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

IN RE:

PUERTO RICO TEST FOR DEMAND RESPONSE AND ENERGY EFFICIENCTY

CASE NO.: NEPR-MI-2021-0009

SUBJECT: LUMA's Answers to Questions in Puerto Rico Energy Bureau's Resolution of August 3, 2021

MOTION SUBMITTING ANSWERS TO QUESTIONS IN PUERTO RICO ENERGY BUREAU'S RESOLUTION OF AUGUST 3, 2021

TO THE PUERTO RICO ENERGY BUREAU:

COME NOW LUMA Energy, LLC[1], and **LUMA Energy ServCo, LLC**[2] (jointly referred to as "LUMA") and respectfully state, submit and request the following:

1. On May 14, 2021, this Puerto Rico Energy Bureau ("Energy Bureau") issued a Resolution and Order (the "May 14th Resolution") initiating the referenced proceeding to develop the Puerto Rico Benefit Cost Test ("PR Test") required under Section 2.01(B) of the Energy Bureau's Regulation for Demand Response of December 21, 2020, Regulation 9246, as well as defining the PR Test under the Proposed Energy Efficiency Regulation issued by the Energy Bureau on April 22, 2021.

2. In its May 14th Resolution, the Energy Bureau indicated that it had adopted a five-step process for developing a jurisdiction-specific cost-effectiveness test as per the National Standard Practice Manual ("NSPM") for Benefit-Cost Analysis of Distributed Energy Resources ("DER") of August 2020. *See* May 14th Resolution at page 5. The Energy Bureau also indicated

[1] Register No. 439372.
[2] Register No. 439373.

it would schedule four (4) technical workshops to address each of these steps and obtain stakeholder input. *See id.*

3. On June 16, 2021, this Energy Bureau issued a Resolution ("June 16th Resolution") establishing the calendar for the Technical Workshops, which, among other things, scheduled a First Technical Workshop, with the purpose of discussing an overview of the NSPM for DERs and the identification of Puerto Rico energy statutes, regulations, and policies, for June 30, 2021, and a Second Technical Workshop, with the purpose of discussing the identification of utility system impacts, for July 31, 2021. *See* June 16th Resolution at page 1. LUMA staff participated in these two workshops which were held at the dates and times specified in the June 16th Resolution. During the Second Technical Workshop the policies to be considered in developing the PR Cost Test were also discussed.

4. On August 3, 2021, this Energy Bureau issued a Resolution ("August 3rd Resolution") in the instant proceeding requesting that LUMA and other stakeholders provide to the Energy Bureau, by August 13, 2021, responses to four questions listed in the August 3rd Resolution related to the identification of utility system impacts for the PR Test.

5. In compliance with the August 3rd Resolution, LUMA hereby submits its responses to the questions listed in that Resolution, attached hereto as **Exhibit 1**.

WHEREFORE, LUMA respectfully requests that the Energy Bureau **accept** and **consider** this filing of its responses to the questions raised in the Energy Bureau's August 3rd Resolution, attached hereto as **Exhibit 1**, and deem LUMA in compliance with the requirements of the August 3rd Resolution.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 13th day of August 2021.

We certify that we filed this motion using the electronic filing system of the Puerto Rico Energy Bureau.

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Exhibit 1

LUMA's Responses to Questions in Energy Bureau's August 3rd Resolution

Puerto Rico Test for Demand Response and Energy Efficiency

NEPR-MI-2021-0009

August 13, 2021

Response to Questions for Group Discussion

QUESTION 1

How should the Integrated Resource Plan ("IRP") best be used to help define energy and capacity impacts within the PR Test?

RESPONSE

The IRP is an input into the definition of the energy and capacity values to be used in the PR Test. To understand the role of the IRP in calculating avoided costs, it is best to understand the process for deriving avoided costs. Avoided costs are marginal costs a utility no longer incurs if a customer reduces energy or capacity demands from the utility. The basic theory is that if the customer reduces demand or energy, the utility avoids the need to supply the incremental capacity or energy. Therefore, measuring marginal costs is the first step in measuring avoided costs. The second step is ensuring that the cost is avoided, whole or in part, by the customer's actions. In some instances, the full marginal cost is not avoided, particularly with respect to capacity. An example is a program designed to reduce off-peak energy. In this case, the customer may not contribute to capacity reductions, only energy. This step in the avoided cost calculation is best done in preparing the costs in the PR Test by adjusting marginal costs by 'contribution factors' that estimate the percent of marginal costs avoided.

Marginal costs are calculated by creating a mathematical relationship between expected load growth in Puerto Rico and planned capacity costs to meet that load growth. Important inputs into this process are the load forecast (excluding expected load reduction from Energy Efficiency/Demand Response programs), the capital forecast, information on which capital projects are designed to address load growth, and an understanding of the costs that are to be recovered. The development of marginal costs has already been completed and presented to the Bureau in case number NEPR-AP-2018-0004. Specifically, LUMA recommends starting with the 2021 Cost of Service (COS) Study submitted in that proceeding. This study uses industry best practices for developing estimates of marginal capacity costs for generation, transmission, and distribution, as well as an assessment of marginal energy costs. It also includes a review of marginal energy costs from a production dispatch model, Aurora, performed for PREPA. While these marginal energy costs were not recommended for purposes of developing an unbundled rate, they could be used as a reasonable long-term forecast of marginal energy costs for purposes of evaluating energy efficiency, in part because they forecast energy costs out several years, which is needed for the PR Test.

Beginning with the foundation of the COS, there are several additional considerations in developing avoided costs for Energy Efficiency (EE) and Demand Response (DR):

1. EE in the IRP forecast: The IRP is a forecast of the generation mix and related costs given a load forecast. If the load forecast includes expected load reduction due to implementation of EE programs, then the COS would reflect the portfolio costs given planned implementation of EE. This means that the COS study would underestimate the value of the planned EE, because the costs that are avoided from these programs are already realized. A simple example can help illustrate. Assume an estimate of a load increase of 1,000,000 kWh results in the need to spend $1M in capital. There is a plan to achieve 1,000,000 kWh of EE, which reduces this load growth

back to zero. If the IRP includes the forecast after the EE, then the load change is zero and the expected capital is zero, resulting in a marginal capacity cost of $0. However, the EE resulted in avoiding $1M in capital costs and thus should be considered the benefit of the EE. Therefore, care must be taken to make sure that the IRP forecast excludes expected EE and that the values used in the COS reflect these costs.

2. Renewable Portfolio Standard: There are potential costs related to Renewable Portfolio Standard costs (see Question 3 below).

3. Ancillary Services: There are ancillary services benefits that could be incurred from DR programs that should also be considered.

4. Congestion: Costs related to congestion should also be included for DR, and these congestion costs are not usually incorporated into an IRP. Specifically, congestion adds locational costs to delivered load that can be relieved with DR and, potentially, EE.

LUMA strongly recommends avoided costs be based on the findings of 2021 COS Study from Case number NEPR-AP-2018-0004 and then further adjusted for expected EE, costs from the RPS, and quantifying benefits of any ancillary services and locational benefits of relieving congestion.

QUESTION 2

What does LUMA use as the definition of system peak when it plans investment in infrastructure?

RESPONSE

The system peak is the coincident peak demand typically for the fiscal year. In Puerto Rico, this occurs typically between the months of August and October approximately 8 pm and 10 pm. Puerto Rico's system peak period does not vary significantly due to the changes of the seasons.

QUESTION 3

What are the current environmental regulations (Federal and Puerto Rico) that should be reflected in the cost of generating electricity?

RESPONSE

Requirements related primarily to compliance with the Clean Air Act, Mercury and Air Toxic Standards, and the Clean Water Act, as well as the Renewable Portfolio Standard (RPS), should be considered in the cost of generating electricity. The Integrated Resource Plan includes a full list of environmental regulations applicable to energy generating facilities in Section 2.1: Environmental and Energy Standards and Regulations Applicable to PREPA.

The Clean Air Act and its implementing regulations, as well as the Puerto Rico Regulation for the Control of Atmospheric Pollution, as amended, require specific emission control technologies and imposes limits on emission generation of key pollutants (including particulate matter and NOx) on air pollution sources, potentially altering the dispatch patterns of power plants to comply with these standards. Of great significance for power plants among the regulations issued pursuant to the Clean Air Act are the Mercury

and Air Toxic Standards which establish emissions limits for mercury, heavy metals, and acid gases, also potentially changing the dispatch patterns of plants. Finally, the Clean Water Act and its implementing federal regulations, as well as the Puerto Rico Water Quality Standards Regulation, limit effluent levels of pollutants in wastewater. Compliance with these laws and regulations requires the use and installation of emission control technology and limits the utilization of power plants or results in penalties when permit limits cannot be met.

Additionally, PREPA and EPA have an active consent decree, which requires specific additional actions that result in increases in the cost of generating electricity. The implications are that the dispatch patterns of plants that are subject to these limitations change. Generally, any limitation on dispatch has minimal impact on high price periods because these plant's emissions constraints are integrated into planning such that the limited available capacity is targeted to these higher price periods. This means that these plants are then not used in the shoulder or low load hours, potentially increasing the costs of producing energy during these times. Best practice is to include these constraints in the IRP and the subsequent estimates of marginal energy costs. Ensuring these costs are included in the IRP creates the correct connectivity of these policy costs with avoided costs.

Next, the costs of complying with RPS should also be considered. In order to make significant progress toward the 50% RPS requirement by 2040, 3,500 MW of renewable power and 1,500 MW of energy storage are planned to be procured over the next four years. Because the RPS requirement is a percentage of Puerto Rico's load, there are tangible cost savings to Puerto Rico if load is decreased due to conservation. Therefore, the PR Test should include avoided renewable energy costs based on the marginal capacity costs associated with a renewable project. These costs are currently zero because they are not included in rates today and the current set of renewable tranches are needed to meet shorter term RPS requirements. Nevertheless, the information regarding the costs of these tranches will be instrumental in determining a fair value for these types of contracts and thus the fair cost of avoiding them.

QUESTION 4

What should be considered the baseline level of reliability, and should that change over time?

RESPONSE

Baselines and targets for reliability metrics are the subject of Energy Bureau proceedings, including NEPR-MI-2019-0007. For the purpose of LUMA's performance metrics, reliability is primarily measured using System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI). As specified in the Energy Bureau's May 21st, 2021 Resolution and Order subject as Final Performance Baseline data and Benchmarks, the baselines for SAIFI and SAIDI are based on FY2020 performance with values of 10.6 interruptions and 1,243 minutes, respectively.

Both metrics should improve over time as LUMA invests in T&D system improvements and improves operations. The annual improvement targets are pending in Energy Bureau case number NEPR-AP-2020-0025 and unlikely to be set until the end of this year at the earliest.

However, it should be noted that T&D reliability issues in Puerto Rico are generally due to the conditions of the infrastructure, not necessarily due to overloads or infrastructure being used in excess of ratings, so Energy Efficiency or Demand Response programs will not have much, if any, direct impact to T&D system reliability performance in the near term.