

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



IN RE: THE DEPLOYMENT OF ELECTRIC
VEHICLE CHARGING INFRASTRUCTURE

CASE NO.: NEPR-MI-2021-0013

SUBJECT: LUMA comments and workshop
contents.

RESOLUTION AND ORDER

I. Introduction and Background.

On November 18, 2021, the Energy Bureau of the Puerto Rico Public Service Regulatory Board ("Energy Bureau") issued a Resolution and Order ("November 18 Order") discussing comments received as of October 8, 2021, establishing Principles and articulating Directives regarding the deployment of electric vehicle charging infrastructure ("EV infrastructure deployment"). The Energy Bureau adopted the Principles under the powers established on Act 57-2014¹ and Act 17-2019², for regulating, supervising, and enforcing the energy public policy of the Government of Puerto Rico. The November 18 Order further sets forth two additional Technical Workshops and Orders LUMA Energy ServCo, LLC ("LUMA") to file the First Phase of an EV Charging Infrastructure Deployment Plan ("Phase I EV Plan"). The Phase I EV Plan should reflect the Principles and requirements set forth in the November 18 Order to file a proposal for one or more rate designs targeting the customer segments set forth in the Principles and envisioned in the Phase I EV Plan.³

On October 6, 2021, LUMA filed a document titled *Request for Extension of Time to Submit Written Comments* ("LUMA Request") in which LUMA requested a 30-day extension of time to submit written comments. On November 5, 2021, LUMA filed a document titled *Motion to Submit LUMA's Written Comments on Electric Vehicles Charging Infrastructure Topics* ("LUMA's Comments").

The Energy Bureau has reviewed LUMA's Comments. In preparation for the Technical Workshops established in the November 18 Order, the Energy Bureau identifies topics to be addressed in the Second and Third Technical Workshops.

II. Energy Bureau's Authority

The Energy Bureau is the independent specialized entity in charge of the regulation, supervision, and enforcement of the Puerto Rico energy public policy. The Energy Bureau has broad powers, duties, and responsibilities pursuant to Act 57-2014 upon which is acting through this *Resolution and Order*. Particularly regarding its authority to "[o]versee and ensure execution and implementation of the public policy on the electric power service ...", the Energy Bureau deems that public policy is advanced and the public interest is served through calling for the filings set forth in this *Resolution and Order*.

The Energy Bureau finds statutory support for directing EV infrastructure deployment efforts in Act 17-2019, where it states to "[e]stablish an Electric System model in which the use of available energy resources is maximized, and the consumer is empowered to become part of the energy resources portfolio...". Act 17-2019 further directs the Energy Bureau "[t]o promote the necessary changes in order to transform the Electric Power System into one that satisfies the energy needs of the 21st century Puerto Rico".

¹ Puerto Rico Energy Transformation and RELIEF Act, as amended.

² Puerto Rico Energy Public Policy Act.

³ November 18 Order, pp. 5-6.

Finally, the Energy Bureau further draws upon Act 33-2019⁴, where it states "... that it is necessary ... to implement an energy system with low petroleum use and eradication of coal- based generation, promote renewable or alternative and more efficient energy systems, improve energy efficiency, and promote the electrification of motor vehicles".⁵

III. Discussion of LUMA's Comments

As outlined in the November 18 Order, the Energy Bureau has articulated eight Principles to guide the adoption of plans, regulations and procedures that will direct EV infrastructure deployment in the electricity sector. Further, the November 18 Order directs LUMA to file a Phase I EV Plan for Charging Infrastructure Deployment that reflects these Principles.

The Energy Bureau affirms LUMA's stated "eager[ness] to engage in the planning processes required to prepare..." for the transformation of the automobile industry.⁶ LUMA, through the preparation and implementation of a Phase I (and subsequent) EV Plans, will perform an integral role in Puerto Rico achieving its statutorily stated electric power system objectives.

In recognition of the complexity and unprecedented nature of EV infrastructure deployment, the Energy Bureau has set forth a multi-phase vision for its deployment in Puerto Rico. Focusing first upon the residential segment allows progress to commence without having to resolve certain policy, regulatory, and procedural matters, particularly issues only applicable to development of commercial EV charging facilities. The Energy Bureau determines that the "Questions for Initial Comment"⁷ are such topics and thus do not require resolution before commencing with the Phase I EV Plan deployment.

LUMA's Comments raise multiple topics that merit further discussion, may affect the Phase I EV Plan filing and are relevant to include in the Second Technical Workshop.

LUMA references a "strategy for 'Recovery and Transformation' about the transmission and distribution ("T&D") system".⁸ Of particular note is the statement that "...LUMA will complete foundational investments to repair the grid in the near term (one to three years)".⁹ While the Energy Bureau appreciates this commitment to system improvement, it is also concerned this statement implies that EV infrastructure deployment should occur after this "one to three years" period of investment. This merits the presentation of additional information by LUMA in the Second Technical Workshop, and associated discussion.

LUMA discusses the matter of EV charging demand and its impact upon the system in Section 3.1 of its Comments. LUMA raises concerns about the resource adequacy impact upon both, peak demand, and the overall system demand curve. These concerns conform well to Phase I EV Plan requirements, where the Energy Bureau sets forth requirements for rate design to mitigate demand impacts. The critical role of rate design, to assure that EV deployment benefits the grid, leverages DG and storage, and shifts overall demand toward low-carbon resources, is articulated in Principles 2, 3, and 5.¹⁰

⁴ Know as the *Puerto Rico Climate Change Mitigation, Adaptation, and Resilience Act*.

⁵ *Id.*, Section 3.

⁶ LUMA's Comments, Section 1.0.

⁷ LUMA's Comments, Section 2.0.

⁸ *Id.*, Section 1.0.

⁹ *Id.*

¹⁰ November 8 Order, pp. 2-3.



IV. Discussion of Technical Workshops 2 and 3

In the November 18 Order, the Energy Bureau scheduled Technical Workshops 2 and 3 in January and February 2021, respectively. The November 18 Order also indicated general topical areas to be addressed in each Workshop. LUMA raises concerns about the impact of EV charging load upon resource adequacy. These are concerns that the Energy Bureau seeks to address in the Phase I EV Plan filing. To aid in the Plan filing addressing these concerns, the Energy Bureau determines that the Second Technical Workshop should specifically address multiple aspects of resource adequacy associated with EV infrastructure deployment. These are elaborated, below.

1. Overview of Electric System Condition

- a. LUMA comments that: "(c)urrent residential electrical infrastructure in Puerto Rico may limit the ability to install EV chargers, where the load capacity design per home is usually limited to 5-7 kW. An EV charger could increase a home's load to nearly 10 kW, which may overload service transformers at higher penetrations, as many existing service transformers are limited to 10-25 kW."
- b. Understanding the capacity of the grid, at the end-user level, to support EV charging is a concern that could significantly impede residential EV charging infrastructure deployment. More data and information are needed to understand the likelihood and magnitude of this possible constraint. Also, the Energy Bureau will analyze, from other jurisdictions, how to deploy residential EV charging infrastructure in a manner that works within, and addresses at a reasonable cost, the existing operational constraints.

2. Demand Curve Impacts

- a. LUMA contends that the additions of solar and storage to the system, resulting from the procurement tranches in proceeding NEPR-MI-2020-0012, will result in a system demand "duck curve" similar to what is experienced in California. (Figures 1 and 2; LUMA Initial Comments). This contention merits specific discussion, to determine the potential timing and magnitude of solar and storage procurements more fully, and how to best coordinate EV load growth with these procurements.
- b. LUMA suggests that encouraging daytime charging of EV's can address this issue, yielding a more consistent daily load curve. LUMA further suggests that controllable storage and distributed energy resources could also improve demand curve dynamics, while also expressing concerns about the need to increase the size of residential DER/storage systems relative to what is most commonly installed. The Energy Bureau is interested in hearing other perspectives about how to best coordinate concurrent increases in EV charging demand and solar/storage.

3. Managing EV Load Effectively

- a. How Managed Charging technologies and practices can minimize peak load impacts.
- b. How the coordination of charging with DG and storage can minimize peak load impacts.
- c. The role of pricing signals via new tariff designs to manage peak load impacts, including rate design.
- d. Using Demand Response (DR) practices and technologies to manage peak load impacts, including uses and limitations of DR-related curtailment practices.



- e. The allowability and use of EV charging curtailment: LUMA contends that “...curtailment of EV charging behind the meter cannot be required.” This contention merits specific discussion, including the merits of curtailment and options for its inclusion.

The November 18 Order indicated that the general topic for Second Technical Workshop is: “Criteria to be considered when determining the priorities by which additional EV charging infrastructure should be deployed.” The Energy Bureau **DETERMINES** this topic will be deferred to the Third Technical Workshop.

After review of the LUMA’s Comments, and in the complete record of this proceeding, the Energy Bureau is revising the general topics for each Technical Workshop. The Energy Bureau finds value in focusing the Second Technical Workshop on matters pertinent to the LUMA’s filings directed by the November 18 Order, as discussed above. Further, the Energy Bureau finds merit in focusing the Third Technical Workshop on EV infrastructure planning matters relevant to the Phase I EV Plan filing as well as subsequent plan filings. These topics are elaborated below.

1. Planning for Incremental Deployment of EV Charging Infrastructure

- a. As articulated in the November 18 Resolution, the Energy Bureau anticipates a phased-in approach to EV charging infrastructure deployment. After residential, behind-the-meter charging implementation is addressed in the Phase 1 Plan, the Energy Bureau anticipates a continued phased-in implementation. While all segments merit access to EV charging, each subsequent segment is likely to present unique technical, policy and operational challenges. The Energy Bureau is interested in receiving input about how to sequence the subsequent customer segments.
- b. Of particular interest to the Energy Bureau is the understanding of technical, policy, regulatory, or procedural issues affecting each subsequent customer segment, such as:
 - EV charging infrastructure asset ownership
 - Billing procedures for EV charging customers
 - Other possible regulatory impediments, such as the definition of “Electric Service Company” (Regulation 8701) as noted in LUMA’s Comments.

2. System Planning and Implementation Strategies

- a. LUMA states, in charging station development, that “(c)apacity maps identifying transformer loading could provide developers with some information on network locations for siting EV charging stations.” The Energy Bureau sees value in such information being provided, as an aspect of establishing priorities and identifying system constraints.
- b. The November 18 Order also indicated that the general topic for the Third Technical Workshop is: “The ongoing use of pilot programs for assessing EV charging infrastructure deployment in nascent market segments and suggestions for designing pilot programs that will yield substantive results and in a relatively concise time period.”

The Second Technical Workshop, as stated in the November 18 Order, to be held **January 27, 2022 at 2:00 p.m.**

To prevent the spread of Covid-19, the Technical Workshops will be held remotely via the *Microsoft Teams* platform and livestreamed via the Energy Bureau’s YouTube Channel. All persons interested in participating in the Technical Workshops scheduled above, must



request access **on or before January 26, 2022 by 2:00 p.m.**, by (i) sending an email to secretaria@jrsp.pr.gov; or (ii) contacting the Energy Bureau's Clerk at (787) 523-6262.

The Energy Bureau **CLARIFIES** through this Resolution and Order that the Second Technical Workshop will address the topics as they pertain to EV charging infrastructure deployment such as i) Overview of Electric System Conditions; ii) Demand Curve Impacts; and iii) Managing EV Load Effectively.

The Energy Bureau **ORDERS** LUMA to provide in the Second Technical Workshop the data and information sufficient to address the state of the distribution system such as:

1. The level of EV charging the system can accommodate in the near-term.
2. At what level of granularity this information is available (e.g., feeder, substation, etc.).
3. The current inventory of types of meters installed in the residential segment.
4. Planned demand response (DR) programs, and applicability to managing anticipated EV load.
5. System generation output, by resource type, over time, indicating portion of load served by renewable energy source.
6. LUMA's preliminary assessment of the size of an EV deployment it can implement in Phase 1.

The Energy Bureau **ORDERS** LUMA to, on or before January 25, 2022, file the following:

1. A copy of the LUMA "Strategy for Recovery and Transformation" ("Strategy") about the distribution and transmission systems.
2. A narrative to accompany the Strategy identifying specific recovery-related investments and distribution grid modifications scheduled that will affect the residential customer segment, identifying specific grid locations to be affected and associated completion timetables.
3. All data and associated analyses¹¹ that indicate the available capacity of the distribution system serving residential customers, at the feeder, transformer, and substation levels, to the fullest extent possible.

The Energy Bureau calls for **public comments**, to be filed on or before **January 20, 2022**,¹² about the following:

1. Proposed modifications to the definition of "Electric Service Company" as set forth in Section 1.08, (A) (5) of Regulation 8701, as necessary to address promote commercial EV charging station development.

The public comments, including legal briefs, may be submitted to the Energy Bureau regarding this procedure ("Written Public Comments"). The Written Public Comments to be filed with the Energy Bureau shall: (i) include in their title: "Public Comments on Deployment of Electric Vehicle Charging Infrastructure – Case No. NEPR-MI-2021-0013"; (ii) be addressed to the attention of Edison Avilés Deliz, Chairman; and (iii) be filed by electronic mail at: comentarios@jrsp.pr.gov; through the Energy Bureau's electronic filing tool at:

¹¹ See the discussion of "capacity maps" in the LUMA's Comments, Section 2.3.


¹² See Resolution and Order, *In Re: Public Policy Regarding the Management and Presentation of Comments and Appearing at Public Hearing*, Case No. NEPR-MI-2021-0010, June 18, 2021.



<https://radicacion.energia.pr.gov/>; by postal mail addressed to the Puerto Rico Energy Bureau's Clerk's Office at World Plaza Building, 268 Muñoz Rivera Ave., Plaza Level Suite 202, San Juan, PR 00918-1925; or in person at the Energy Bureau's Clerk's Office, at the referenced address. The hours of operations of the Clerk's office are Monday through Friday from 8:30 a.m. to 5:30 p.m., excluding holidays.

The Energy Bureau **WARNS** LUMA that noncompliance with the Energy Bureau's orders or applicable legal requirements may carry the imposition of administrative fines of up to twenty-five thousand dollars (\$25,000.00) per day, per violation and/or other sanctions that the Energy Bureau may deem appropriate.

Be it notified and published.




Edison Avilés Detiz
Chairman



Ángel R. Rivera de la Cruz
Associate Commissioner



Lillian Mateo Santos
Associate Commissioner



Ferdinand A. Ramos Seegard
Associate Commissioner



Sylvia B. Ugarte Araujo
Associate Commissioner


CERTIFICATION

I hereby certify that the majority of the members of the Puerto Rico Energy Bureau has so agreed on December 17, 2021. I also certify that on December 17, 2021 a copy of this Resolution and Order was notified by electronic mail to the following: energypr@gmail.com, edwin.acevedo@ddec.or.gov, ldiaz@glenninternational.com, azayas@azeng.net, gerardocosme@solartekpr.net, luisgmoreno@gmail.com, fberriosperitoselectricistas.org, juan.diaz.galarza@guidehouse.com, angel.d.rodriguez@outlook.com, javruasesapr.org, aldo@skootel.com, pablo.rivera@hitachi-powergrids.com, divine.energy@hotmail.com, franciscojrullan@yahoo.com, ochavez@padigm.com, antoniovelocicharge.com, dcordero@group-em.com, kenan.d.davila@sargentlundy.com, emelyies.torres@toyota.com, gerard.berlinski@toyota.com, marilyn.maldonado@toyota.com, pjcleanenergy@gmail.com, bigwheelcorp@gmail.com, jan.rodriguez@toyota.com, eduardo.pinera@toyota.com, marangelly.cruz@toyota.com, ismael.diaz@warren-ecm.com, alberto.cortes@warren-ecm.com, wnavasesg@gmail.com, rvea@guidehouse.com, rroy@tcm.law, agalloza@aggpr.com, victor.martinez@totalenergies.pr, nmontes@ccmpr.com, zlopez@efonalledas.com, omundo@plazalasamericas.com, ialsina@plazalasamericas.com, mldron@plazaad.com, ruben.gonzalez@pumaenergvy.com, dacosta@aggpr.com, rdiaz@glenninternational.com, lmarcano@aconer.org, itosado@motorambar.net, hamely@motorambar.net, jsantana@motorambar.com, jorrodriiguez@motorambar.net, nannette.berrios@solpetroleum.com, jameaux1@aim.com, jpibernus@motorambar.com, wilfredsonllc@gmail.com, melvin.ayala@lumapr.com, francisco.berrios@hotmail.com, CR.Tejera@ddec.pr.gov, nrodriguez@senado.pr.gov, nsantos@glenninternational.com, patlopez00@gmail.com, laura.rozas@dlapiper.com, jcardona@aggpr.com, kkoch@tesla.com, jvazquez905@gmail.com, jose.maeso@crowley.com,



jortiz@caguasexpressway.com, odette@grupofernandezpr.com, info@carlosmatta.com,
jbouza@caguasexpressway.com, erica.cosme@gsonnell.com,
clrivera@caguasexpresswav.com, flota@caguasexpressway.com, lsundeen@tesla.com,
carlos@cedenogmail.com. I also certify that today, December 17, 2021, I have proceeded
with the filing of the Resolution and Order issued by the Puerto Rico Energy Bureau.

For the record, I sign this in San Juan, Puerto Rico, today December 17, 2021.



Wanda I. Cordero Morales
Interim Clerk

