

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

NEPR
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**IN RE: INTERRUPTION OF ELECTRIC
SERVICE OF JULY 28, 2020**

CASE NO.: NEPR-IN-2020-0001

SUBJECT:

Responses to Requirements for Information
and Production of Documents.

MOTION TO SUBMIT RESPONSES TO REQUIREMENTS OF INFORMATION

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COMES NOW, the Puerto Rico Electric Power Authority, through its counsel of record and respectfully sets forth and prays:

1. On October 15, 2020, the Puerto Rico Energy Bureau (the “Energy Bureau”) issued a Resolution and Order¹ directing the Puerto Rico Electric Power Authority (the “Authority”) to answer questions contained in Appendix A of the Order in connection with the electric service interruption occurred on July 28, 2020. The Honorable Energy Bureau directed PREPA to submit the answers for the requirements of information in the english language.
2. In compliance with the order, PREPA hereby provides an illustrative table specifying the requirement of information and the corresponding response or document production. Exhibit A

RESPONSES TO REQUEST FOR INFORMATION	
VEGETATION MANAGEMENT	
1. Please describe the inspection and vegetation management standards that apply to Line 50500 (e.g., target type and	All 230 kV lines (including Line 50500) are programmed to be inspected by helicopter no more than every three months. This inspection includes structure deficiencies, and vegetation preventive and critical trimming.

¹ Resolution and Order issued on October 15, 2020 (the “Order”).

frequency of inspections, target trim cycle, etc.).	
2. Please describe all vegetation management activities that have been performed on Line 50500 in the past 5 years.	Please see Item 2
3. In the month prior the Event (including the day of the event), please describe any vegetation management activities performed on Line 50500 (including date, activities performed, and the contractor who performed the work).	Please see Item 3
4. At the time of the Event, please describe any known vegetation management issues (e.g., tree limb encroachment) on Line 50500.	From Item 3, it can be observed that the reported vegetation deficiencies were not worked before the event.
5. Please describe what was observed on Line 50500 when it was inspected after the Event. Please include all photos taken.	Please see Item 5
6. Please provide a copy of the HASDE report and a summary in English of this report.	Please refer to file included in Items 2, 3, and 4.
CLEARANCE PROCESS FOR CIRCUIT BREAKERS	
7. Does the maintenance plan/ clearance process specifically require the DC supply to be disconnected?	When work is to be done in any equipment, the DC supply is disconnected depending on the situation. Typically, a clearance process to isolate a Breaker from the grid for repair, includes steps for isolation, but does not include disconnecting the DC source that feeds the BKR. After the Breaker is isolated the Energy Control Center releases the BKR to maintenance personnel with an order. That, to evaluate the BKR and repair according to the diagnosis found in the field. After the evaluation, the supervising technician may request the Energy Control Center to disconnect the DC source that feeds the BREAKER for the safety of the personnel who will work at the BKR. This is to ensure that the

	BRK does not operate while personnel are working with their hands. This request is made if it is found to be necessary for the safety of the employees. If the condition found can be worked without discounting the source D.C, it is not requested. But in the case of the repair of the Breaker 50510 was found that it was necessary to disconnect the D.C source.
8. Does the maintenance plan / clearance process require drawings to be reviewed to identify all equipment connected to the DC supply that is to be disconnected?	As part of an intervention to work on an equipment or subsystem of the electrical system, the one-line diagrams, manufacturers manuals, plans and drawings (if available) that are understood to be necessary to achieve the required objectives are reviewed. Either electrical (DC or AC) or mechanical documentation. However, for the specific case of maintenance work on the BKR 50510, the drawings identifying all the equipment connected to the DC source that was going to be disconnected were not verified. That is because normally the DC switch in a breaker cabinet disconnects the source to that same breaker. It is unusual for a D.C. switch of a breaker has consequences outside of it. Normally, if there is an abnormal operating condition, there is a sign indicating it so that proper precautions are taken. In this non-case, there was no sign, therefore, it was understood that it was a typical and normal scenario, where that switch belonged to the exclusive source of the BKR.
9. Does the maintenance plan / clearance process require a protection system review under any circumstances (e.g., if not all relays are operational)?	When maintenance/repair will be done in an equipment in service, the protection relays are in service, in operational conditions. (Please see the answer to the previous question). But we add, if there is a malfunction in the operation of a breaker and drawings related to the protection system are needed, the condition refers to the protection systems maintenance section. But that was not the case with the found condition of the BKR 50510 of July 28, 2020. The malfunction of this Breaker was strictly due to mechanical problems not with the protection system.
10. Does the clearance address the damaged and out-of-service relays?	This does not apply and is not related. The work is to be done on an equipment in service, with its protection in service in operational conditions. The breaker had adequate protection with the relays that were functioning. From the point of view of the field maintenance personnel there was no possibility to address this condition.
11. Does the clearance process require a review for any potential risks created by the clearance?	Yes, we always consider the safety of our personnel and the integrity of the Electrical System for these processes.

12. Please provide copies of the clearance plan for the task that resulted in the outage.	Please see Item 12
BREAKER 0040	
13. How long were the two relays serving Breaker 0040 out of service?	These relays were reported damaged and taken out of service since July 2018.
14. Was there a corrective maintenance tag and a plan to address these two out-of-service relays? If so, what was the plan?	No, since the two out of service relays were a previous redundant protection, it was not required. The breaker was adequately protected with the functional relays for primary and backup protection. An upgrade will be done in the future, replacing those two relays with two updated relays.
15. Please provide maintenance records for the breaker and relays.	See Item 15
16. Please provide maintenance records for the breaker and relays.	No DC supply SCADA alarm activated during Breaker 50510 deactivation.
SCADA ALARM	
17. Is a SCADA alarm supposed to occur when a relay loses DC Power? For example, when the two relays serving Breaker 0040 lost their DC supply, were SCADA alarms supposed to occur?	Most PREPA stations have battery banks analog voltage alarms and battery charger's status alarms. Cambalache Plant does not have those alarms define thru SCADA.
SHORT CIRCUIT DUTY AND PROTECTION COORDINATION	
18. After the earthquake forced the Costa Sur Steam Plant to be taken out of service, was a short circuit and relay coordination study performed?	After the earthquakes, the acting superintendent of the Protection Studies Department, engineer Linda Torres provided the required information to New York Power Authority (NYPA) personnel and instructed by Engineer Efran Paredes (at the time, Director of Planning and Environmental Protection Directorate). NYPA informed they would do the settings and perform such coordination studies. Please note that under emergency configurations, the Protection Studies Department receives previous notice by Operations Directorate of every emergency or special configurations and emergency settings are performed

	before the equipment is put into service again. Since the hurricanes, this process has not been followed.
19. At the time of the event, was it known that there was a protection mis-coordination between lines 51200 and 51100? If so, was there a plan in place to address this mis-coordination?	<p>As NYPA personnel does not respond to the Protection Studies Department, and was in charge of this protection coordination job, Protection Studies Department did not have knowledge of the completion of the coordination study or the results.</p> <p>After 7-28-2020, when the Protection Studies Department performed the official investigation of the event, the miscoordination was discovered. The coordination study was performed by Protection Studies Department personnel and temporary settings were issued by the department for the 230 kv lines. Protection Studies Department has not received the signed settings from the field personnel, so is not clear if the settings are in service today.</p>
20. Please provide outage records from control room orders and outage management system.	<p>Please see Item 20, which includes Energy Control Center logs for July 28, 2020, and Line Clearances documents for work on Breaker 50510:</p> <ul style="list-style-type: none"> a. <i>20200728 Shift Engineers Log</i> b. <i>20200728 Transmission Operators Log – North Area</i> c. <i>20200728 Transmission Operators Log – South Area</i> d. <i>20200728 VL GCB 50510.pdf</i>

WHEREFORE, the Authority submits its responses to Appendix A and respectfully requests the Energy Bureau to note the Authority’s compliance with the October 15, 2020 Order.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 30th day of October 2020.

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Exhibit A

Submitted under seal