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

IN RE: REVIEW OF THE PUERTO RICO ELECTRIC POWER AUTHORITY´S 10-YEAR INFRASTRUCTURE PLAN – DECEMBER 2020	**CASE NO.:** NEPR-MI-2021-0002 **SUBJECT:** Motion to Submit Equipment and Material Projects Information in Response to Resolution and Order Dated January 10, 2024

MOTION TO SUBMIT EQUIPMENT AND MATERIAL PROJECTS INFORMATION IN RESPONSE TO RESOLUTION AND ORDER DATED JANUARY 10, 2024

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COMES NOW GENERA PR LLC ("Genera"), as agent of the Puerto Rico Electric Power Authority ("PREPA"),[1] through its counsels of record, and respectfully submits and prays as follows:

1. On March 26, 2021, the Energy Bureau of the Puerto Rico Public Service Regulatory Board ("Energy Bureau") issued a Resolution and Order in the instant case, through which it ordered the PREPA to submit each specific capital investment project for approval to avoid potential noncompliance with the Approved Integrated Resource Plan ("IRP") and Modified Action Plan. To streamline the process, the Energy Bureau requested PREPA to submit the specific projects to the Energy Bureau at least thirty (30) calendar days before their submittal to the Puerto Rico Central Office for Recovery, Reconstruction and Resiliency ("COR3") and the Federal Emergency Management Agency ("FEMA"), and any other federal agency, and to continue

[1] Pursuant to the *Puerto Rico Thermal Generation Facilities Operation and Maintenance Agreement* ("LGA OMA"), dated January 24, 2023, executed by and among PREPA, the Puerto Rico Public-Private Partnerships Authority and Genera, Genera is the sole operator and administrator of the Legacy Generation Assets (defined in the LGA OMA) the sole entity authorized to represent PREPA before the Energy Bureau with respect to any matter related to the performance of any of the O&M Services provided by Genera under the LGA OMA.

reporting to the Energy Bureau and FEMA, within the next five (5) years, the progress of all ongoing efforts related to the final approval of the submitted projects not yet approved by the Energy Bureau.

2. On January 24, 2023, Genera, PREPA and the P3 Authority executed the Puerto LGA OMA. Pursuant to the LGA OMA, Genera is the sole operator and administrator of the Legacy Generation Assets and the exclusive entity authorized to represent PREPA before the Energy Bureau regarding any matter related to the performance of the O&M services provided by Genera under the LGA OMA. Additionally, Genera holds sole responsibility for procuring and administering federal funds for projects to repair or replace the LGA.

3. On October 15, 2023, Genera filed before the Energy Bureau a document titled *Request for Approval for Projects to Replace Critical Components and Improve Fuel Efficiency* ("October 15th Motion"). In the October 15th Motion, Genera included two tables: "Critical Components Replacement – First Group" as Annex A, and "Fuel Efficiency Improvement – First Group" as Annex B. Additionally, through the October 15th Motion, Genera filed new projects and amendments for scope of works ("SOWs") of projects previously approved by the Energy Bureau

4. On November 8, 2023, the Energy Bureau issued a Resolution and Order titled *Determination on Genera's October 15, 2023, Motion for the Request for Approval of Projects to Replace Critical Components and Improve Fuel Efficiency* ("November 8th Resolution"). In the November 8th Resolution, the Energy Bureau conditionally approved the projects in Annex A and B of the October 15th Motion, pending the submission of their respective Scope of Works ("SOWs"). The Energy Bureau deferred further evaluation of the projects in Annex C and requested an explanation for the difference between two (2) specific projects of San Juan 9.

5. On November 17, 2023, Genera filed a document titled *Motion Submitting Time Extension to Provide Scope of Works in Response to Resolution and Order Dated November 8, 2023* ("November 17th Motion"). In Attachment A to the November 17th Motion, Genera outlined the processes to be followed for developing the SOWs and explained that detailed SOWs and cost estimates for purchasing equipment and materials for the projects described in Attachments A, B, and C were included in the document titled "*Equipment and Material Project, Project #673691"*, which was submitted to FEMA.

6. On January 10, 2024, the Energy Bureau issued a Resolution and Order titled *Determination on Genera's November 13 and November 17, 2023, Motions for a Request of Approval of Projects to Replace Critical Components and Improve Fuel Efficiency and to Request a Time Extension* ("January 10th Resolution"). In the January 10th Resolution, the Energy Bureau determined that, after reviewing the November 17th Motion, an evaluation of the document titled *Equipment and Material Project for Project #673691* is required. The Energy Bureau stated that it does not have such documents in its records and ordered Genera to submit the document within ten (10) days from the notification of the Resolution.

7. In compliance with the January 10th Resolution, Genera hereby submits, as Exhibit A to this motion, the document titled *Equipment and Materials Project for Project #673691*, which was previously submitted to FEMA.

WHEREFORE, Genera respectfully requests that this Energy Bureau **take notice** of the above for all purposes and **deem** Genera to be in compliance with the January 10th Resolution.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 18th day of January 2024.

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CERTIFICATE OF SERVICE

We hereby certify that a true and accurate copy of this motion was filed with the Office of the Clerk of the Energy Bureau using its Electronic Filing System and that we will send an electronic copy of this motion to the attorney for PREPA, Lionel Santa Crispín, at lionel.santa@prepa.pr.gov; and to LUMA's counsel, Margarita Mercado, at margarita.mercado@us.dlapiper.com, and Yahaira De La Rosa, at yahaira.delarosa@us.dlapiper.com.

In San Juan, Puerto Rico, this 18th day of January 2024.

/s/ Alejandro López-Rodríguez
Alejandro López-Rodríguez

Exhibit A
Equipment and Material Project

I. Overview

Project Name: Generation Fleet Battery Energy Storage System (BESS) Project

Project Type: Equipment Project

Project Location: Multiple generation facilities

II. Introduction

On September 6, 2017, Puerto Rico's northern coastline was struck by Hurricane Irma, a Category 4 storm. Two weeks later, on September 17, Hurricane Maria tore through the island of Puerto Rico as a Category 5 storm. Subjected to 150+ mph winds and more than 25 inches of rain, 3.4 million residents lost power and a great deal of infrastructure, including critical facilities, was damaged. In particular, the electrical infrastructure suffered catastrophic impacts. In the aftermath, diligent recovery and reconstruction have been going on, not only to restore the electrical infrastructure to pre-storm function and capacity, but to take this opportunity to bring it in line with current standards and technology. This "transformative moment in the history of Puerto Rico", as Governor Ricardo Rossello calls it, is an opportunity to not just to rebuild the system but to transform it into a smarter, more resilient, and cleaner one. Puerto Rico's generation system must meet customer demand and have adequate additional capacity to comply with the reserve required by the standard operating procedures of the T&D system operator (LUMA). In terms of service continuity, the system must be reliable so that service interruptions are within the margins established in the electrical industry.

Unfortunately, the generation system presents critical performance metrics with a deficiency in capacity to meet the energy demand and the minimum reserve requirements. The forced outage percentage of the units is increasing while the generation capacity decreases. This combination of factors puts the continuity of the service at high risk, adversely affecting the quality of life of those who live in PR.

Genera is responsible for operating and maintaining PREPA's legacy asset generation fleet. The current fleet condition presents poor performance due to the impact of hurricanes María and Fiona. Generation capacity has been reduced to 46% of installed capacity. In addition, of the generation units in operation, about 32% or 640 MW, are disconnected monthly, causing thousands of customers to suffer interruptions in their service.

To improve the system's reliability, Genera proposes adding energy storage in batteries as part of the mitigation initiative. Batteries will provide a rapid spinning reserve, frequency regulation, voltage control, and other ancillary services required to keep the continuity of the service under

emergency events and different scenarios that can put the system at risk of load shedding and blackouts.

The Puerto Rico Electric Power Authority ("PREPA") is a public corporation of the Government of Puerto Rico created pursuant to Act No. 83 of May 2, 1941, as amended. PREPA owns and operates electric generation, transmission and distribution facilities serving all of Puerto Rico. As the sole electric utility in Puerto Rico, PREPA provides electricity to approximately 1.5 million customers. Since 2017, PREPA has performed damage assessments, studies and evaluations to identify areas of repair and improvements. These include transmission and distribution lines, electrical substations, generation plants, mitigation, and other improvements. On January 2023, PREPA and the Puerto Rico Public-Private Partnership Authority ("P3 Authority") selected Genera PR, LLC ("Genera") to operate, maintain and modernize the Generation system of PREPA for ten years through a public-private partnership.

Following Presidential Disaster Declarations 4337DR-PR (Hurricane Irma) and 4339DR-PR (Hurricane Maria), the Federal Emergency Management Agency (FEMA) has been working with PREPA to assist in recovery and repair efforts. In October 2020, FEMA approved Project #136271 Puerto Rico Electrical Power Authority Island Wide FEMA Accelerated Award Strategy ("FAASt") in the amount of $9.98 billion for PREPA to repair and restore the to restore the PR electric power infrastructure to industry standards without regard to pre-disaster condition and to restore components not damaged by the disaster when necessary to fully effectuate restoration of the disaster-damaged components to restore the function of the facility or system to industry standards, as authorized by Section 20601 of the Bipartisan Budget Act of 2018 and described in FEMA Recovery Policy FP-104-009-5 Version 2 (Implementing Section 20601 of the 2018 Bipartisan Budget Act through the Public Assistance Program, September 11, 2019). The facilities provide a critical service as defined in Stafford Act Section 406.[1]. The list of projects that will be undertaken using the FAASt project is still under development.

As part of the process, Genera has identified certain equipment and components that have long lead (delivery) times under even the best of circumstances. Given the world's current supply chain challenges, the lead times are anticipated to be even longer. Supply-chain disruptions caused by the COVID pandemic, Ukraine War and recent events in Middle East have become a bottleneck that has prevented the free-flow of goods in the global economy. These disruptions have led to product shortages and delays in product deliveries throughout various sectors. These supply-chain disruptions create inefficiencies in construction projects as contractors wait around for the required material and/or equipment to be delivered. In addition, shortages also lead to price increases. Based on this, Genera will procure selected materials and equipment in advance, so that the fabrication time commence as soon as possible, and the expected delivery lead time delay be concurrent with final formulation of the permanent work project and the start of the construction activities. Genera will store the materials and equipment at a secure site(s), distribute to specific projects as they are obligated and construction begins, and manage the inventory as time and construction progress. With this, Genera will eliminate, or at least minimize, any potential construction schedule impacts. The identified equipment includes but is not limited to:

- Batteries
- Controllers

- Transformers
- Breakers

Version 1 created to capture additional Applicant purchase and store Generation selected materials and equipment to eliminate, or at least minimize, any potential construction schedule impacts. In Version 1 a total of $797,183,125.20 was awarded in support to purchase and store the selected materials and equipment to eliminate, or at least minimize, any potential construction schedule impacts. Genera prepared Battery Project itemized list of materials and major equipment that have long lead times and/or could be impacted by future events.

III. Scope of Work

This FAASt Sub-Project is to purchase and store the selected materials and equipment to eliminate, or at least minimize, any potential construction schedule impacts. Genera prepared an initial itemized list of materials and equipment that are currently seeing inventory shortages, have long lead times and/or could be impacted by future events.
Genera will manage the storage and eventual utilization of materials and equipment. Genera would track items across multiple locations from acquisition to final use. Material and equipment utilization would be tracked phase by phase and would ensure that items assigned for a particular project are not used elsewhere as outlined and approved under the FAASt obligated FEMA funding. This Scope of Work and Cost Estimate will versioned the already obligated project. Table 1,2, and 3 contains the itemized list along with pricing based on actual vendor quotations as well as publicly available prevailing prices. Table 4 contains all three subtotals and total.

Table 1: BESS

Site	Equipment	Quantity	Unit Cost 20 year warranty	Estimated Cost
Daguao peakers	4-hour 1 MW power output battery	20	$1,187,000.00	$ 23,740,000.00
Yabucoa peakers	4-hour 1 MW power output battery	20	$1,187,000.00	$ 23,740,000.00
Jobos Peakers	4-hour 1 MW power output battery	20	$1,187,000.00	$ 23,740,000.00
Aguirre Power Plant	4-hour 1 MW power output battery	100	$1,187,000.00	$ 118,700,000.00

Table 1: BESS

Site	Equipment	Quantity	Unit Cost 20 year warranty	Estimated Cost
Costa Sur Power Plant	4-hour 1 MW power output battery	100	$1,187,000.00	$ 118,700,000.00
Cambalache Power Plant	4-hour 1 MW power output battery	20	$1,187,000.00	$ 23,740,000.00
Vega Baja peakers	4-hour 1 MW power output battery	50	$1,187,000.00	$ 59,350,000.00
Palo Seco Power Plant	4-hour 1 MW power output battery	50	$1,187,000.00	$ 59,350,000.00
San Juan Power Plant	4-hour 1 MW power output battery	50	$1,187,000.00	$ 59,350,000.00
Total		**430**		**$510,410,000.00**

Table 2: Critical Components

Name of the Plant	Description / Specifications	Unit Cost	Units	Total Cost
Costa Sur 5&6/Aguirre 1&2	Air heater baskets (cold and hot)	$ 600,000	3	$1,800,000
Costa Sur 5&6/Aguirre 1&2	Condensing Circulating Water Pump Vertical motor 1000HP, 4000/146	$ 1,017,720	9	$9,159,480
Costa Sur 5&6/Aguirre 1&2	Main Condensing Pump Vertical motor 500HP, 4000 / 66	$ 602,826	8	$4,822,608
Costa Sur 5&6/Aguirre 1&2	Boiler Circulating Water Pump Vertical Motor 700 HP, 4000/90	$ 237,600	12	$2,851,200
Costa Sur 5&6/Aguirre 1&2	Boiler Feed Pump Horizontal Motor 4500HP	$ 477,265	8	$3,818,122

Table 2: Critical Components

Name of the Plant	Description / Specifications	Unit Cost	Units	Total Cost
Costa Sur 5&6/Aguirre 1&2	IDF Horizontal Motor 1750HP, 4000/580	$ 534,000	8	$4,272,000
Palo Seco 3&4	Air Heaters	$ 900,000	1	$900,000
Palo Seco 3&4	Hydrogen cooler	$ 1,044,000	2	$2,088,000
Palo Seco 3&4	Turning Gear Assembly	$ 360,000	1	$360,000
Palo Seco 3&4	Set of open and close hardware - honeycomb seals, etc.	$ 4,200,000	1	$4,200,000
Palo Seco 3&4	Reduction station atemperatures	$ 72,000	2	$144,000
Palo Seco 3&4	Fixed screens	$ 102,000	7	$714,000
Palo Seco 3&4	Fuel pump	$ 96,000	2	$192,000
Palo Seco 3&4	Breakers 480 & 4160	$ 600,000	1	$600,000
Palo Seco 4	Recirculating valves	$ 96,000	2	$192,000
Palo Seco 3&4	Acid pumps P3 and P4	$ 60,000	2	$120,000
Palo Seco 3&4	Boiler and burners recirculation valves	$ 20,400	2	$40,800
Palo Seco 3&4	Spill over, cold reheat & superheater turbine seal steam valves	$ 204,000	2	$408,000
Palo Seco Lab.	Demi 4 tank inlet regulation valve	$ 117,600	1	$117,600
Aguirre CC 2-3	Turbine section Stage 1, 2 & 3	$ 1,200,000	1	$1,200,000
Aguirre CC 2-3	Torque converter	$ 420,000	1	$420,000
Aguirre CC 2-3	switch gears 4kv	$ 750,000	2	$1,500,000
Aguirre CC	cooling tower motors	$ 33,600	10	$336,000
Aguirre CC 2-3	generator breaker 13kv	$ 600,000	1	$600,000
Cambalache 3	Fill shutoff valves	$ 122,400	1	$122,400
Cambalache 3	Trip shutoff valve	$ 122,400	1	$122,400
Cambalache 3	Nozzle valve	$ 108,000	1	$108,000
Cambalache 3	leakage valve	$ 108,000	1	$108,000

Table 2: Critical Components

Name of the Plant	Description / Specifications	Unit Cost	Units	Total Cost
Cambalache 3	fuel control valve	$ 42,000	1	$42,000
Cambalache	leak detection system - fuel transfer line	$ 600,000	1	$600,000
Cambalache	demin water resin	$ 480,000	1	$480,000
Cambalache 2,3	steam bypass valve	$ 336,000	2	$672,000
Cambalache 2,3	steam release valve	$ 132,000	2	$264,000
Cambalache	fire protection system	$ 360,000	1	$360,000
Cambalache	generator breaker 13kv	$ 600,000	1	$600,000
Cambalache	high speed control	$ 1,200,000	1	$1,200,000
Cambalache 2,3	safety valve	$ 35,000	4	$140,000
Mayaguez	Fuel skid pumps	$ 18,000	1	$18,000
Mayaguez	Fuel skid solenoid valves	$ 18,000	2	$36,000
Mayaguez	Fuel Transfer valve	$ 12,000	1	$12,000
Mayaguez	Clutch removal kit	$ 36,000	5	$180,000
Mayaguez	DCS	$ 3,876,000	1	$3,876,000
Mayaguez	Demin RO system pump	$ 180,000	2	$360,000
Mayaguez	EDI system	$ 30,000	2	$60,000
Mayaguez	PI-DAS System	$ 168,000	1	$168,000
Costa Sur 5&6/Aguirre 1&2	Boiler feed water pumps	$ 2,040,000	6	$12,240,000
Costa Sur 5&6	Feedwater Heaters 6	$ 1,800,000	2	$3,600,000
Costa Sur 5&6	Feedwater Heaters 7	$ 2,880,000	2	$5,760,000
Costa Sur 5&6/Aguirre 1&2	Continuous Condenser Wash	$ 600,000	1	$600,000
Aguirre 1	Feedwater Heaters 7	$ 3,600,000	1	$3,600,000
Aguirre 2	Feedwater Heaters 3	$ 3,600,000	2	$7,200,000

Table 2: Critical Components

Name of the Plant	Description / Specifications	Unit Cost	Units	Total Cost
San Juan 5 & 6	GT fully bladed rotor (deobligar costo de reparacion en child)	$ 10,800,000	1	$10,800,000
Palo Seco 3	Water heater 5	$ 2,400,000	1	$2,400,000
Palo Seco 3&4	Deareator pump recirculation valves	$ 108,000	2	$216,000
Palo Seco 3&4	Feedwater heaters & Boiler lead valves actuators	$ 24,000	10	$240,000
San Juan 5	Continuous Condenser Wash	$ 2,880,000	1	$2,880,000
San Juan 7	Continuous Condenser Wash	$ 2,880,000	1	$2,880,000
San Juan 7	Circulating pumps	$ 36,000	2	$72,000
San Juan 5,6,7	Traveling screens	$ 1,200,000	1	$1,200,000
San Juan 7	cooling tower	$ 2,040,000	1	$2,040,000
Aguirre CC 2-3	GT compressor rotor	$ 6,360,000	1	$6,360,000
Aguirre CC	Condensing Circulating Water Pump	$ 1,320,000	2	$2,640,000
Aguirre CC	boiler feed pumps	$ 1,080,000	2	$2,160,000
Aguirre CC 2-3	Exhaust duct	$ 480,000	1	$480,000
Cambalache	overhead crane	$ 900,000	1	$900,000
Cambalache	feedwater pump and motor	$ 180,000	1	$180,000
Cambalache 1,2,3	Starting Frequency Converter Transformer	$ 84,000	1	$84,000
Cambalache	DCS	$ 3,600,000	1	$3,600,000
San Juan 5 & 6	GT compressor wash	$ 600,000	2	$1,200,000
		Total	**$ 123,716,610.00**	

Table 3: Fuel Efficiency Improvement

Location/Facility	Initiative	Estimated Cost	Quantity	Total Cost
Costa Sur 5 & 6	tubes of the low pressure feedwater heaters 1A, 1B, 2 y 3	$ 1,000,000	8	$ 8,000,000
Costa Sur 5 & 6	air preheater sootblowers system	$ 500,000	4	$ 2,000,000
Costa Sur 5 & 6	steam coils	$ 1,250,000	4	$ 5,000,000
Costa Sur 5 & 6	Condenser Continuous Cleaning System	$ 2,460,000	2	$ 4,920,000
Costa Sur 5 & 6	Cold Reheat reducing Station	$ 2,100,000	2	$ 4,200,000
Costa Sur 5 & 6	Variable frequency Drives for IDF Motors	$ 1,250,000	4	$ 5,000,000
Costa Sur 5 & 6	Variable frequency Drives for FDF Motors	$ 1,250,000	4	$ 5,000,000
Costa Sur 5 & 6	Variable frequency Drives for BFWP Motors	$ 10,000,000	2	$ 20,000,000
Aguirre 1	steam coils	$ 1,250,000	2	$ 2,500,000
Aguirre 2	steam coils	$ 1,250,000	2	$ 2,500,000
Aguirre 1 & 2	Continuous Condenser Wash	$ 2,460,000	1	$ 2,460,000
Palo Seco 3	Water Heater 5	$ 2,000,000	1	$ 2,000,000
San Juan 5 & 6	Combustion Turbine (CT) Compressor Online/Offline Water Wash System	$ 500,000	2	$ 1,000,000
San Juan 7	Condenser: Overhauling Debris Filters; Continuous Cleaning System	$ 2,300,000	1	$ 2,300,000
San Juan 5, 6 & 7	Traveling Screens	$ 2,000,000	1	$ 2,000,000
Mayaguez	Demi Water Injection in the compressor	$ 2,000,000	3	$ 6,000,000
		Total		**$ 74,880,000.00**

Table 4: Totals

Category	Cost
BESS	$510,410,000.00
Critical Components	$ 123,716,610.00
Fuel Efficiency Improvement	$ 74,880,000.00
	$ 709,006,610.00

Cost Estimate: Equipment and Materials:

A. Battery Banks Packages – Battery Major Parts

B. Critical Components

C. Fuel Efficiency Improvements

Work to be Completed (WTBC): $ 709,006,610.00

V2 Total = Version 1 + Change Requested = $797,183,125.20 + $ 709,006,610.00= **$ 1,506,189,735.2**

********** End of Version 2**********

406 HMP Scope

Project consist of equipment and Material procurement only. There is no HM opportunity for this project. Note: Part of these materials will be used as part of HM measures for another projects.