2021, PREPA filed a *Motion to Clarify and Request for Technical Conference* ("November 29 Motion") to address and explain to the Energy Bureau that the November 15 Motion did not have the intention of changing, amending or being inconsistent with the Approved IRP and Modified Action Plan. PREPA's purpose with the filing of the November 29 Motion was to provide additional information to aid the Energy Bureau in evaluating the Generation Projects previously submitted with the November 15 Motion. In the November 29 Motion, PREPA reiterated its objective to pursue projects that comply with and follow both plans. Therefore, PREPA requested the Energy Bureau to schedule a technical conference to discuss further the concerns and questions the latter may have regarding those projects.

7. On January 4, 2022, PREPA was served with a Resolution and Order

² It must be noted that the project presented under SOW no. 2029, Aguirre Power Plant, Unit 1 South Wall Boiler Tubing Replacement and Boilers Repairs is included in the FY22 Generation Budget.

("January 4 Order") in which the Energy Bureau informed that it had conditionally approved the projects described in Attachments A to H of the referenced order ("Conditionally Approved Projects"), pending the submittal by PREPA of the statement of work ("SOW") of each project. The approval included permanent repairs for the San Juan, Aguirre, Aguirre Combined Cycle, Costa Sur, Palo Seco, Cambalache, Mayaguez Hydro-gas power plants and the Hydro-gas turbine peakers. Other works approved are common to all power plants (*i.e.*, item no. 96, interior dry cleaning). Further, the Energy Bureau also determined to defer for further evaluation the projects listed in Attachment I of the January 4 Order ("Deferred Projects"). The Deferred Projects include works in the following units: San Juan Units 7, 8 and 10, Aguirre Unit 1, Palo Seco Unit 3 and Cambalache Unit 1, among others. January 4 Order at Attach. I.

8. The January 4 Order additionally provided that PREPA had to submit on January 14, 2022, the SOW for each Conditionally Approved Projects and the Deferred Projects for the Energy Bureau's evaluation. January 4 Order, page. 3, Sec. III. Additionally, the Energy Bureau directed PREPA to answer, on or before January 19, 2022, the following requests for information ("RFIs"):

- 1. The current status of each unit listed in the Proposed Generation Projects,
- 2. if and how the expenditure will help bring the unit back to availability for operation,
- 3. when the unit would be available for operation if the expenditure was made,

- 4. the expected duration of availability status of the unit after the expenditure is made, and any other required explanation.
- 5. Provide an updated snapshot of the current status of repairs and expected availability over the next three years for the units located at San Juan, Palo Seco, Costa Sur and Aguirre.
- 6. Provide either the "Draft released to PREPA" of the "10-Year Thermal Generation Retirement, Addition and Conversion Plan" as listed on page 7 of the December 2021 Status Report17 scheduled for finishing by March 2022 or provide a synopsis of PREPA's current understanding of how planned retirements of the fossil fleet are considered when requesting approval for maintenance and capital investment funding through the instant procedure.

Id. at p. 4.

9. These RFIs relate to the status, plans and repairs of all the units for which

PREPA has planned a Proposed Generation Project and comprises the entire

generation fleet. The RFIs were answered by PREPA on February 15 and 23 of

2022.3

10. In compliance with the January 4 Order, PREPA presented SOWs for all the Deferred Projects. However, the Energy Bureau sustained that the Deferred Projects were subject to further review and that those SOWs would be discussed in the proposed Technical Conference that was to be scheduled <u>once PREPA responded to the RFIs of the January 4 Order</u>. *See, i.e.*, Resolution and Order of February 28, 2022, at p. 6. Sec. III.

³ Motion to Complete Generation Projects SOW's Submittal and Partial Responses to RFI and Request for Extension of Time to Submit Additional Responses to RFI and Motion to Complete Responses to RFI, respectively.

11. To PREPA's surprise, on June 4, 2022, the Energy Bureau entered a *Resolution and Order* denying 9 ("Denied Projects") of the 15 Deferred Projects.

12. The following chart includes details of the Denied Projects, to wit: the SOW number assigned by PREPA for the projects, the facility in which the projects would be performed, the name and scope of the projects, the costs estimated, a reference to the date in which PREPA submitted the SOW and relation to the order in which the Energy Bureau sustained the decision to defer the evaluation of the projects and, for most, informed that it would hold a Technical Conference to discuss the projects.

SO W NO.	FACILITY	PROJECT NAME	SCOPE OF WORK	PRESENTED ESTIMATE	REFEREN CE OF SUBMITTA L	REFERENC E OF ORDER ADDRESSI NG SUBMITTAL
1016	San Juan Power Plant	Unit 10 Rehabilitati on	Provide parts and service for the open inspection and close of the steam turbine and generator. Also, in-shop repairs for the steam turbine and the generator rotor and oil flush of the turbine.	\$15,960,538.8 O	Feb. 14 Motion, Att. A, pp. 247- 316	Apr. 13 Order
1021	San Juan Power Plant	Unit 8 Rehabilitati on (Turbine)	Inspection and replacement of the High Pressure, Intermediate Pressure and	\$10,000,000. 00	Feb. 8 Motion, Att. A, pp. 37-79	Apr. 13 Order

			Low- Pressure Rotors of the Turbine and perform all the testing and commissioni ng of the equipment.			
1022	San Juan Power Plant	Unit 7 Rehabilitati on (Turbine)	Inspection and replacement of the High Pressure, Intermediate Pressure and Low- Pressure Rotors of the Turbine and perform all the testing and commissioni ng of the equipment.	\$10,000,000. 00	Feb. 8 Motion, Att. A, pp. 80- 125	Apr. 13 Order
1027	San Juan Power Plant	Unit 7 - Major Outage - Boiler Sections Replaceme nt and Repairs & Auxiliary Equipment Inspection Work	Necessary Repairs of deteriorated Boiler Tubes and Assemblies, and Auxiliary Equipment.	\$8,000,000.0 0	Feb. 8 Motion, Att. A, pp. 126- 142	Apr. 13 Order
1028	San Juan Power Plant	Unit 8 - Major Outage - Boiler Sections Replaceme nt and Repairs & Auxiliary	Necessary Repairs of deteriorated Boiler Tubes and Assemblies, and Auxiliary Equipment.	\$8,000,000.0 0	Feb. 8 Motion, Att. A, pp. 143- 162	Apr. 13 Order

	1					
		Equipment Repairs				
2029	Aguirre Power Plant	Unit 1 South Wall Boiler Tubing Replaceme nt and Boilers Repairs	Partial rehabilitation of the south water wall between third and fourth floor on Unit 1 consisting on Boiler Tube Panels replacement.	\$5,983,862.95	Jan. 28 Motion, Att. A, pp. 262- 339	Mar. 9 Order
4069	Palo Seco Steam Plant	PS 3 Procureme nt and Delivery of Water Wall Boiler Tubes and Economizer Unit PS3	Manufacture, testing and delivery of the following components of the Unit 3 boiler; the economizer, and the water wall boiler tubes.	\$4,028,051.20	Jan. 13 Motion, Att. A, p. 2764	Feb. 10 Order
4070	Palo Seco Steam Plant	PS 3 Low Pressure Turbine Rotor Refurbished , Unit 3	Inspection, transportatio n, maintenance , and repair of the power turbine spare low-pressure rotor.	\$3,500,000.0 0	Feb. 8 Motion, Att. A, pp. 247- 277	
6088	Cambalac he Power Plant	Unit 1 Rehabilitati on	Perform the required inspections, repair the exhaust gas housing and GT enclosure and filter house and replacement of all of the hot gas path components, turbo	\$18,000,000. 00	Feb. 2 Motion, Att. A, pp. 626- 643	Feb. 28 Order

	and blades and its related accessories of Gas Turbine Num. 1. Also, conversion of control system to Blue- Line similar to gas turbines 2 and 3, upgrade the combustor pulsation monitoring system, upgrade the automatic voltage regulator and upgrade the opacity monitoring system.			
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13. The decision to stop the Denied Projects was made <u>without</u> allowing PREPA to further explain the projects in the Technical Conference that the Energy Bureau repeatedly stated would schedule after PREPA answered all the January 4 RFIs, which PREPA did. PREPA respectfully states that such Technical Conference is necessary, and the Energy Bureau should enter an order scheduling it as soon as possible. Such conference will allow the Energy Bureau to receive evidence from PREPA, in the form of live testimony and documentation, that will show that the Denied Projects are necessary to keep the generating units operating in a safe and reliable manner to meet the demand and also that the Denied Projects are aligned with the Approved IRP and Modified Action Plan.

14. The Denied Projects are warranted to maintain the operating generating units. These projects <u>are not</u> meant to upgrade or extend the life of PREPA's generating units beyond the expected retirement schedule. In the Technical Conference, the Energy Bureau will have the opportunity to hear directly from the Generation officers with knowledge based on their educational background and years of day-to-day work with the thermal generation, who will thoroughly explain to the Energy Bureau why it is essential the Deferred Projects move forward. Sustaining the June 4 Order decision will not allow PREPA to serve the People of Puerto Rico.

15. The Denied Projects are needed to prevent generation loss, reduce forced outages, and increase the availability, thus warranted to avoid load shedding events, brownouts, and blackouts. Also, it will ensure efficient compliance with the itinerary of the scheduled maintenance and repair program of the PREPA's generation assets', which will lower the risk of major equipment failure of the units due to exceeding their operational hours. Wherefore, PREPA respectfully requests that the Energy Bureau stay the decision to deny the approval of the Denied Projects; schedule a technical conference to discuss each Denied Project further; reconsider the decision to deny the Denied Projects and approve the Denied Projects.

II. Request for Reconsideration of the Denied Projects

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16. PREPA is committed to the current energy public policy of transitioning from fossil fuels to clean and renewable energy, as stated in the Approved IRP and Modified Action Plan.

17. The Denied Projects are necessary to provide a safe and reliable electric service to the People of Puerto Rico, focusing on the existing generation assets' availability and their effect on the power system reliability. It must be noted that the system reliability decreases as the dependable available generation capacity decreases. When the available operational generation reserve capacity is lower than the minimum required for a reliable operation, the power system is at a high risk of losing stability. This risk is even higher in an isolated system like Puerto Rico's system, where an instability event can evolve into a brownout or blackout more quickly than in an interconnected system. To prevent such total system outages during generation capacity limitations, the system operator must execute partial outages across the power system, commonly known as load-shedding events, thus affecting thousands of customers. Therefore, outages resulting from generation capacity limitations usually disconnect huge blocks of load from the power system, including⁴ critical loads such as hospitals and other essential services facilities. These outages put the lives of the People of Puerto Rico at risk and destabilized the economy.

⁴ It is noted that, in early September, LUMA conducted a review of the load-shedding practices and removed critical loads from the load-shedding program.

18. During the last months of 2021 Puerto Rico's electric system customers suffered frequent and prolonged outages due mainly to generating units forced outages. The system operator, LUMA Energy LLC (LUMA), had to execute partial outages across the power system to avoid a total blackout. There were outages periods of four, eight and more hours. These events affected almost all of Puerto Rico's population, comprised of approximately 1.5 million customers, including, in some cases, critical loads such as hospitals, nursing homes, manufacturers, food chain suppliers, health services, educational facilities, safety services, water facilities, and telecommunications facilities. In the case of outages on telecommunications facilities, including data and internet services, they interrupted remote works and learning activities that have become very common as a measure to prevent COVID-19 contagion. In summary, the mentioned outages affected Puerto Rico's population's health, safety, quality of life, and the local economy, especially small and medium businesses.

19. Examples of the events of generation forced outages, which affected thousands of customers at a time, are the following:

Date	Offline Generating Units	Forced Outage Generating Unit	Cumulative Out of Service Customers
September 6, 2021	San Juan 5, Costa Sur 6, Aguirre 2	Palo Seco 3	227,541
September 7,	San Juan 5, Costa Sur 6,	Palo Seco 3	290,966

		_	Cumulative
Date	Offline Generating	Forced Outage	Out of Sorvice
	Onics	Generating Onit	Customers
2021	Aguirre 2		
September 14, 2021	San Juan 9, Costa Sur 5, Costa Sur 6	All EcoEléctrica units	528,000
September 26, 2021	Costa Sur 5, Costa Sur 6	Aguirre 1	679,107
September 27, 2021	Costa Sur 5, Costa Sur 6, Aguirre 1 (Aguirre 2 was under limited capacity)	Palo Seco 3	1,163,000
September 28, 2021	Costa Sur 5, Costa Sur 6, Palo Seco 3 (Aguirre 2 was under limited capacity)	Palo Seco 4	1,150,000
September 29, 2021	Costa Sur 5, Costa Sur 6, Palo Seco 4 (Aguirre 2 was under limited capacity)	Palo Seco 3	81,668
September 30, 2021	Costa Sur 5, Costa Sur 6, Palo Seco 4 (Aguirre 2 was under limited capacity)	Palo Seco 3	223,421
October 8, 2021	Costa Sur 6 (Aguirre 2 was under limited capacity)	Aguirre 1	15,000

20. These examples show how the forced outage of one generating unit⁵ can cause the disconnection of thousands of customers when there are already other significant units offline. The established limitation in dependable available generation considerably reduced the power system's reliability, making it vulnerable to instability during the forced outage of one generating unit. To increase the current limited dependable available generation and provide a reliable and continuous generation service to the People of Puerto Rico, preventing events like those mentioned before, it is crucial to keep the generating units and their auxiliary equipment operational and in the best possible condition. Therefore, prioritizing conservation, repairs, and retrofitting works projects is at the top of PREPA's priority list. The Denied Projects presented for approval in the November 15 Motion and reiterated through several motions consist of repair works needed to increase the current dependable available generation and provide a reliable electrical service, preventing major outages to Puerto Rico's customers.

21. As Puerto Rico's electrical system operator, LUMA submitted the document System Operation Principles (SOPs) for the Energy Bureau's approval. Among other things, the SOPs have the purpose of defining procedures for controlling steady-state power system stability, minimizing disruptions caused by contingencies, and establishing transmission-operating limits. The SOPs are complemented with other procedures, including a Policy

⁵ A single contingency, commonly known as an N-1 contingency.

on Reserves (PORs), defining the minimum operational reserve capacities to maintain a continuous and reliable electrical service. According to the POR, LUMA's System Operations area has defined the outages of Puerto Rico's generating units, both PREPA's and the independent power producers' units, as forced, maintenance or planned outages. In the case of forced outages, LUMA's System Operations area has assigned this classification to all non-planned outages that reduce the operating reserve below the minimum level calculated according to the POR, which can result in minimum reserves of about 750 MW. PREPA's dependable available generation capacity is insufficient to comply with these minimum reserve requirements. As shown in the June 9, 2022, Conservation Plan (**Exhibit 1**), even though PREPA plans to have these reserve margins available, the reserve margin for the first months of this year averaged 572MW, lower than what the system operator requires.

22. As stated above, PREPA plans its maintenance schedule to provide sufficient energy to cover the estimated demand and peak and meet the available reserve margins. However, the age and condition of the generating units due to lack of maintenance create uncertainty around the possibility that PREPA may be able to follow the conservation plans to the letter because, should one significant forced outage occur, as it repeatedly happens, PREPA may not have available generation to cover the demand and reserve requirements.

23. As the Maximum Generation Output Monthly Peak, December 2016 -

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December 2022 (**Exhibit 2**) shows, the peak demand is not lowering. On the contrary, it is consistently increasing. The year 2016 is an example of a trend most likely repeated during this year. However, when comparing last year's trend with this year's, the peak demand has been increasing, not reducing.⁶ It is paradoxical that the availability of the generating units is reduced while the demand is increasing, or at the very least, the same as it has been for several years.

24. Hence, to comply with the SOP and POR reliability criteria, the dependable available generation capacity needs to be optimal, <u>increasing</u> <u>from the current limited levels</u>. The Denied Projects consist of the repairs necessary to improve the current dependable available generation and provide a reliable electrical service and a means to comply with the SOP and POR reliability criteria.

25. PREPA respectfully submits that the Denied Projects are needed to meet the demand for the upcoming months and years, during which PREPA continues to be responsible for supplying the demand while the renewable energy integration is completed. This, as previously stated, could take up to

⁶ The last months of 2017 and the first months of 2018 should not be used to assess trends because of the impact of hurricanes Irma and Maria on the island, due to the limited availability of transmission and distribution systems, the demand was reduced, and thus the generation output was reduced. Also, the year 2020 should not be used to assess trends because the COVID-19 pandemic hit, and there were multiple lockdowns, which reduced the demand. Also, when analyzing the 2021 data, it must be taken into consideration that PREPA suffered from several brownouts and load-shedding events in the last months. Further, it must also be considered that the data for April 2022 shows a lower peak than when compared with April 2021 because there was a major outage that month due to a transmission event.

two (2) more years.

26. In the June 4 Order, the Energy Bureau found that some of the Denied Projects did not comply with the Approved IRP. PREPA submits that the Denied Projects are consistent and in accordance with the Approved IRP, which has provisions to maintain a safe and reliable electrical service while the integration of reliable new resources is completed.

27. The entire set of Generation Projects presents the minimum repair works required to keep the existing generating fleet running and with a reliable operation during an average of five (5) years following the repairs. In general, on average, repairs of old generating units are needed every five (5) years to maintain the generation fleet's reliable and continuous operations. This cadence is in accordance with the unit's an original equipment manufacturer (OEM). Other components in the old units require more frequent repairs. This near-term reliable operation cycle is necessary to maintain a safe and reliable electric service, including complying with current SOP and POR reliability criteria, during the development and integration of the renewables and energy storage projects ordered in the Approved IRP. It is expected that the development of the repair works included as Generation Projects could take about two (2) fiscal years. These works parallel the transformation of PREPA's existing generation fleet that will continue as renewable generation penetration increases and existing generation resources retire.

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28. The objective of the Denied Projects is to maintain the generation system's reliability while integrating new resources. This is because they consist of the minimum repair works required to keep the existing generating fleet running and with a reliable operation for an average of five years following the repairs. These repairs do not intend to perpetuate the use of fossil fuels for generating electric energy, as this is not the current energy public policy. Thus, PREPA's parallel efforts are moving from fossil fuels to clean and renewable energy. In fact, in a scenario where, due to unforeseen situations, the reliable integration of new resources would need to be delayed further than the following five (5) years, the significant repairs included in PREPA's November 15 Motion would be required to be implemented again at the end of the five-year cycle. This is to maintain a continuous and reliable electrical service during the process of new resource interconnection.⁷

29. Regarding the retirement of specific thermal generation units during the next five (5) years⁸, the Energy Bureau noted in the Approved IRP that the determination of retirement schedules for older oil-fired generating units is dependent on achieving specific reliability milestones related to the integration of new resources.⁹ The Approved IRP further provides that "PREPA

⁷ An example of this uncertainty can be withdrawn from the fact that the renewables and BESS Tranche 1 request for proposals issuance was delayed by two (2) months and Tranche 2 is currently **delayed by an entire year**.

⁸ November 15 Order at p. 1.

 $^{^{\}rm 9}$ IRP Order at p. 10, ¶ 64 ("The Energy Bureau FINDS that PREPA should retire its older, oil-fired steam assets in

order of the declining cost to operate when they are no longer necessary for system reliability. The retirements should align with synchronous condenser conversion."); see also IRP Order at

should retire the older, oil-fired steam assets, roughly in order of declining cost to operate (and in consideration of retirement sequencing by unit to align with synchronous condenser conversion) as soon as they are no longer necessary for reliable system operations." IRP Order at p. 193, ¶ 630. The Energy Bureau approved PREPA's retirement plan for the steam units that PREPA presented to the Energy Bureau in June 2020. According to the IRP Order, the retirement must be "in accordance with PREPA's caveats⁹¹⁷ indicating a need for replacement capacity, assurance of meeting the overall reliability needs, and in alignment with more specific timing thresholds described in the Modified Action Plan." Id. The caveats and limitations related to the retirement of the existing steam generating fleet adopted by the Energy Bureau in the IRP Order (as cited and incorporated in footnote 917 of the IRP Order) provide that "these recommendations are based on other prerequisite developments which include the forecasted reduction in load, assumed levels of reliability of the remaining of the existing fleet at the time of retirement, and the commissioning of the new generation resources" and "the retirement of existing generating units should be only implemented after all the prerequisites above have been met, particularly that all new resources are fully operational, and units planned for retirement are not required for reliable

pp. 14-15, ¶ 92 ("[The] Modified Action Plan consists of specific directives to PREPA, including the following key components:" (...) "Determination of retirement schedules for older oil-fired generating units (with approval of conversion of some units to synchronous condensing operation), which will be dependent on achieving specific reliability milestones: completion of new battery energy storage capacity, potential additional peaking capacity, and obtaining DR resources and peak load reduction through EE provision.")

operation of the system." See PREPA's Proposed IRP filed on June 7, 2019, in case no. CEPR-AP-2018-0001, Part 9, Caveats and Limitations, No. 17, page 9-4.¹⁰

30. According to the caveats and limitations stated in the Approved IRP and Modified Action Plan shown in paragraph 14 of this Motion, the generation units' retirement shall occur upon the reliable integration of new resources with the power system. Hence, it is required to keep the existing generating units operational and running until the reliable integration of new resources is completed. Repairs works like those presented for approval in the November 15 Motion, which include the Denied Projects, provide a safe pathway to keep a dependable generation available during the development of this integration.

31. Additionally, the Approved IRP and Modified Action Plan state as a specific directive to PREPA, determining the thermal generating units' retirement schedules in compliance with the provisions of these plans. PREPA is committed to determining units' retirement schedules consistent with the Approved IRP and Modified Action Plan and presenting them for the Energy Bureau's approval.

32. Regarding the expenses for repairs, it must be noted that the majority of the Generation Projects with higher costs are related to the units' major components repairs. These project expenses cover the minimum repairs required to keep the existing generating fleet running and with a reliable

¹⁰ Available at <u>https://energia.pr.gov/wp-content/uploads/sites/7/2019/06/2-IRP2019-Main-Report-REV2-06072019.pdf</u> (Last visited June 23, 2022)

operation during an average of five years following the repairs. The Generation Projects list names and descriptions include the terms "major inspections," "major overhauls," and "major outages." PREPA herein clarifies that these terms refer to the repairs of the major components of the generating units, as the power plants' staff use these terms. In old steam units, it is always required to perform repairs during a major outage. As stated above, the OEMs recommend this work every five years, on average.

33. The major outage works consist primarily of opening the machine and repairing its major components, like the high, intermediate and low-pressure turbine rotors and the generator. Depending on the generating unit type, this work could include the repair of the boiler. When a significant outage occurs, it includes repairing the auxiliary systems and equipment, such as the lubrication and water systems, motors, pumps, valves, control systems, and other parts. During the major outage of old steam units, it is expected to find damages or breakages in the unit's components, especially on the turbine rotors. For example, a turbine rotor repair could take four to six months because the rotor has to be shipped to the OEM shop for the major repair. To reduce the outage time during major outages of steam units, more than fifteen years ago, PREPA acquired one spare turbine rotor for several steam power plants. Hence, when the steam unit's major outage starts, its turbine rotor is retired and shipped to the OEM shop, and the spare turbine rotor is installed in the unit during the repair works. Then, when the OEM repairs the

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retired turbine rotor and ships it back to PREPA, it becomes the new spare rotor in the steam power plant. The rotors replacement works that are shown in the November 15 Motion do not consist of replacements with new rotors but with repaired rotors. The approximate cost of only replacing one turbine rotor with a new rotor, without the other works that are part of the unit's major outage, is about \$25,000,000.

34. The Denied Projects' total expenses add to about \$83,472,452.95. Since PREPA does not have enough funds to cover these expenses, with the Energy Bureau's leave, PREPA will submit to FEMA the mentioned repairs for reimbursement. Wherefore, the People of Puerto Rico will have a more reliable generation system at no cost while renewables are integrated.

a. SOW nos. 1016 San Juan Power Plant Unit 10 ("SJ Unit 10") Rehabilitation ("SJ Unit 10 Rehabilitation")

35. The SJ Unit 10 Rehabilitation project aims to maintain and improve the electrical system's reliability. The SJ Unit 10 is a unit that PREPA needs to return to service to make available to the electrical system.

36. The return to service of the SJ Unit 10 targets to address the limited generation availability because it's a unit that can not only be used as a base load unit but may also be operated to generate whenever PREPA needs to retire another unit for maintenance, or a unit is forced out of the system.

37. Having the SJ Unit 10 back in service is an issue that not only addresses the reliability and availability but also addresses the economic dispatch issue because its cheaper to dispatch a No. 6 Fuel Oil (known as Bunker C) unit rather than a peaking unit which uses diesel to operate, which is more expensive than Bunker C.

38.Even though the data provided by PREPA shows that the repairs will extend the unit's life beyond 2025, and in some instances, beyond 2029, this is the only way to provide major maintenance and repair services to the unit. In this energy sector and industry, there is no such thing as asking a vendor for a replacement part that doesn't have a useful life of more than five (5) years and an inspection for a machine that will be in service for no more than five (5) years.

39. PREPA respectfully requests the Energy Bureau to stay the denial of the SJ Unit 10 Rehabilitation project, to schedule a Technical Conference to discuss the SJ Unit 10 Rehabilitation project and to grant PREPA leave to perform the SJ 10 Rehabilitation.

b. SOW no. 1021 San Juan Power Plant Unit 8 ("SJ Unit 8") Rehabilitation (Turbine) Rehabilitation ("SJ Unit 8 Rehabilitation") and SOW no. 1028 San Juan Power Plant Unit 8 - Major Outage ("SJ Unit 8 Major Outage")

40. PREPA hereby incorporates the arguments made in sections I andII.

41. Further, the Energy Bureau correctly states that SJ Unit 8 use was limited because it did not comply with MATS. However, the use of SJ Unit 8 is no longer limited.

42. San Juan Power Plant Unit 8 has been subject to MATS since April

16, 2015, and is currently categorized as a unit within the "limited-use liquid oil-

fired EGU" subcategory under MATS. See 40 C.F.R. § 63.9990(b). On January 28, 2022, PREPA informed of its intent to transition the SJ 8 Unit from the "limiteduse liquid oil-fired EGU" subcategory to the "non-continental liquid oil-fired EGU" subcategory under MATS, commencing July 1, 2022. PREPA also informed that it PREPA would complete all initial compliance demonstrations within 180 days after the transition date and submit a Notification of Compliance Status. On March 22, 2022, EPA responded to PREPA's notification and recommended that should PREPA move forward with the transition, it should conduct the initial compliance test as soon as possible.

43. Further, almost all of the boilers' walls are broken and, in some instances, the minimum wall thickness does not comply with the applicable standards and thus, the walls and pipes need to be replaced. Also, the turbine exceeded the time limit by nearly a year, which warrants a major maintenance to return it to a safe and reliable operation.

44. Wherefore PREPA respectfully requests the Energy Bureau to stay the denial of the SJ Unit 8 Rehabilitation and the SJ Unit 8 Major Outage projects, to schedule a Technical Conference to discuss the SJ Unit 8 Rehabilitation and the SJ Unit 8 Major Outage projects and to grant PREPA leave to perform the SJ Unit 8 Rehabilitation and the SJ Unit 8 Major Outage projects.

c. SOW no. 1022 San Juan Power Plant Unit 7 ("SJ Unit 7") Rehabilitation (Turbine) ("SJ Unit 7 Rehabilitation") and SOW no. 1027 San Juan Power Plant Unit 7 Major Outage - Boiler Sections

Replacement and Repairs & Auxiliary Equipment Inspection Work ("SJ Unit 7 Major Outage")

45. PREPA hereby incorporates by reference the arguments made in section I and II prior and also the information regarding the transition out of limited use environmental restrictions discussed for the SJ Unit 8 in the previous subpart section.

46.Wherefore PREPA respectfully requests the Energy Bureau to stay the denial of the SJ Unit 7 Rehabilitation and the SJ Unit 7 Major Outage projects, to schedule a Technical Conference to discuss the SJ Unit 8 Rehabilitation and the SJ Unit 7 Major Outage projects and to grant PREPA leave to perform the SJ Unit 7 Rehabilitation and the SJ Unit 7 Major Outage projects.

d. SOW no. 2029 Aguirre Power Plant Unit 1 ("Aguirre Unit 1") South Wall Boiler Tubing Replacement and Boilers Repairs ("Aguirre Unit 1 Repair")

47.The vast majority of Aguirre Unit 1's forced outages are caused by ruptures in the boilers. The Aguirre Unit 1 Repair aims to replace the south wall boiler tubing, significantly reducing these outages. PREPA recently performed an assessment and found that during the years 2021 to 2022, Aguirre Unit 1 tripped or was forced out of service on more than ten (10) occasions due to boiler ruptures, which, depending on the extension and type of rupture, required between 3 to 4 days to be repaired, execute hydrostatic tests and return the unit to service. (**Exhibit 3**) These ruptures include the walls and the tubes inside the boiler.

48. To what is relevant to the tubes, PREPA constantly replaces these tubes because the unit cannot operate if the tubes are broken. PREPA currently uses a set of new tubes from which it takes a portion and replaces the broken section. This expense is paid directly with the necessary maintenance expenses funds. Should the Energy Bureau grant PREPA leave to move forward with the Aguirre Unit 1 Repair, PREPA may buy and install a new set of tubes in the south wall of the boiler, thus reducing the chances of losing 450MW of capacity due to foreseen event, without compromising PREPA funds, because once the Energy Bureau approves the Aguirre Unit 1 Repair, PREPA will submit it to COR3 and FEMA for reimbursement. In summary, PREPA is asking to be allowed to continue performing repairs that it is already performing, but in a planned manner, not after a forced outage, and at no cost to PREPA's customers.

49.Also, not addressing the evident worsening condition of the boiler's walls and tubes compromises PREPA's ability to guarantee a secure work environment for its staff. Moreover, the current needs of the boilers are not acceptable under the Puerto Rico Department of Labor Regulation 17, *Regulation of Boilers and Pressure Vessels of the Office of the Assistant Secretary for Occupational Safety and Health.*

50.Wherefore PREPA respectfully requests the Energy Bureau to stay the denial of the Aguirre Unit 1 Repair project, to schedule a Technical Conference

26

to discuss the Aguirre Unit 1 Repair project, and to grant PREPA leave to perform the Aguirre Unit 1 Repair projects.

e. SOW no. 4069 Palo Seco Steam Plant PS 3 ("PS Unit 3") Procurement and Delivery of Water Wall Boiler Tubes and Economizer ("PS Unit 3 Boiler Repair") and SOW no. 4070 Palo Seco Steam Plant PS 3 Low Pressure Turbine Rotor Refurbished, Unit 3 ("PS Unit 3 Turbine Repair")

51. PREPA hereby incorporates by reference the arguments made in sections I and II.

52. PREPA records all outages of the system, including forced outages. In 2021, PS Unit 3 was forced out of service eight (8) times due to the breaking of the economizer and eight (8) additional times due to the water wall tubes breaking. (Exhibit 3). The PS Unit 3 Turbine Repair and the PS3 Unit 3 Boiler Repair will address the root cause of those forced outages, which is the lack of proper maintenance and service. The materials and equipment required for this project have delivery lead times in the range of six (6) to eight (8) months, which in turn makes its procurement timing critical and it is essential for major inspection of the turbine and boiler repair for PS Unit 3 it is done in the first quarter of 2023.

53. Wherefore PREPA respectfully requests the Energy Bureau to stay the denial of the PS Unit 3 Boiler Repair and the PS Unit 3 Turbine Repair projects, to schedule a Technical Conference to discuss the PS Unit 3 Boiler Repair and the PS Unit 3 Turbine Repair projects and to grant PREPA leave to perform the PS Unit 3 Boiler Repair and the PS Unit 3 Turbine Repair projects.

f. SOW no. 6088 Cambalache Power Plant Unit 1 ("Cambalache Unit 1") Rehabilitation ("Cambalache Unit 1 Rehabilitation")

54.PREPA hereby incorporates by reference the arguments made in sections I and II.

55. The Cambalache Unit 1 Rehabilitation consists of performing the required inspections, repairing the exhaust gas housing and gas turbine enclosure and filter house and replacing all the hot gas path components, turbo compressor and blades and related accessories to the gas turbine.

56. Having the Cambalache Unit 1 in service is of value to the generation system, specifically for the integration of renewable generation. Cambalache Unit 1 can be used to address peaks because of the fast start-up capacity of the unit and can also be used to regulate frequency.

57. This unit has an installed capacity of 82.5MW, substituting four (4) regular diesel peaking units, which is more efficient.

58.PREPA respectfully requests the Energy Bureau to stay the denial of the Cambalache Unit 1 Rehabilitation project, schedule a Technical Conference to discuss the Cambalache Unit 1 Rehabilitation project, and grant PREPA leave to perform the Cambalache Unit 1 Rehabilitation project.

III. CONCLUSION

59.As stated above, the Denied Projects are needed to prevent generation loss, thus warranted to avoid load shedding events, brownouts, and blackouts. PREPA requests the Energy Bureau to consider that should it sustain its determination to deny PREPA to continue with the Denied Projects, PREPA may not be able to guarantee the continuity of the electric service to the People of Puerto Rico.

WHEREFORE, PREPA respectfully requests that the Energy Bureau stay the decision to deny the approval of the Denied Projects; schedule a technical conference to discuss each Denied Project further; reconsider the decision to deny the Denied Projects and approve the Denied Projects.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, 24th day of June 2022.

<u>s/ Katiuska Bolaños-Lugo</u> Katiuska Bolaños-Lugo <u>kbolanos@diazvaz.law</u> TSPR No. 18,888

DÍAZ & VÁZQUEZ LAW FIRM, P.S.C.

290 Jesús T. Piñero Ave. Oriental Tower, Suite 803 San Juan, PR 00918 Tel. (787) 395-7133 Fax. (787) 497-9664

CERTIFICATE OF SERVICE

It is hereby certified that I have filed the preceding with the Clerk of the electronic Energy Bureau using the filing system using https://radicacion.energia.pr.gov/login and also that I have served a copy on LUMA Energy, LLC and LUMA Energy ServCo, LLC through their counsel of laura.rozas@us.dlapiper.com record at and margarita.mercado@us.dlapiper.com.

In San Juan, Puerto Rico, this 24th day of June 2022.

<u>s/ Katiuska Bolaños-Lugo</u> Katiuska Bolaños-Lugo

Exhibit 1

Revisado por:

Ing. Ferdinand Correa Méndez Administrador de Generación

Jng. Jorge L. Cotto Pérez Director Generación

PROGRAMA DE CONSERVACIÓN CALDERAS Y TURBO-GENERADORES



	CAP		- Official o			FECHA I	DE LA ÚLTIM	IA CONSERV	ACIÓN					2022								2023														
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SJ 10	100	28-Sep-09	05-Feb-15	28-Sep-09	09-Apr-17	28-Sep-09	10-Oct-15	28-Sep-09	28-Sep-09	10-Oct-15	28-Sep-09	28-Sep-09	28-Sep-09		"".		•••				•				Т	urbine & B	oiler									_
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CS 5	410	3-Jul-13	25-Sep-14	3-Jul-13	3-Feb-22	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	3-Jul-13	📕 Τι	rbine failu	ire & Gen.				I B	BFWP & CO	CWP)					/lajor & En	v. Oct. 31	, 2022							
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AG 2	450	1-Mar-10	10-Feb-15	13-May-12	8-Mar-23	22-May-06	17-Dec-13	17-Dec-13	17-Dec-13	17-Dec-13	1-Dec-19	1-Dec-19	1-Dec-19	Mai	nt. htr 7	Sector	Plate 📕	Broken E	Boiler		11	Generato	r Hydrogen S	eals			111		Env. Mar.	8, 2023						
CC Vap I	96	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A																							
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* R: REPORTE	DE INSPECCIÓ	ON	MANT: MANTEN	IIMIENTO INSP: INS	SPECCION NS: NO F	IA ESTADO EN SERV	VICIO DESDE AME	BIENTAL	CONS. PROG	RM, UNIDADES I	DE VAPOR			188	449	615	690	690	830	510	766	100	610 6	10 610	626	626	766	766	726	726	100	0	0 38	30 3	380 8	330
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SALIDA F	ORZADA			-20000	<u></u>			-	CONS. PROG	R. AL CICLO CO	MBINADO			146	172	196	196	196	246	246	246	246	246 2	46 246	246	246	246	246	246	246	246	246	246 24	.6 2	246 2	246
USO LIMI	TADO					8		-	MANT, DIAR.	, FORZ. Y LIMIT.	. C.C.			261	223	176	242	166	35	35	35	35	35	5 35	87	87	87	87	87	87	87	87	87 8		87 8	87
	ana 1								DISPONIBILI	DAD CICLO COM	IBINADO		2	185	197	220	154	230	311	311	311	311	311 3	11 311	260	260	260	260	260	260	260	260 2	260 26	<u> </u>	260 26	.60
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Sistema Ele	ctrico - Actu	ual Año Natural	(MW)*·		3 167	2 261	501	405	DISPONIBILI	AD HIDROFT FO	TRICAS			28	31	35	33	33	19	56	56	56	56	6 56	19	19	19	19	19	19	56	56	56 5	6	56	56
Sistema Ele	ctrico - Actu	ual Año Natural	(%)*:		58%	51%	95%	89%	DISTORUSICA	JAD INDICOLLEC			(MW)	2532	2387	2261	1736	2090	2534	2891	2669	3248	2804 2	04 2804	2644	2754	2523	2523	2557	2557	3140	3227 3	3227 28	96 2	2896 2	/504
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	Fecha d	le Revisión:		9-Jun-22	2				DISPONIBILII	DAD AES				328	223	400	397	451	431	216	216	431	431 4	31 431	431	216	216	431	431	216	216	431	431 43	1 4	431 4	+31
									DISPONIBIL	IDAD TOTAL			(MW)	3317	3099	3191	2661	3066	3480	3621	3398	4193	3750 3	50 3750	3204	3484	3252	3468	3503	3287	3869	4172 4	172 34.	5 38	841 34	450
									PICO ESTIMA	DO			(MW)	2331	2349	2449	2626	2761	2718	2801	2960	2929	2793 20	42 2604	2389	2408	2510	2692	2830	2786	2871	3034 3	002 286	3 2	708 26	569
		e la		a antida - C	ada at				PICO REAL				(MW)	2412	2373	2429	2466	2794	N/A	N/A	N/A	N/A	N/A N	A N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A 1	V/A N/	A N	V/A N	1/A
Para gar	anuzar la	confiabilidad	u, en caso d	e saildas forz	adas el progr	ama			RESERVA TO	JTAL DEL SIST	EMAS		(MW)	905	/26	/62	195	212	/09	1106	1022	1549	1155 1	80 834	909	12/7	927	8//	1/1	/63	1106	1258 1	349 76	$\frac{y}{-1}$	180 8	34
pualera	surrir cam	IDIOS.							% DE DISPON	IBILIDAD TOTA	r			02.22	28.13	59.87	49.92	57.51	03.27	07.93	03.13	18.00	10.34 70	.54 70.34	00.10	04.04	01.01	05.06	05.71	01.00	12.38	18.20 7	0.20 04.	32 12	2.00 64	+./Z

Ing. Josué Colón Ortiz Director Ejecutivo

Exhibit 2



Generation Directorate Maximum Generation Output Monthly Peak December 2016–December 2022







Exhibit 3



8 de junio de 2022

Jorge L. Cotto Perez Jefe del Sistema Eléctrico

Angel Perez Carrasquillo Jefe de Operaciones Sistema Eléctrico

Alexis Cruz Figueroa Jefe de Central Generatriz Complejo Aguirre

Fernando Zayas Fernandez Jefe de Operaciones Interino

Jete de Operaciones Interii Central Aguirre

INFORME DE SALIDAS UNIDAD 1, PERIODOS 2019 AL 2022

Realizando una inspección de los disparos y limitaciones de la unidad # 1 durante Los periodos de los años 2019 al 2022, se encontraron los siguientes hallazgos. Durante los años 2019 y 2020 no hubo disparo ni limitaciones por rotura de caldera. En los años 2021 y 2022 se encontraron las siguientes salidas por rotura de caldera.

- A. 28 -mar-2021 salida por caldera rota, entro en servicio el 31-mar-2021
- B. 01 -apr-2021 salida por caldera rota, entro en servicio el 2-apr-2021
- C. 10 -apr-2021 salida por caldera rota, entro en servicio el 11-apr-2021
- D. 22-aug-2021 salida por caldera rota, entro en servicio el 23-aug-2021
- E. 15-jun-2021 salida por caldera rota, entro en servicio el 17-jul-2021
- F. 01-jul-2021 salida por caldera rota, entro en servicio el 03-jul-2021
- G. 08-jul-2021 salida por caldera rota, entro en servicio el 11-jul-2021
- H. 19-jul-2021 salida por caldera rota, entro en servicio el 21-jul-2021
- I. 09-dec-2021 salida por caldera rota, entro en servicio el 13-dec-2021
- J. 17-dec-2021 salida por caldera rora, entro en servicio el 19-dec-2021
- K. 06-feb-2022 salida por caldera rota, entro en servicio el 12-feb-2022



Apartado 364267 San Juan, Puerto Rico 00936-4267

"Somos un patrono con igualdad de oportunidades en el empleo y no discriminamos por razón de raza, color, sexo, edad, origen social o nacional, condición social, afiliación política, ideas políticas o religiosas; por ser víctima o ser percibida(o) como víctima de violencia doméstica, agresión sexual o acecho, sin importar estado civil, orientación sexual, identidad de género o estatus migratorio; por impedimento físico, mental o ambos, por condición de veterano(a) o por información genética."

Hallazgos y Análisis:

1. Todas estas salidas fueron a consecuencia de rotura en la caldera, mayoritariamente en la pared frontal de la misma.

Recomendaciones del Comité

1. Luego de inspecciones visuales externos, inspección visual interno en la remoción de muestras de tubos, examinación "WFMT" e inspecciones de dimensiones y "UTT" se recomendó cambiar la pared frontal desde la elevación 42' hasta la 92 '.

FZF

Exhibit 4

Unidad	TIPO SALIDA	CODIGO	FECHA DE COMIENZO	HORA COMIENZO	FECHA TERMINACION	HORA TERMINACION	DESC OUT	CORRC ACT
PS 3	FO	1180	29-Mar-22	15:45	01-Apr-22	0:00	Economizer tubing leak.	Completado
PS 3	FO	1180	12-Mar-22	1:26	13-Mar-22	8:26	Economizer tubing leak.	Completado
PS 3	FO	3110	22-Feb-22	14:45	23-Feb-22	22:55	Broken tubes in condenser.	Completado
PS 3	FO	3710	21-Feb-22	13:19	21-Feb-22	22:31	Disturbance in the electrical system (LUMA Line 38100).	Completado

Unidad	TIPO SALIDA	CODIGO	AP LIMITAD A DE COMIDRA COMIE	NIA TERMINA HORA TERMINACION	DESC_OUT	CORRC_ACT
PS 3	FO	1180	31-Jul-21 15:45	01-Aug-21 0:00	Broken tube in economizer.	
PS 3	FO	1180	16-Jul-21 23:03	20-Jul-21 2:09	Broken pipes in economizer.	
PS 3	FO	3370	11-Jul-21 22:27	13-Jul-21 9:55	BFP's trip because a false deaerator low level, protection acts.	
PS 3	FO	3430	06-Jul-21 14:37	06-Jul-21 16:36	Drum water low level - Instrumentation perssonel calibrating FCV-1 (drum main water level regulator).	
PS 3	FO	1000	31-Aug-21 0:55	01-Sep-21 0:00	Two broken tubes in boiler water wall.	Completado
PS 3	FO	3110	28-Aug-21 22:45	29-Aug-21 20:46	Chloride pass due to broken tube in condenser.	Completado
PS 3	FO	3710	22-Aug-21 12:31	22-Aug-21 16:25	Outside transmission fault, line 38k (LUMA).	Completado
PS 3	FO	1100	05-Aug-21 15:57	14-Aug-21 7:30	Broken tubes in waterwall.	Completado
PS 3	FO	1180	01-Aug-21 0:00	05-Aug-21 0:25	Broken tube in economizer.	Completado
PS 3	FO	1000	29-Sep-21 14:41	01-Oct-21 0:00	Broken tube in waterwall.	
PS 3	FO	775	27-Sep-21 4:44	29-Sep-21 10:45	Broken tubes in economizer.	
PS 3	FO	1000	15-Sep-21 19:10	17-Sep-21 10:15	Broken tube in waterwall.	
PS 3	FO	3344	09-Sep-21 23:52	10-Sep-21 23:46	Deaerator water level control failure.	_
PS 3	FO	1000	06-Sep-21 19:26	08-Sep-21 10:46	Broken tube in waterwall.	
PS 3	FO	1000	01-Sep-21 0:00	01-Sep-21 1:35	Broken tubes in waterwall.	
PS 3	FO	775	31-Oct-21 5:37	01-Nov-21 0:00	Broken tubes in economizer.	Completado
PS 3	FO	775	15-Oct-21 8:38	17-Oct-21 21:02	Broken tubes in economizer.	Completado
PS 3	FO	1000	01-Oct-21 0:00	02-Oct-21 6:02	Broken tubes in water wall.	Completado
PS 3	FO	775	01-Nov-21 0:00	02-Nov-21 21:09	Broken tubes in economizer.	Completado
PS 3	FO	1000	15-Dec-21 16:28	17-Dec-21 7:59	Broken tubes in waterwall.	Completado
PS 3	FO	775	06-Dec-21 11:08	15-Dec-21 5:49	Broken tubes in economizer.	Completado
PS 3	FO	3110	04-Dec-21 9:36	05-Dec-21 17:26	Broken tubes in condenser.	Completado

Economizer - 8 veces Water Wall - 8 veces