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

IN RE: OPTIMIZATION PROCEEDING OF MINIGRID TRANSMISSION AND DISTRIBUTION INVESTMENTS	**CASE NO.:** NEPR-MI-2020-0016 **SUBJECT:** LUMA's Motion Submitting Responses to Questions for Stakeholders (Questions 1 through 4).

MOTION SUBMITTING RESPONSES TO QUESTIONS FOR STAKEHOLDERS 1 THROUGH 4, IN COMPLIANCE WITH RESOLUTION DATED MARCH 24, 2021

TO THE PUERTO RICO ENERGY BUREAU:

COME NOW, LUMA ENERGY SERVCO, LLC and **LUMA ENERGY, LLC** (collectively, LUMA), through the undersigned legal counsel and respectfully submit the following:

1. Pursuant to a Resolution and Order dated December 22, 2020, this honorable Puerto Rico Energy Bureau ("Energy Bureau") initiated this Optimization Proceeding in accordance with the Resolution and Order approving the Integrated Resource Plan, Case No. CEPR-AP-2018.

2. After holding three technical workshops (January 21st and 22nd, 2021, February 23, 2021, and March 23, 2021), on March 24, 2021 this honorable Energy Bureau issued a Resolution that included an attachment ("Attachment A") with eleven Questions for Stakeholders ("March 24th Resolution"). The Bureau directed that stakeholders would have four weeks to file responses to questions one through four (due April 21, 2021), and three weeks to respond to questions five through eleven (due April 14, 2021). *See* March 24th Resolution at page 1.

3. In compliance with the March 24th Resolution, on April 14, 2021, LUMA submitted its responses to questions five through eleven included in Attachment A to the March 24th Resolution.

4. With this Motion, LUMA respectfully submits a consolidated response to questions one through four of the March 24th Resolution, as well as recommendations on the feasibility of undergrounding projects. *See* Exhibit 1, Section 2.0.

5. Questions one through four of Attachment A to the March 24th Resolution address the subject-matter of underground projects currently under the purview of the Puerto Rico Electric Power Authority ("PREPA"). Thus, LUMA understands that PREPA is in a better position to address the particulars of the information requested in several portions of those questions.

WHEREFORE, it is respectfully requested that the Energy Bureau **accept and consider** the filing of LUMA's consolidated responses to questions one through four included in Attachment A to the March 24th Resolution, *see* Exhibit 1, Section 2.0, and **find** that LUMA timely complied with the March 24th Resolution.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 21st day of April 2021.

I hereby certify that I filed this motion using the electronic filing system of the Puerto Rico Energy Bureau and that on this date, I will send an electronic copy of this motion to counsel of record for the Puerto Rico Electric Power Authority, Joannely Marrero-Cruz, jmarrero@diazvaz.law; and Katiuska Bolaños-Lugo, kbolanos@diazvaz.law.

Electronic notice of this motion and Exhibit will also be sent to the following stakeholders that are identified in the Bureau's March 24th Resolution and/or that have filed and served comments in this proceeding:

Elias.sostre@aes.com; jesus.bolinaga@aes.com; cfl@mcvpr.com; ivc@mcvpr.com; notices@sonnedix.com;leslie@sonnedix.com;victorluisgonzalez@yahoo.com;jcmendez@reichardescalera.com;r.martinez@fonroche.fr;gonzalo.rodriguez@gestampren.com;kevin.devlin@patternenergy.com;fortiz@reichardescalera.com;jeff.lewis@terraform.com;mperez@prrenewables.com; cotero@landfillpr.com; geoff.biddick@radiangen.com; hjcruz@urielrenewables.com; carlos.reyes@ecoelectrica.com;brent.miller@longroadenergy.com;tracy.deguise@everstreamcapital.com;agraitfe@agraitlawpr.com;h.bobea@fonrochepr.com;ramonluisnieves@rinlegal.com;hrivera@oipc.pr.gov;info@sesapr.org;yan.oquendo@ddec.pr.gov;acarbo@edf.org;pjcleanenergy@gmail.com;Jmadej@veic.org; nicolas@dexgrid.io; javrua@gmail.com; JavRua@sesapr.org; lmartinez@nrdc.org; thomas.quasius@aptim.com; rtorbert@rmi.org; tjtorres@amscm.com; lionel.orama@upr.edu; noloseus@gmail.com; aconer.pr@gmail.com; dortiz@elpuente.us; wilma.lopez@ddec.pr.gov;gary.holtzer@weil.com;ingridmvila@gmail.com; rstgo2@gmail.com; agc@agcpr.com; presidente@ciapr.org; cpsmith@unidosporutuado.org;jmenen6666@gmail.com cpares@maximosolar.com;CESA@cleanegroup.org;acasepr@gmail.com;secretario@ddec.pr.gov;julia.mignuccisanchez@gmail.com;professoraviles@gmail.com;gmch24@gmail.com;ausubopr88@gmail.com;carlos.rodriguez@valairlines.com;amaneser2020@gmail.com;acasellas@amgprlaw.com;presidente@camarapr.net; jmarvel@marvelarchitects.com; amassol@gmail.com; jmartin@arcainc.com;melitza.lopez@aep.pr.gov; eduardo.rivera@afi.pr.gov; leonardo.torres@afi.pr.gov ;carsantini@gmail.com; directoralcaldes@gmail.com; adam.hasz@ee.doe.gov; Sergio.Gonsales@patternenergy.com; energiaverdepr@gmail.com; Arnaldo.serrano@aes.com; Gustavo.giraldo@aes.com; accounting@everstreamcapital.com; mqrpcorp@gmail.com; jczayas@landfillpr.com; auriarte@newenergypr.com; Jeanna.steele@sunrun.com; mildred@liga.coop; rodrigomasses@gmail.com; presidencia-secretarias@segurosmultiples.com; directoralcaldes@gmail.com; imolina@fedalcaldes.com; pedrosaade5@gmail.com; larroyo@earthjustice.org; jluebkemann@earthjustice.org; ckunkel@ieefa.org; LCSchwartz@llb.gov; thomas@fundacionborincana.org; cathykunkel@gmail.com; joseph.paladino@hq.doe.gov; adam.hasz@ee.doe.gov; Sergio.Gonsales@patternenergy.com; energiaverdepr@gmail.com; Arnaldo.serrano@aes.com; Gustavo.giraldo@aes.com; accounting@everstreamcapital.com; mgrpcorp@gmail.com; jczayas@landfillpr.com; auriarte@newenergypr.com; Jeanna.steele@sunrun.com; mildred@liga.coop; rodrigomasses@gmail.com; presidencia-secretarias@segurosmultiples.com,

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Exhibit 1

Resilience Optimization LUMA Response to Stakeholder Questions 1-4

NEPR-MI-2020-0016

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1.0 Introduction

On December 22nd, 2020, the Energy Bureau issued an order initiating the Resilience Optimization Proceeding[1]. The objective of the proceeding is to initiate a sequential analysis process to compare resiliency solutions, such as MiniGrids, Microgrids, and distributed energy resources (DERs). LUMA has attended the workshops held by the Bureau as part of the proceeding and appreciates the opportunity to join the collaborative conversations.

On March 24th, 2021, as part of the proceeding, the Energy Bureau issued a resolution including questions to stakeholders related to DERs and transmission investments. LUMA responded to DER related questions numbered 5-11 in the April 14th submission[2]. This document includes LUMA's response to technical questions numbered 1-4 included in Attachment A of the resolution[3], as well as the evolution of capital asset rehabilitation planning.

2.0 Consolidated Response to the Questions for Stakeholders 1-4

LUMA has not included any new 115kV and 38kV Underground investments in its System Remediation Plan or Initial Budgets filings.

LUMA's near-term capital plan is geared toward rebuilding, repairing, and hardening existing damaged and neglected overhead lines. There is rationale of undergrounding under specific circumstances (particularly in high-density / congested areas or when serving load to a town center post-storm), however, the following items factor into our decision:

- **Significant cost difference in most cases, larger number of overhead lines can be remediated for the same cost:** When considering the underground transmission option, one must consider the costs (characterized in question), typically five times more expensive than the overhead option. Considering the breadth and depth of safety and reliability-related challenges

[1] Puerto Rico Energy Bureau, NEPR-MI-2020-0016 "In RE: Optimization Proceeding of MiniGrid Transmission and Distribution Investments", 2020.

[2] LUMA, "Resilience Optimization LUMA Response to Stakeholder Questions". April 14, 2021. https://energia.pr.gov/wp-content/uploads/sites/7/2021/04/Motion-Submitting-LUMAs-Responses-to-Questions-to-Stakeholders-April-14-2021-NEPR-MI-2020-0016.pdf

[3] Puerto Rico Energy Bureau, "Questions for Stakeholders", NEPR-MI-2020-0016, March 2021.

confronting the current system, this factor alone, suggests that greater impact will result from an initial focus on overhead transmission and distribution.

- **Cost savings can be used to harden overhead lines:** Referring to the previous point regarding the significantly higher unit cost for underground as opposed to overhead transmission; assigning the difference in cost to overhead storm hardening initiatives will allow LUMA to affect more customers and have a far greater impact on overall customer satisfaction by remediating worst performing feeders and replacing aging / damaged assets.

- **Longer-term reliability:** Any effort to replace system infrastructure should improve "blue-sky" SAIFI. With respect to undergrounding the transmission, this is the case in the short-term. However, from a longer-term perspective (after a certain age), underground cables experience higher failure rates. These failures are more difficult to locate, incur higher costs, and require more time for repairs and replacements.

For these reasons, and the significant disruption that undergrounding construction causes to the public, currently LUMA assesses that the costs required to install underground transmission can be better spent on addressing the multiple aging and high risk overhead assets related to transmission and distribution. LUMA is committed to remediating the system (as described in the SRP), reducing outage sizes and shortening durations, hardening the system, and positioning the system to for the sustainable energy transformation. LUMA's recovery efforts will bring the grid to a minimum functioning state, which is the foundation of enabling the integration of renewables and DERs.

As for the damaged 115kV San Juan underground loop, PREPA has indicated the importance of not only repairing the damage but also restoring the loop to its original intended service. In general, LUMA conceptually agrees with PREPA's assertions. However, proper transmission planning studies, lifecycle investment analyses, and weighing costs to anticipated benefits will need to be undertaken prior to any final recommendation of solution.

LUMA has started efforts to enhance system GIS and health assessment information, which is essential to supporting the rehabilitation of the grid in a cost-effective way and improving resiliency. Given the current lack of data, LUMA expects the investment prioritization process will evolve significantly as system information is enhanced and tools and foundational processes are established. Near-term investments and the system improvements identified in the SRP and Initial Budgets will bring the grid to a functioning state and enable the foundation of renewable integration. Many of these activities will facilitate integration of DERs in the near-term by collecting and enhancing system information (e.g., hosting capacity analysis), interconnection standards, and planning processes. This information may also be used to proactively identify additional system upgrades that could be added onto currently planned, federally funded T&D repair

replacement, and/or hardening projects to improve hosting capacity, which could help to reduce costs and barriers for future DER integration.