

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

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**IN RE: ELECTRIC VEHICLE  
CHARGING INFRASTRUCTURE  
DEPLOYMENT**

**CASE NO. NEPR-MI-2021-0013**

**SUBJECT: Motion to Submit Second Semi-Annual  
Report for Fiscal Year 2024, in Compliance with Orders  
of January 13, 2023, and April 23, 2024**

**MOTION TO SUBMIT SECOND SEMI-ANNUAL REPORT FOR FISCAL YEAR 2024  
IN COMPLIANCE WITH ORDERS OF JANUARY 13, 2023, AND APRIL 23, 2024**

**TO THE HONORABLE PUERTO RICO ENERGY BUREAU:**

COME now **LUMA Energy, LLC and LUMA Energy ServCo, LLC** (collectively, “LUMA”), through the undersigned legal counsel, and respectfully states, submits and requests the following:

**I. Introduction**

As per the directives of the Puerto Rico Energy Bureau of the Public Service Regulatory Board (“Energy Bureau”) in this proceeding, LUMA has developed Puerto Rico’s Electric Vehicle Adoption Plan (“PR-EVAP”), to accelerate the growth and infrastructure deployment for Electric Vehicles, and has developed and launched an Interim Electric Vehicle (“EV”) Time of Use Rate with the objective of advancing vehicle electrification by providing rate options that add value and fuel cost savings to drivers while offering appropriate cost recovery for providing clean fuel (electricity) to power those vehicles.

With this motion LUMA is filing its second semi-annual report on the PR-EVAP for FY 2024 in compliance with the orders of the Energy Bureau of January 13, 2023, and April 23, 2024. LUMA highlights the broad spectrum of actions that it has undertaken during the semester to

implement the PR-EVAP and launch the Interim EV TOU Rate, which are described in the attached semi-annual report, including, among others, efforts to educate and engage with different stakeholders and customers to share useful information about EVs and the Interim EV TOU Rate; implementing a suite of general and program specific educational resources to provide information on EVs, including the EV focused webpage and EV-specific educational information for customers; conducting stakeholder engagement on planning and system improvement; conducting workforce development activities; and engaging with the public transportation and fleet sector. LUMA is committed to continued advancement in the implementation of the PR-EVAP in support of Puerto Rico's clean energy goals.

## **II. Relevant Procedural Background**

1. On November 18, 2021, the Energy Bureau issued a Resolution and Order (the "November 18<sup>th</sup> Order") setting forth directives for initiating electric vehicle ("EV") infrastructure deployment and ordering LUMA to file with the Energy Bureau a First Phase of an EV Charging Infrastructure Deployment Plan ("Phase I EV Plan") and a proposal for one or more rate designs to incentivize customer EV charging behaviors beneficial to the electric system ("EV Rate Design Proposal"), in accordance with the specified principles and requirements set forth in the November 18<sup>th</sup> Order. *See id.* at pages 4-9.

2. On May 31, 2022, LUMA submitted to the Energy Bureau the draft of the EV Rate Design Proposal 1 (the "Draft EV Rate Design Proposal") in compliance with the November 18<sup>th</sup> Order. *See LUMA's Motion Submitting Draft of EV Rate Design Proposal* of that date.

3. On July 21, 2022, LUMA submitted to the Energy Bureau a revised Draft EV Rate Design Proposal (the "Revised Draft EV Rate Design Proposal"). *See Motion Submitting Revised EV Rate Design Proposal* of that date.

4. On September 1, 2022, LUMA filed before the Energy Bureau the Draft Phase I EV Plan (“Draft Phase I EV Plan”) in compliance with the November 18<sup>th</sup> Order. *See Motion Submitting Draft Phase I EV Plan and Request to Postpone Compliance Technical Hearing No. 3 and Concomitant Deadline to Submit Revised Phase I EV Plan* filed on September 1, 2022 (“September 1<sup>st</sup> Motion”) and its Exhibit 1.<sup>1</sup> The Draft Phase I EV Plan discussed the proposed EV initiatives (i.e., conducting education and outreach, EV infrastructure and system improvements and an EV rate) and set forth the portfolio of actions to support these initiatives including providing educational materials and customer assistance; engaging customers and stakeholders in the EV ecosystem; planning for grid infrastructure and system improvements; providing EV rate options; preparing the workforce for the growing adoption of EVs; and supporting EV charging infrastructure deployment. *See id.* Exhibit 1, pages 44 and 54.

5. On January 13, 2023, the Energy Bureau issued a Resolution and Order (the “January 13<sup>th</sup> Order”), in which, among others, the Energy Bureau: approved the Interim Electric Vehicle Time of Use Rate in the Revised Draft EV Rate Design Proposal (“Interim EV TOU Rate”), subject to certain modifications. The Energy Bureau also ordered LUMA to take several actions associated with the Phase I EV Plan and the Interim EV TOU Rate by specified deadlines or timeframes, including, among others, to: (a) develop and launch Interim EV TOU Rate by September 30, 2023; (b) file a proposed project schedule for implementation of the Interim EV TOU Rate; (c) report every thirty (30) days on the progress with the data collection and billing to integrate the Interim EV TOU Rate (“Billing Integration Reports”); (d) file by April 30, 2023, a Final Phase I EV Plan incorporating guidance and requirements set forth in the January 13<sup>th</sup> Order;

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<sup>1</sup> On September 2, 2022, LUMA resubmitted the Draft Phase I EV Plan document with certain technical repairs and requested this Energy Bureau to accept this corrected version in substitution of the version submitted on September 1, 2022. *See LUMA’s Motion Re-Submitting Exhibit 1 Filed on September 1, 2022, with Technical Repairs and Requesting Substitution of Original Exhibit* of that date.

(e) “[o]ver the next six months, review and propose improvements to its outreach and public access policies and practices [...] and submit a memorandum to the Energy Bureau setting out the actions it plans to adopt” (the latter, the “Customer Outreach Memorandum”); (f) “[o]ver the next nine months, engage in outreach with low-income and disadvantaged communities to determine what they consider their transportation electrification priorities to be” (“Customer Outreach Implementation”); (g) “[o]ver the next six months, review and propose improvements to its outreach and public access policies and practices [...] and submit a memorandum to the Energy Bureau setting out the actions it plans to adopt” (the latter, the “Customer Outreach Memorandum”); and (h) file Semi-Annual Reports in which it “should follow through and account for its proposed actions, and report on the specific outcomes of each action” following certain subjects specified therein. *See* January 13<sup>th</sup> Order, pages 2-9, 10, 11 and 14.

6. On February 17, 2023, LUMA submitted the project schedule addressing the tasks to fulfill the requirements relating to the Phase I EV Plan and the development and launch of the Interim EV TOU Rate (“Project Schedule”). *See Motion Submitting Project Schedule in Compliance with Resolution and Order of January 13, 2023, and Requesting Modification of Certain Deadlines Thereunder* dated February 17<sup>th</sup>, 2023.

7. On March 29, 2023, the Energy Bureau issued a Resolution and Order (the “March 29<sup>th</sup> Order”) approving the Project Schedule submitted by LUMA and, among others, modifying certain deadlines for commencing billing integrating the Interim EV TOU Rate (changed to November 30, 2023), to submit the Customer Outreach Memorandum (changed to December 31, 2023), and to begin Customer Outreach Implementation (changed to September 30, 2023). *See id.* on page 3.

8. On May 1, 2023, LUMA submitted to the Energy Bureau the Final Phase I EV Plan in compliance with the January 13<sup>th</sup> Order in the form of the document titled Puerto Rico’s Electric Vehicle Adoption Plan (“PR-EVAP”). *See Motion to Submit Final Phase I EV Plan in Compliance with Resolution and Order of January 13, 2023*, filed on May 1, 2023. In the PR-EVAP, LUMA included the requirements to file Semi-Annual Reports set forth in the January 13<sup>th</sup> Order and provided a reporting schedule establishing reporting deadlines of sixty (60) days “following the half end of the fiscal year”. *See id.* Exhibit 1, Section 6.0.

9. On June 6, 2023, the Energy Bureau issued a Resolution and Order (“June 6<sup>th</sup> Order”) taking notice of the filing of the PR-EVAP and making certain findings in relation to the PR-EVAP, including, among others, ordering LUMA to: continue the implementation of the Interim EV TOU Rate and other specified requirements of the January 13<sup>th</sup> Order; file a report, within three (3) months of articulating the specific actions LUMA will take regarding each of the federal funding opportunities that LUMA identified in the PR-EVAP (“Federal Funding Report”); file the Customer Outreach Memorandum by July 13, 2023; and prepare for a Virtual Technical Conference to be scheduled by the Energy Bureau within thirty (30) days of LUMA filing the Customer Outreach Memorandum. *See June 6<sup>th</sup> Order* on pages 3-4. In addition, the Energy Bureau directed LUMA to report in the semi-annual reports the specific actions that LUMA is taking to assist entities in procuring and implementing federal funds, including specific timelines. *See id.* at page 4.

10. On July 13, 2023, LUMA requested the Energy Bureau clarification of various aspects of the June 6<sup>th</sup> Order, including, among others, the correction of the deadline for filing the Customer Outreach Memorandum and the scope of the Federal Funding Report. *See Motion to Request Clarification of Resolution and Order of June 6, 2023*, filed by LUMA on July 13, 2023

(“July 13<sup>th</sup> Motion”) on page 15. In addition, LUMA requested that the Energy Bureau “issue a determination on the approval of the PR-EVAP” so that LUMA can “understand whether the initiatives under LUMA’s control under the PR-EVAP are approved before LUMA begins to implement the actions or initiatives in the PR-EVAP”. *See id.* pages 22-23.

11. On August 11, 2023, the Energy Bureau issued a Resolution and Order (“August 11<sup>th</sup> Order”) making various findings and determinations and issuing associated orders in attention to the July 13<sup>th</sup> Motion. Among other determinations, the Energy Bureau clarified that the deadline to file the Customer Outreach Memorandum would remain as stated in the March 29<sup>th</sup> Order and discussed the scope of the Federal Funding Report ordering LUMA to submit it within three (3) months of the August 11<sup>th</sup> Order. *See August 11<sup>th</sup> Order on pages 3-4.* In addition, the Energy Bureau ordered LUMA “to implement the PR-EVAP along with the additional requirements set forth” in the August 11<sup>th</sup> Order. *See id.* at page 5.

12. On November 13, 2023, LUMA submitted to the Energy Bureau the Federal Funding Report. *See Motion to Submit Report on Actions Regarding Federal Funding Opportunities in Compliance with Resolutions and Orders dated June 6, 2023, and August 11, 2023, filed on November 11, 2023.*

13. On December 20, 2023, the Energy Bureau issued a Resolution and Order in which, among others, it extended the deadline to commence billing integrating the Interim EV TOU Rate until February 1, 2024.

14. On January 2, 2024, LUMA submitted to the Energy Bureau the Customer Outreach Memorandum. *See Motion to Submit Report on Customer Outreach Memorandum in Compliance with Resolutions and Orders of January 13, 2023, As Modified by Resolutions and Orders of March 29, 2023, June 6, 2023, and August 11, 2023, filed on January 2, 2024.*

15. On January 12, 2024, the Energy Bureau issued a Resolution and Order taking notice of the Customer Outreach Memorandum and scheduling a Hybrid Technical Conference for February 1, 2024, regarding the Customer Outreach Memorandum.

16. On February 1, 2024, the Hybrid Technical Conference was held and LUMA provided a presentation regarding the Customer Outreach Memorandum. On that same day LUMA filed a copy of the presentation it provided during the Hybrid Technical Conference (“February 1<sup>st</sup> Presentation”). *See Motion to Submit Presentation Offered During Hybrid Technical Conference of February 1, 2024, Regarding LUMA's Customer Outreach Memorandum* ("February 1 Motion").

17. On February 12, 2024, the Energy Bureau issued a Resolution and Order (“February 12<sup>th</sup> Order”) accepting LUMA’s February 1<sup>st</sup> Presentation and ordering LUMA to provide a description of how LUMA plans to further engage with the public transportation and fleet sectors, especially those located in or serving disadvantaged communities, within its forthcoming semi-annual report. *See* February 12<sup>th</sup> Order on page 1.

18. On February 29, 2024, LUMA filed a *Motion to Submit Semi-Annual Report in Compliance with Order of January 13, 2023*, submitting the first PR-EVAP semi-annual report for FY24.

19. On March 1, 2024, the Energy Bureau issued a Resolution and Order extending the deadline for commencement of the billing integrating the Interim EV TOU Rate until April 30, 2024, as per LUMA’s request.

20. On March 28, 2024, LUMA filed with the Energy Bureau in Case No. NEPR-MI-2021-0008, *In re: Review of LUMA's Model Bill* (“Model Bill Docket”), a request for approval of a revised version of the Model Bill, submitted as an Exhibit 1, to include changes to incorporate

the Interim EV TOU Rate in the bill. *See Request for Approval to Incorporate the Electric Vehicle Time of Use Rate into the Model Bill* filed on March 28, 2024 (“March 28<sup>th</sup> Motion”).

21. On April 8, 2024, LUMA informed the Energy Bureau that it would be providing to customers interested in enrolling in the Interim EV TOU Rate a tariff sheet for the Interim EV TOU Rate (“EV TOU Tariff Sheet”) and submitted the proposed tariff sheet, among others. *See Motion to Submit April 2024 Billing Integration Report in Compliance with Orders of January 13 and February 14, 2023, and Inform on the Tariff Sheet for the Interim EV TOU Rate and Customer Outreach Progress*, filed on April 8, 2024.

22. On April 23, 2024, the Energy Bureau issued a Resolution and Order (“April 23<sup>rd</sup> Order”) ordering LUMA to refile the Semi-Annual Report within thirty (30) days using the reporting template included as Attachment 4 to the April 23<sup>rd</sup> Order. *See April 23<sup>rd</sup> Order* on page 5. The Energy Bureau also indicated in the April 23<sup>rd</sup> Order that it appreciated LUMA’s commitment to add initiatives to its PR-EVAP to further engage with the public transportation and fleet sector and that it accepted these initiatives and looked forward to a progress update in the next semi-annual report. *See id.*

23. On April 29, 2024, LUMA re-submitted to the Energy Bureau the EV TOU Tariff Sheet to include a formula for the EV TOU Rate that eliminates the need for customers to refer to the new tariff every quarter and instead they can consult the same tariff sheet and the current rates to determine their applicable rate. *See Motion Re-Submitting the Tariff Sheet for the Interim EV TOU Rate*, filed on April 29, 2024.

24. On April 30, 2024, LUMA informed the Energy Bureau that it had completed the development and launch of the Interim EV TOU Rate and requested the Energy Bureau that it release LUMA from submitting Billing Integration Reports required under the January 13<sup>th</sup> Order

and consider the Billing Integration Report scheduled to be filed for May 8, 2024, as the last report to be made in compliance with the January 13<sup>th</sup> Order. *See Informative Motion Regarding Launch of Interim EV TOU Rate and Request of Release from Requirements to File Billing Integration Reports*, filed on April 30, 2025. As indicated in this Motion, every month commencing on March 13, 2023, LUMA had filed the Billing Integration Reports. *See April 30<sup>th</sup> Motion on page 4 and footnote 6.*

25. On May 8, 2024, LUMA submitted its last Billing Integration Report. *See Motion to Submit May 2024 Billing Integration Report in Compliance with Orders of January 13 and February 14, 2023*, filed on May 8, 2024.

26. On May 22, 2024, the Energy Bureau issued a Resolution and Order (“May 22<sup>nd</sup> Order”) in which it took notice of the EV TOU Tariff Sheet submitted by LUMA; released LUMA from submitting further Billing Integration Reports after the Billing Integration Report scheduled for May 8, 2024; and directed LUMA to: clarify item number four (4) of its Terms and Conditions to provide for tiered pricing based on total consumption (as indicated in the Revised Draft EV Rate Design Proposal); accordingly, refile the Model Bill in the Model Bill Docket to reflect that under the Interim EV TOU Rate consumption charges apply to the entire consumption of the customer; and submit specified information to the Energy Bureau on the potential impacts of the Interim EV TOU Rate on net energy metering (“NEM”) customers.

27. On May 24, 2024, LUMA submitted a revised version of its first PR-EVAP FY24 Semi-Annual Report (“FY24 First Semi-Annual Report”) in compliance with the April 23<sup>rd</sup> Order.

*See Motion to Submit a Revised Semi-Annual Report in Compliance with Order of April 23, 2024, filed on May 24, 2024.*<sup>2</sup>

28. On June 3, 2024, LUMA submitted a revised EV TOU Tariff Sheet with revised language in item four (4) of the Terms and Conditions to provide for tiered pricing based on total consumption and the responses to the requests for information in the May 22<sup>nd</sup> Order, as well as informed on the submittal of a revised Model Bill to address the issues raised by the Energy Bureau on the treatment of Consumption Charges<sup>3</sup>. *See Motion to Submit Revised EV TOU Tariff Sheet and Responses to Requests for Information in Compliance with Order of May 22, 2024, and Inform on Compliance with Requirement to Submit Revised Model Bill, filed on June 3, 2024.*

29. On July 15, 2024, LUMA re-submitted a revised Spanish version EV TOU Rate Tariff Sheet to correct an inconsistency identified by LUMA in the language of a footnote between the English and Spanish versions. *See Motion Re-Submitting the Spanish EV TOU Rate Tariff Sheet, filed on July 15, 2024.*

30. On July 26, 2024, LUMA filed with the Energy Bureau a *Notice of Barriers to Implementation of Interim EV-TOU Pilot Program Rate for NEM Customers* in which it informed that due to a billing configuration limitation the Interim EV TOU Rate is currently unavailable to a segment of General Residential Service (GRS) in the NEM program, and of its proposed action to plan to notify these participants.

31. On August 2, 2024, filed *Supplementary Filing Regarding Barriers to Implementation of Interim EV-TOU Pilot Program Rate for NEM Customers and Request for*

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<sup>2</sup> LUMA subsequently filed another version of the report to incorporate typographical and format corrections, the need for which was noticed after the report was filed. *See Motion to Submit Corrected Exhibit 1 to Motion to Submit a Revised Semi-Annual Report in Compliance with Order of April 23, 2024, filed on May 24, 2024.*

<sup>3</sup> This was done via *Request for Approval of Revision to Model Bill to Clarify Electric Vehicle Time of Use Charges, as Ordered by the Energy Bureau, filed on June 3, 2023, in the Model Bill Docket.*

*Approval of Short-Term Proposals* informing of LUMA’s proposals to address the barriers described in the July 26<sup>th</sup> Motion and requesting approval of the short-term proposals.

### **III. Submittal of Semi-Annual Report**

32. LUMA hereby submits LUMA’s FY24 Second Semi-Annual Report in compliance with the requirements relating to semi-annual reporting in the January 13<sup>th</sup> Order, the June 6<sup>th</sup> Order, the February 12<sup>th</sup> Order and the April 23<sup>rd</sup> Order. *See Exhibit 1* (“FY24 Second Semi-Annual Report”). This FY24 Second Semi-Annual Report covers the period from January 2024 to June 2024 and the requirements in the template established by the Energy Bureau in the April 23<sup>rd</sup> Order for these reports (“Reporting Template”). LUMA has expanded on the requirements of the Reporting Template by including subsection 7.1 under the required Section 7 (PR-EVAP Budget and Expenditure Tables) to include a discussion on any variances in reported expenditures reported between the FY24 First Semi-Annual Report and the FY24 Second Semi-Annual Report and variances between expenditures and total budgets. In addition, LUMA added Section 8 to summarize overall reached milestones and next steps, including the priorities for FY25, which also includes discussion on subjects not expressly addressed by the reporting template, such as federal funding opportunities, fleet electrification outreach and strategy, program measurement and verification efforts, and provisions for public transportation sector and disadvantaged communities.

**WHEREFORE**, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned and **accept Exhibit 1** in compliance with the requirements relating to semi-annual reporting under the January 13<sup>th</sup> Order, June 6<sup>th</sup> Order, February 12<sup>th</sup> Order, and April 23<sup>rd</sup> Order.

**RESPECTFULLY SUBMITTED**

In San Juan, Puerto Rico, this 30<sup>th</sup> day of August 2024.

We hereby certify that we filed this motion using the electronic filing system of this Energy Bureau and that we will send an electronic courtesy copy of this motion to the attorneys for PREPA, Mirelis Valle Cancel, [mvalle@gmlex.net](mailto:mvalle@gmlex.net) and Alexis Rivera, [arivera@gmlex.net](mailto:arivera@gmlex.net), and to the Independent Office of Consumer Protection by submittal to Hannia Rivera, [hrivera@jrsp.pr.gov](mailto:hrivera@jrsp.pr.gov). LUMA understands that other participants or stakeholders in this proceeding will be notified as a result of the publicity of the filings in this process. Notwithstanding, LUMA will send a courtesy copy of the filing to the following stakeholders: [agalloza@aggpr.com](mailto:agalloza@aggpr.com); [alberto.cortes@warrendelcaribe.com](mailto:alberto.cortes@warrendelcaribe.com); [aldo@skootel.com](mailto:aldo@skootel.com); [angel.d.rodriguez@outlook.com](mailto:angel.d.rodriguez@outlook.com); [antonio@velocicharge.com](mailto:antonio@velocicharge.com); [apietrantoni@pmaalaw.com](mailto:apietrantoni@pmaalaw.com); [azayas@azeng.net](mailto:azayas@azeng.net); [bigwheelcorp@gmail.com](mailto:bigwheelcorp@gmail.com); [blazquezmalu@gmail.com](mailto:blazquezmalu@gmail.com); [brightsunpr@gmail.com](mailto:brightsunpr@gmail.com); [carlosxcdeno@gmail.com](mailto:carlosxcdeno@gmail.com); [clrivera@caguasexpressway.com](mailto:clrivera@caguasexpressway.com); [flota@caguasexpressway.com](mailto:flota@caguasexpressway.com); [cnegrette@solrenew.com](mailto:cnegrette@solrenew.com); [CR.Tejera@ddec.pr.gov](mailto:CR.Tejera@ddec.pr.gov); [dacosta@aggpr.com](mailto:dacosta@aggpr.com); 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**Exhibit 1**

FY24 Second Semi-Annual Report



# Puerto Rico's Electric Vehicle Adoption Plan (PR-EVAP)

Semi-Annual Report: January to June  
2024

NEPR-MI-2021-0013

AUGUST 30, 2024

# PR-EVAP Semi-Annual Report

## Transmittal Letter

LUMA is fully committed to building a cleaner energy future for all Puerto Ricans and embraces its role as a trusted advisor on Puerto Rico's Electric Vehicle Adoption Plan (PR-EVAP), as filed with the Puerto Rico Energy Bureau on May 1, 2023<sup>1</sup>, to help ensure all customers and industry stakeholders have effective and equitable access to Electric Vehicles (EVs) in the future. This semi-annual report provides updates on LUMA's EV programs and actions, including customer education and engagement, planning for grid infrastructure and system improvements, support for EV charging infrastructure, workforce development, and the development of the EV Time-of-Use (TOU) rate. Included in this report are key progress updates, ensuring transparency and accountability of LUMA's efforts to build a more sustainable, renewable and resilient energy system for the benefit of our 1.5 million customers.

Throughout this reporting period, LUMA has made significant efforts to educate and share useful information about EVs and the new Interim EV Time of Use Pilot Program (Interim EV-TOU Pilot Program) with stakeholders, including leaders of low-income communities, to ensure fair and equitable access to EV information and implementation efforts. Although there is more work to be done, the transition towards clean energy in Puerto Rico is underway and LUMA remains committed to working with all stakeholders to achieve renewable energy and EV goals. The successful adoption of EVs is critically dependent on other stakeholders taking coordinated action under effective public policies implemented by the Government of Puerto Rico. In the near-term, LUMA will continue to follow and support the PR-EVAP, which requires education and research necessary to understand customer behavior and preferences to determine which programs best serve customers' needs in the electric vehicle transition.

### REGULATORY BACKGROUND

The PR-EVAP development began on November 18, 2021, with a Resolution and Order issued by the Energy Bureau. Following this, on January 13, 2023 (January 13th Resolution and Order), the Energy Bureau made several determinations regarding the draft electric vehicle plan submitted by LUMA on September 1, 2022, and a Revised Draft EV Rate Design Proposal submitted on July 21, 2022, and imposing requirements relating to the implementation of the draft electric vehicle plan, the launch and implementation of an Interim EV-TOU Pilot Program. This order also mandated the submission of semi-annual reports to detail specified indicators and provide updates on progress and initiatives undertaken.

Following this, LUMA navigated a series of milestones, including the submission on February 17, 2023, of a Project Schedule addressing the tasks to fulfill the requirements relating to draft electric vehicle plan and the development and launch of the Interim EV-TOU Pilot Program and seeking modifications to certain deadlines, which Project Schedule and was subsequently approved by the Energy Bureau on March 29, 2023 (March 29th Order); the submittal by LUMA of a revised draft electric vehicle plan on May 1, 2023 in accordance with Energy Bureau directives (titled at that point PR-EVAP) (which the Energy Bureau directed LUMA to implement by Resolution and Order of August 11, 2023); and the launching of Interim EV-TOU Pilot Program, to incentivize customer EV charging behavior beneficial to the electric grid, on April 30, 2024.

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<sup>1</sup> In the Energy Bureau's docket No. NEPR-MI-2021-0013, In Re: Electric Vehicle Charging Infrastructure Deployment. Unless otherwise noted, all other submittals to the Energy Bureau described in this document are to this docket.

## PR-EVAP Semi-Annual Report

Following the successful approval of the Project Schedule by the Energy Bureau, LUMA embarked on a series of strategic initiatives aimed at advancing Puerto Rico's Electric Vehicle Adoption Plan (PR-EVAP) and fostering a cleaner energy future. These endeavors culminated in the development of LUMA's Semi-Annual Report, a document designed to provide the Energy Bureau with insight into the progress and initiatives undertaken by LUMA. This Semi-Annual Report complies with the requirements of the Energy Bureau in the January 13th Resolution and Order, as well as the requirements in Resolutions and Orders the Energy Bureau of June 13, 2023, February 12, 2024, and April 23, 2024, the latter of which set forth a template to be used for this report.

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## 1. Action 1: Customer Education

### 1.1. Summary and overview of progress during the reporting period

LUMA invested in developing and improving educational resources across multiple communication channels, with a focus on expanding customer content on the LUMA Electric Vehicles website. This expansion includes comprehensive information on the recently launched Interim EV-TOU Pilot Program and a new page dedicated to the benefits of fleet electrification<sup>2</sup>.

Additionally, members of the Electric Vehicle program team participated in industry events, such as those hosted by the Peak Load Management Alliance and engaged in virtual interviews to inform customers and the public about the Interim EV-TOU Pilot Program and other EV-related initiatives. Over 500 emails were sent to customers, providing detailed information, important provisions regarding the Interim EV-TOU Pilot Program, and responding to specific inquiries. Appendix A includes images of the website and email communications.

### 1.2. Number of monthly visits to LUMA's EV landing webpage

There was a significant increase in unique monthly visits to LUMA's EV landing webpage since it was created in October 2023, with approximately 2,128 visits from January 1, 2024, and June 30, 2024.

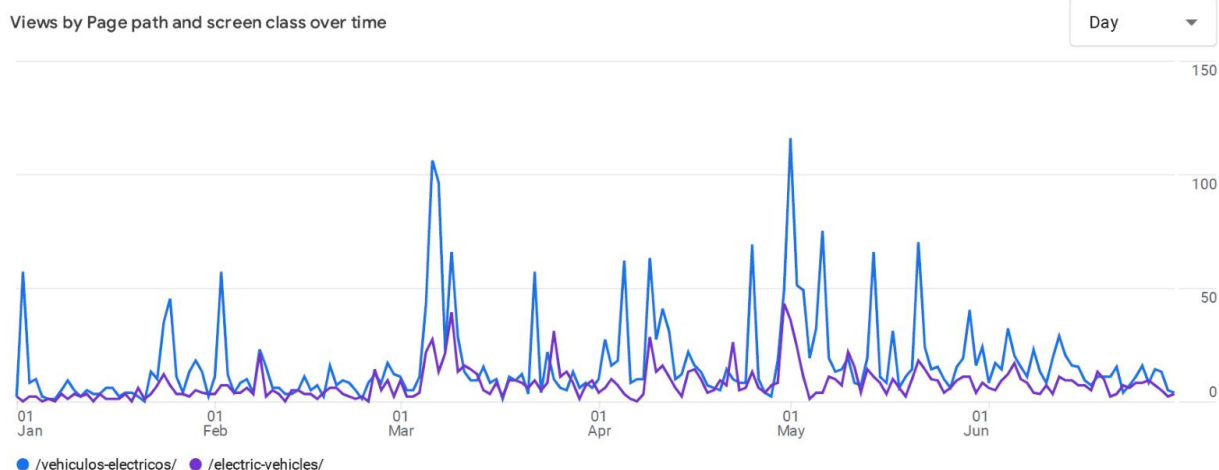
**Table 2: Unique visits to LUMA's EV Landing webpage**

MONTH	SPANISH VERSION	ENGLISH VERSION	TOTAL
Jan-24	118	51	169
Feb-24	72	67	139
Mar-24	255	249	504
Apr-24	223	195	418
May-24	344	227	571
Jun-24	178	149	327
<b>Total for the period</b>	<b>1,190</b>	<b>938</b>	<b>2,128</b>

The pre-launch activities and the official launch of the Interim EV-TOU Pilot Program are likely contributing factors to the increased website traffic observed between March and May, as illustrated in Figure 1.

<sup>2</sup> This new page can be found at <https://lumapr.com/electric-vehicles/?lang=en>.

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**Figure 1: Unique page views between January 1, 2024, and June 30, 2024. Source: Google Analytics**

## 1.3. Number of direct mailings containing EV customer education resources sent to customers

LUMA understands that direct mailing requires targeted and effective evaluation, which varies based on the content and target audience. Given the nature of LUMA's current programs, direct mailing is not deemed a strategic activity at this point. However, LUMA remains open to utilizing this communication channel when the timing and resources are deemed appropriate.

## 1.4. Number of bill inserts containing EV customer education resources sent to customers

No bill inserts have been sent yet. However, LUMA has included this initiative in its strategic plans, with a focus on specific customer groups, primarily commercial and municipal customers with fleets. The development of these materials will depend on identifying the targeted customer groups and ensuring identifying the resources needed to manage the anticipated volume of inquiries generated by this initiative. The effectiveness of bill inserts is being evaluated, as there is a concern that the intended message may not always reach the appropriate personnel within organizations.

Additionally, bill inserts are being considered for residential customers, including those in single-family or multifamily dwellings. The timing for developing these materials and content is being carefully aligned with the objectives of current programs and other ongoing initiatives to ensure their relevance and effectiveness.

## 1.5. Number of emails containing EV customer education resources sent to customers

Between January 1 and June 30, 2024, LUMA sent 559 emails to customers from the EV program's email account, providing educational information and important updates. These emails included both general communications and responses to customer inquiries. Tables 3 and 4 provide details about the nature of these emails. Appendix A includes samples of the educational emails sent to customers.

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**Table 3: Count Of Total Emails Sent from LUMA EV Email<sup>3</sup> to Customers**

EMAIL SUBJECT	TOTAL EMAILS
Información sobre el Programa Piloto de Tarifa por Tiempo de Uso para Vehículos Eléctricos (EV-TOU) de LUMA	183
Información sobre su factura – Programa piloto de Tiempo de Uso para Vehículos Eléctricos (EV-TOU)	81
Confirmación de inscripción en el Programa Piloto de Tarifa de TOU de LUMA EV	62
Actualización sobre el Programa Piloto EV-TOU para clientes de Medición de Energía Neta	59
Información Importante para clientes de Medición Neta de LUMA sobre el Programa Piloto de Tarifa por Tiempo de Uso para Vehículos Eléctricos (EV-TOU).	35
Aviso de salida del Programa Piloto de Tarifa de TOU de LUMA EV	7
Información necesaria para la inscripción en el Programa Piloto de Tarifa de TOU de LUMA EV	7
Actualización sobre el estado de la solicitud del Programa Piloto de Tarifa de TOU de LUMA EV	7
Requisitos para Instalación de Cargadores para Vehículos Eléctricos	1
Other informative emails to customers	16
<b>Grand Total</b>	<b>458</b>

<sup>3</sup> LUMA EV email address: EV@lumapr.com

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**Table 4: Count of responses to customer inquiries sent from LUMA EV email to customers**

EMAIL SUBJECT	UNIQUE EMAILS
RE: Información Importante para clientes de Medición Neta de LUMA sobre el Programa Piloto de Tarifa por Tiempo de Uso para Vehículos Eléctricos (EV-TOU)	29
RE: Información sobre el Programa Piloto de Tarifa por Tiempo de Uso para Vehículos Eléctricos (EV-TOU) de LUMA	12
RE: Información Importante para clientes de Medición Neta de LUMA sobre el Programa Piloto de Tarifa por Tiempo de Uso para Vehículos Eléctricos (EV-TOU).	10
RE: Confirmación de inscripción en el Programa Piloto de Tarifa de TOU de LUMA EV	6
RE: Información sobre su factura – Programa piloto de Tiempo de Uso para Vehículos Eléctricos (EV-TOU)	3
Other responses to EV-TOU inquiries from customers	27
Responses to the evPulse Customer Support team regarding EV-TOU customer technical questions	14
<b>Grand Total</b>	<b>101</b>

## 1.6. Number of face-to-face meetings up to the reporting period

During the current reporting period, LUMA participated in three (3) distinct educational events, one (1) being face-to-face and two (2) online.

Table 5 contains a summary of the events and additional details of each meeting can be found in Appendix B.

## PR-EVAP Semi-Annual Report

**Table 5: Face to Face meetings**

SPONSORING ENTITY	EVENT	EVENT DESCRIPTION	MONTH
Grupo Unido de Importadores de Automóviles (GUIA)	GUIA Educa	Event with automotive industry representatives to discuss the ongoing efforts towards vehicle electrification in Puerto Rico.  Presentation Title: “La electrificación de la industria automotriz, sus retos y oportunidades”.  Speaker: Juan C. Patiño Peralta	March 2024
Dr Power PR (YouTube Channel)	Martes Informativo	Weekly webcast with over 3,300 subscribers focused on the electric industry and regulations in Puerto Rico.  Participation in the webcast “Martes Informativo” to discuss the EV Programs initiatives, especially the Interim EV-TOU Pilot Program.  Speaker: Juan C. Patiño Peralta	April & June 2024

### 1.7. Total spending on customer education in dollars (\$) and percent (%) of total budget

LUMA spent \$31,648.63 on customer education initiatives during this reporting period. This represents 15.8% of the Customer Education and Outreach Initiative’s budget for FY2024.

**Table 6: Total expenditures in Customer Education**

INITIATIVE	FY2024 INITIATIVE BUDGET	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF BUDGET)
Customer Education and Outreach	\$200,000	\$31,648.63	15.8%

# PR-EVAP Semi-Annual Report

## 2. Action 2: Customer Engagement

LUMA is pleased to provide an overview of its activities during the reporting period, which encompasses various facets of its engagement efforts. This Semi-Annual report includes a summary of LUMA's progress during the period, along with a detailed list of stakeholder meetings, workshops, and events in which LUMA actively participated. These engagements not only involved interactions with stakeholders but also provided platforms to discuss pertinent subjects relevant to LUMA's customer base.

Furthermore, this report includes the number of customer engagement events held, representing both underserved and non-underserved communities. Each event is accompanied by a description of the topics covered, the date of the event, and the estimated attendance figures.

### 2.1. Summary and overview of progress during the reporting period

LUMA has implemented numerous customer outreach activities and materials to facilitate understanding of EV technology and its existing programs, incentivize EV adoption in Puerto Rico, and provide valuable insights from industry leaders and customers. A list of specific activities is presented below:

- **EV-TOU Customer Outreach and Enrollment Plan:** LUMA has developed and implemented a comprehensive customer outreach strategy to ensure proper dissemination of information about the recent launch of the Interim EV-TOU Pilot Program and enrollment rules. This report includes the overall customer outreach approach and timeline, the list of activities and communication channels, potential barriers, customer support strategy, estimated adoption rates, and customer information package content.
- **EV-TOU Customer Information Package:** LUMA created tailored content for the webpage and emails (see Appendices A-A1, A2, and B-B1) to ensure that customers had opportunities to learn about the Interim EV-TOU Pilot Program rules and eligibility. All this information is available on LUMA's webpage in English and Spanish. The content utilized visual graphics and plain language strategies to enhance accessibility and understanding for the public.
- **Email Outreach:** LUMA has directly contacted customers to inform them about the Interim EV-TOU Pilot Program, with the goal of encouraging target customers to enroll in the Pilot Program. Additionally, LUMA is exploring strategies to boost participation in the Interim EV-TOU Pilot Program and is developing educational content to expand outreach through both email and bill inserts.
- **EV Programs Customer Support Strategy:**
  - **Email:** LUMA maintains a dedicated email address for customer support, where customers can submit general inquiries. A team within the EV Program is assigned to monitor and respond to emails in both English and Spanish.
  - **Call Center:** LUMA has trained call center personnel to handle and refer customer inquiries related to EVs, offering support in both Spanish and English.
  - **External Customer Support:** LUMA coordinates with the EV-TOU Platform provider to offer technical support to customers enrolling in the Interim EV-TOU Pilot Program, available in both English and Spanish.

## PR-EVAP Semi-Annual Report

- **Participation in Events and Community Engagement:** LUMA has engaged in events targeting both large and specific audiences to inform the public about existing programs, particularly the Interim EV-TOU Pilot Program. Details of these events are listed in Table 7.
- **Industry and Stakeholder Engagement Activities and Collaborative Partnerships:** LUMA continues to leverage strategic partnerships to raise awareness of the program, collaborating with industry leaders, transportation-related entities, government agencies, and other utility companies of similar size. A list of stakeholders is provided in Table 7.
- **Surveys and Customer Feedback:** LUMA has developed two (2) surveys and receives information from one (1) external partner's survey to gather information and trends on transportation electrification from the public and gauge commercial and public sector interest and readiness to electrify their fleets. More detailed information is available in Appendix B.

Additionally, LUMA reviewed its customer engagement strategy to understand better and accommodate the needs of underserved communities and the public transportation sector. This reprioritization effort aims to gather additional information and develop appropriate resources so that LUMA can promote and conduct better customer engagement activities tailored to these groups of customers. The main activities include:

- **Educational resources:** LUMA developed educational materials and surveys factoring in underserved communities and public transportation sectors to properly engage with these groups of customers in the upcoming reporting cycles.
- **Public Transportation Outreach Strategy:** LUMA created a list of public transportation companies (Appendix B-B6) in Puerto Rico that will be invited to participate in a forthcoming Public Transportation Electrification working group.
- **EV income survey results:** LUMA analyzed the results of previously conducted surveys (Appendix E and Appendix F), which revealed the need to redirect the focus from individual transportation electrification (which is less accessible to low-income customers) to public transportation electrification and energy equity initiatives, which aim to expand the portfolio of actions that are more accessible and inclusive. As a result, LUMA plans to promote more targeted customer engagement events within FY2025, with more supporting information to conduct more effective encounters and long-term relationships with representatives of underserved communities, leading to the development of suitable programs to attend this group. Also, partnerships with local universities are being considered to increase LUMA's communities' reach.

## PR-EVAP Semi-Annual Report

### 2.2. List of stakeholder meetings, workshops, and events in which LUMA participated (Should also include a description of the subjects covered at each customer event, the date of the event, the number of customers in attendance)

Table 7: LUMA's participation in Stakeholder events

CUSTOMER ENGAGEMENTS	UNDERSERVED COMMUNITIES REPRESENTED	EVENT (S) DATE(S)	ESTIMATED ATTENDANCE/ SURVEY RESPONDENTS	SUBJECTS COVERED AT EACH EVENT
Participation and presentation at the GUIA Educa event in Carolina, PR	No	March 5, 2024	350	<i>The electrification of the automotive industry, its challenges and opportunities.</i>
Interview at the DrPowerPR Webcast (YouTube channel) hosted by Eng. Angel Zayas	Yes	April 2, 2024	557	<i>Episodio 227: The New TOU Tariff, a pilot plan for EV Charging in Puerto Rico.</i>
Interview at the DrPower Webcast (YouTube channel) hosted by Eng. Angel Zayas	Yes	June 11, 2024	367	<i>Episodio 237: Update de la Nueva Tarifa EV-TOU para Cargar EV's.</i>
Meetings with Puerto Rico's Department of Economic Development and Commerce (DEDC)	Yes	Bi-weekly	8	<i>EV Market Study planning and implementation.</i>
Hawaiian Electric (HECO) – LUMA quarterly meetings	Yes	Quarterly	8	<i>Discuss common challenges and programs for information exchange between energy utilities located in islands, including underserved communities.</i>
Chartwell EV Leadership Council	No	Quarterly	12	<i>A prominent group of dynamic utility industry experts from across North America convene to share best practices, address key challenges, and</i>

# PR-EVAP Semi-Annual Report

CUSTOMER ENGAGEMENTS	UNDERSERVED COMMUNITIES REPRESENTED	EVENT (S) DATE(S)	ESTIMATED ATTENDANCE/ SURVEY RESPONDENTS	SUBJECTS COVERED AT EACH EVENT
				<i>collectively shape the future of transportation electrification for customers and communities served by the electric utility sector.</i>
JD Power Survey	Yes	From January 1, 2024, to June 30, 2024	967	<i>Identifying low-income customers' perspectives and demographics.  Understanding adoption barriers and market characteristics in Puerto Rico.</i>
Participation and presentation at the 49 <sup>th</sup> Peak Load Management Alliance (PLMA) Conference in Portland, Oregon	No	May 6-8, 2024	500	<i>Event with industry leaders from North America discussing the latest advancements and solutions for load management, including transportation electrification initiatives.  Presentation Title: "Supporting Grid Resilience in Puerto Rico: LUMA Energy's Interim EV-TOU Pilot Program", Speaker: Larissa Paredes Muse</i>
LUMA Survey on the Electrification of Transportation in Puerto Rico	Yes	From January 1, 2024, to June 30, 2024	108	<i>Tracks information about income, other demographic factors, vehicle ownership, and public transportation usage.</i>
Hawaii NEVI Peer Exchange	No	From June 25 to June 27	25	<i>Exchange of briefings from Hawaii and Puerto Rico outlining approaches to AFC designations, NEVI plan, including station locations, and broader transportation electrification plans.</i>
Participation and presentation at the	No	March 5, 2024	350	<i>The electrification of the automotive industry, its challenges and opportunities.</i>

# PR-EVAP Semi-Annual Report

CUSTOMER ENGAGEMENTS	UNDERSERVED COMMUNITIES REPRESENTED	EVENT (S) DATE(S)	ESTIMATED ATTENDANCE/ SURVEY RESPONDENT S	SUBJECTS COVERED AT EACH EVENT
GUIA Educa event in Carolina, PR				



Figure 2: LUMA's participation in Stakeholders' events

More information about the events is available in Appendix B.

### 2.3. Number of customer engagement events held representing underserved communities (Should also include a description of the subjects covered at each customer event, the date of the event, the number of customers in attendance)

During this reporting period, LUMA actively engaged with the community through a variety of initiatives aimed at increasing awareness and understanding of electric vehicle (EV) adoption in Puerto Rico. LUMA participated in two (2) online events known as “Martes Informativo”, which reached a total audience of 924 viewers. Although these events are not specifically designed for underserved communities, they provide the information and educational tools that will most likely reach some members of low-income communities who own or are planning to purchase or rent an EV and are viewing these webcasts.

In addition to community engagement efforts, LUMA gained valuable insights through survey data. The JD Power Survey, conducted on a quarterly basis, garnered 967 responses and focused on understanding the relationship between EV adoption and income levels. In addition, LUMA gained valuable insights from the Electrification of Transportation in Puerto Rico Survey, which received 173 responses and collected data on various demographic factors, including income, vehicle ownership, and public transportation usage.

LUMA also engaged in strategic discussions to further understand and address the economic and social challenges of EV adoption in Puerto Rico. Biweekly meetings with representatives from the DEDC have

# PR-EVAP Semi-Annual Report

been taking place to plan the EV Market Study, which will explore the economic factors influencing EV adoption on the island.

Furthermore, LUMA held two (2) meetings with HECO to discuss common challenges related to EV adoption in island communities, particularly the barriers faced by underserved populations.

For more detailed information on these events and the results of both surveys, please refer to Appendix B.

## 2.4. Number of customer events held for non-underserved communities (Should also include a description of the subjects covered at each customer event, the date of the event, the number of customers in attendance)

During this reporting period, LUMA took an active role in educating customers and engaging with industry leaders on important topics related to transportation electrification. LUMA participated in four (4) events focused on educating customers about the Pilot Program and the Interim EV-TOU Pilot Program. These events were designed to help customers understand the benefits and potential savings associated with the EV-TOU Rate, as well as to provide insights into the ongoing Pilot Program.

In addition to customer education, LUMA also engaged with industry peers at a conference that brought together leaders from across North America to discuss the latest advancements in load management and transportation electrification initiatives. This conference provided an opportunity for LUMA to learn from industry experts and to share its own experiences in implementing EV-related programs.

Furthermore, LUMA participated in two (2) meetings of the Chartwell EV Leadership Council, which includes representatives from twelve (12) utilities across North America. These meetings focused on sharing best practices, discussing common challenges, and exploring innovative solutions to advance EV adoption and infrastructure development.

## 2.5. Total spending on customer engagement in dollars (\$) and percent (%) of total PR-EVAP Plan budget

LUMA spent \$11,508.59 on customer engagement initiatives during this reporting period which represents 5.8% of the total FY2024 budget.

Table 8: Customer Engagement Spending

INITIATIVE	FY2024 INITIATIVE BUDGET*	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF BUDGET)
Customer Education and Outreach	\$200,000	\$11,508.59	5.8%

## PR-EVAP Semi-Annual Report

### 3.Action 3: Planning for Grid Infrastructure and System Improvement

#### 3.1. Summary and overview of progress during the reporting period

LUMA started to develop internal and external engagement activities targeted at planning for grid infrastructure and system improvement. The main activities include:

- **EV market and adoption studies coordination:** Bi-weekly meetings with DEDC to plan and complete an EV Market Study to gather information on EV penetration and charging infrastructure in Puerto Rico.
- **DOE Funding opportunities application:** LUMA has applied as subrecipient for two (2) US DOE funding opportunities focused on electric vehicle infrastructure and grid resilience and reliability technologies and solutions. In accordance with DOE regulations, details of the funding opportunities cannot be disclosed.
- **Distribution Planning-EV Programs Working Group:** The LUMA EV team conducted meetings with LUMA Distribution Planning and Distribution Standards representatives to exchange information about EV adoption and customer behavior data from the Interim EV-TOU Pilot Program. The objective of these meetings is to keep these groups informed and aligned to develop a work plan for planning grid infrastructure based on the potential future EV impact.
- **Supporting EV adoption and consumption information:** LUMA has been engaged with internal and external partners to collect and exchange information on EV adoption and EV charging consumption behavior. LUMA uses information provided by the Department of Transportation of Puerto Rico (DTOP in Spanish) and the EV-TOU platform provider to subsidize grid infrastructure planning and system improvements.
- **Strategic partnerships and activities:** LUMA has been engaging with other utilities of similar size and characteristics and participating in utility industry experts' council to exchange information, learn best practices, and discuss critical challenges of EV growth in North America. For instance, LUMA hosts quarterly meetings with HECO and is a founding member of the Chartwell EV Leadership Council<sup>1</sup>.

As outlined in the PR-EVAP, Section 3.10 EV Infrastructure & System Improvement Initiatives in the US, LUMA stated that it analyzed over forty (40) EV Infrastructure & System Improvement initiatives from twenty-four (24) different utilities to determine the essential actions to support key stakeholders on charging infrastructure deployment. From the initiatives reviewed, thirteen (13) of them provided EV Hosting Capacity Maps to customers requiring an accurate system model to analyze available feeder capacity. As informed in the PR-EVAP, performing emerging studies, like EV hosting capacity, would be premature as the system reconstruction is currently being planned and engineered. As a result, in the PR-EVAP submitted on May 1, 2023 (which the Energy Bureau required LUMA to implement by Resolution and Order of August 11, 2023) the EV Hosting Capacity Map was removed from LUMA's EV Infrastructure & System Improvement initiatives. See PR-EVAP, Section 4.3.1.

## PR-EVAP Semi-Annual Report

However, LUMA has published maps that communicate the hosting capacity for distributed energy resources<sup>4</sup>. LUMA will continue to be transparent and communicate with the Energy Bureau and its customers the initiatives that are part of its infrastructure and system improvement initiatives through forthcoming Semi-Annual Reports.

### 3.2. Number of monthly, unique visits to the EV Hosting Capacity Map

As mentioned in Section 3.1, an EV Hosting Capacity Map is not part of the EV Infrastructure & System Improvement Initiatives of the PR-EVAP.

### 3.3. Total spending on EV Hosting Capacity Map in dollars (\$) and percent (%) of total PR-EVAP budget

As mentioned in Section 3.1, an EV Hosting Capacity Map is not part of the EV Infrastructure & System Improvement Initiatives of the PR-EVAP. Therefore, no spending has been incurred for this initiative.

**Table 9: EV Hosting Capacity Map spending**

INITIATIVE	FY2024 BUDGET*	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF BUDGET)
EV Infrastructure & System Improvement	\$250,000	\$0.00	0%

### 3.4. List of stakeholders LUMA partnered with and the outcome of that partnership

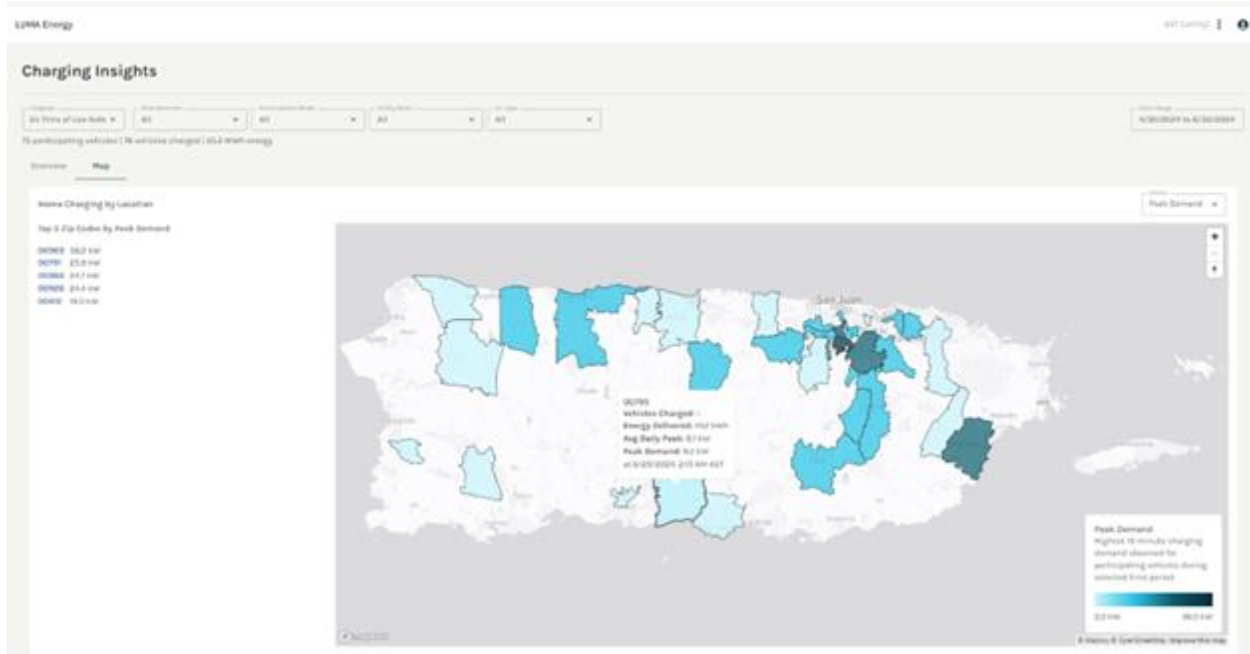
LUMA has partnered with key stakeholders to discuss Grid Infrastructure and System Improvements initiatives. Some key partnerships that continued and took place during the reporting period include:

- The partnership with DEDC to develop studies about the EV market in Puerto Rico and infrastructure buildout.
- The collaboration with DTOP to receive information about the number and location of electric and hybrid vehicle registrations on the island.
- The partnership with HECO is through quarterly meetings to discuss common challenges both utilities face in developing programs and adapting the grid to accommodate the increasing EV loads.

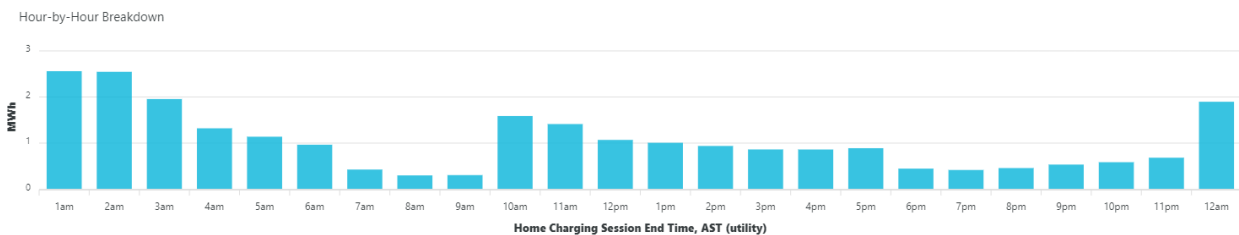
<sup>4</sup> This refers to the Interconnection Capacity Map published by LUMA as of September 30, 2021, that is available for use by developers on LUMA's website. See *Motion to Submit Updated Implementation Plan in Compliance with Resolution and Order of April 11, 2024*, filed on May 1, 2024, in Case No. NEPR-MI-2019-0011, *In Re: Process for Adoption of Regulation for Distribution Resource Planning*, on page 2.

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- Participation in the Chartwell EV Leadership Council, a group of leading utility company leaders in North America who convene quarterly to share best practices, address critical challenges, and collectively shape the future of transportation electrification for customers and communities served by the electric utility sector.
- Collaboration with the provider of the EV-TOU platform enables LUMA to access comprehensive insights into the Interim EV-TOU Pilot Program through the platform's Reports and Analytics Dashboard. Through this partnership, LUMA gathers detailed customer EV charging data, which is compiled into in-depth reports. The dashboard currently aggregates near real-time data into maps that display peak demand, energy delivered, average daily peak, and vehicle charges, organized by Zip Code. This information will be shared with LUMA's Distribution and Substation Area Planning teams to inform investment decisions.



**Figure 3: Interim EV-TOU Pilot Program Charging Insights (Home Charging by Location - Peak Demand)**



**Figure 4: Interim EV-TOU Pilot Program Charging Insights (Aggregated Hourly Charge Distribution)**

LUMA continuously leverages these partnerships to improve current programs and define strategies to support better system planning and grid improvements based on the industry lessons learned.

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## 3.5. All updates to LUMA's detailed EV load projections

LUMA has actively collaborated with DTOP and receives updates on the number of EVs registered on the island. Figures 5 and 6 present the most recent data provided by DTOP on EV penetration in Puerto Rico.

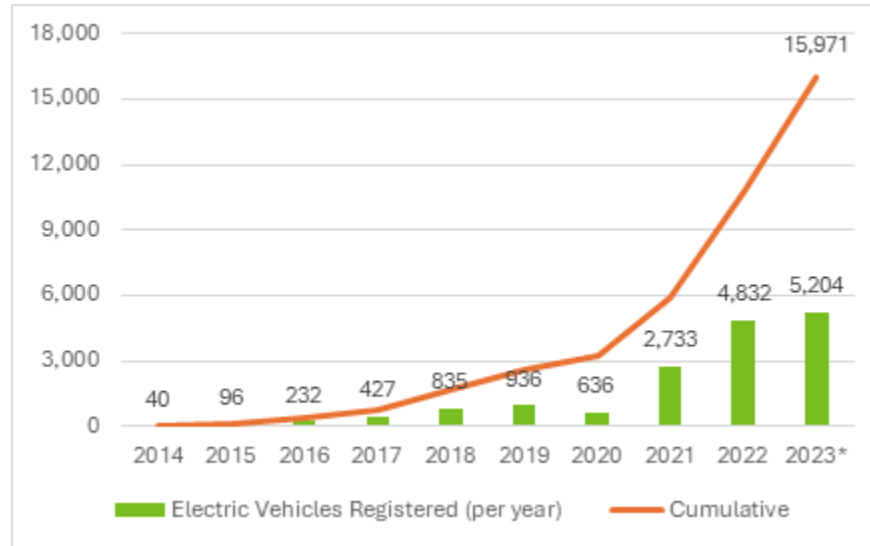


Figure 5: Electric Vehicle Penetration in Puerto Rico through November 2023. (Source: DTOP-PR)

# PR-EVAP Semi-Annual Report

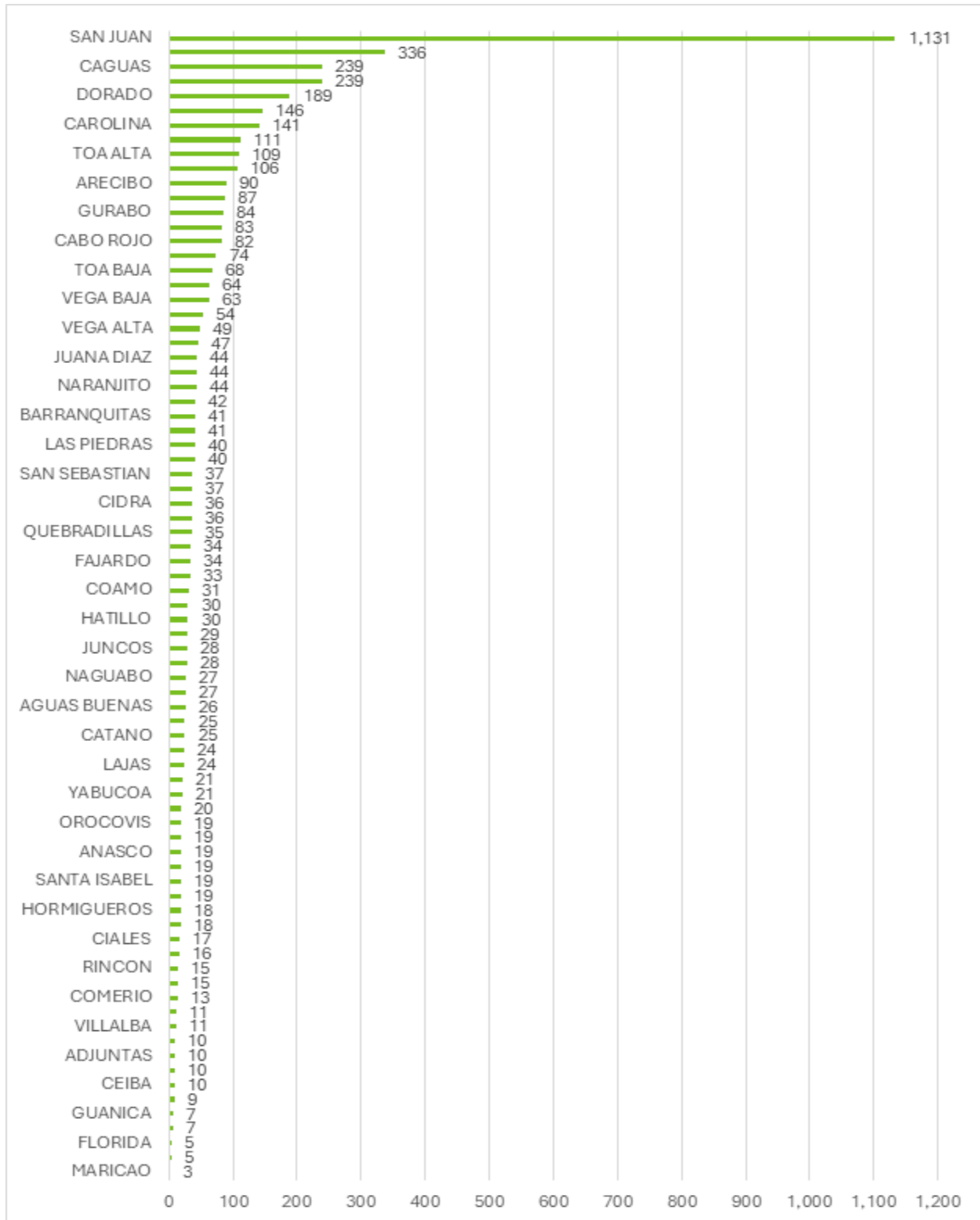


Figure 6: Total Electric Vehicles Registered in Puerto Rico by Municipality as of 2023 (Source: DTOP-PR)

# PR-EVAP Semi-Annual Report

The data provided by DTOP already shows significant annual growth. However, LUMA is working on acquiring more localized up-to-date information.

A recent study by NREL<sup>5</sup> (2023) estimates that by 2030, Puerto Rico will have around 90,000 plug-in electric vehicles (PEVs), which will require over 75,000 private charging ports<sup>6</sup> and the need for other 3,200 public L2 charging ports. In parallel, LUMA has been studying how the EV load is forecasted to impact the grid and has included estimations on the upcoming Integrated Resource Plan (IRP).

Despite several efforts to estimate EV adoption in Puerto Rico, internally and externally, LUMA still needs to better understand the factors influencing EV penetration in the island to refine the projections. Based on this forecast, LUMA will likely update the EV load projections. Additionally, the EV Market study from the DEDC may also consider these projections.

## 3.6. Progress towards the development and publishing of the EV Hosting Capacity Map and estimated date of completion

As mentioned in Section 3.1, EV Hosting Capacity Map is not part of the EV Infrastructure & System Improvement Initiatives of the PR-EVAP at this stage<sup>7</sup>.

## 3.7. List of local transportation partners and third-party data providers with whom LUMA collaborates

Table 10: Local Transportation Partners and Third-party Data Providers

ENTITY	SCOPE OF PARTNERSHIP
DTOP	LUMA receives information on the number of registered electric and hybrid vehicles in Puerto Rico.
JD Power	Collaboration for executing EV customer surveys, identifying low-income customers, and aiming to understand adoption barriers and market characteristics in Puerto Rico.
Sonnell Transportation	LUMA had signed a partnership letter supporting Sonnell Transportation's efforts in the Clean Bus Program, aiming to integrate electric buses and EV charging infrastructure at its facilities. LUMA is actively collaborating with Sonnell Transportation to share best practices and facilitate the

<sup>5</sup> NREL (2023). *The 2030 National Charging Network: Estimating U.S. Light-Duty Demand for Electric Vehicle Charging Infrastructure; A Nationwide Assessment*. <https://www.nrel.gov/docs/fy23osti/85970.pdf>

<sup>6</sup> EVSE port: Provides power to charge only one vehicle at a time, even though it may have multiple connectors. The unit that houses EVSE ports is sometimes called a charging post, which can have one or more EVSE ports.

<sup>7</sup> See *Motion to Submit Final Phase I EV Plan in Compliance with Resolution and Order of January 13, 2023* on page 60 and 74. Also see *Motion to Submit a Revised Semi – Annual Report in Compliance with Order of April 23, 2024*.

# PR-EVAP Semi-Annual Report

installation and deployment of the electric buses and charging stations, ensuring the successful implementation of the program.

Please refer to Section 9 for more information about local transportation partners and third-party data providers.

## PR-EVAP Semi-Annual Report

### 4.Action 4: Support for EV Charging Infrastructure

#### 4.1. Summary and overview of progress during the reporting period

Below is a list of activities conducted by LUMA to support the development of EV charging infrastructure in Puerto Rico.

- Stakeholder Engagement for EV charging infrastructure development:
- DEDC – Bi-weekly meetings to discuss and develop the scope of an EV market study commissioned by the Puerto Rico Energy Policy Program. This study aims to include estimations of EV load and charging infrastructure buildout.
- HECO – Quarterly meetings include discussions on the role of utilities in planning EV charging infrastructure and exchanging information on best practices for stakeholder engagement and customer support.
- LUMA conducted a preliminary study to identify the main concepts and information required to provide customers with the most accurate and current information on EV charging infrastructure. Those sources include:
  - National Renewable Energy Laboratory (NREL)
  - Benchmarking other utilities' EV charging strategies
- A survey on fleet electrification aimed at companies and institutions with commercial or public transportation fleets operating in Puerto Rico. The goal is to understand how these customers are preparing to incorporate electric vehicles (and related infrastructure) into their fleets. Specifically, LUMA aims to:
  - Understand the fleet profile, needs, and scope for each fleet category
  - Assess organizational and workforce readiness for each fleet category and gauge interest in EV adoption, as well as how soon they plan to adopt and install EV charging infrastructure.
  - Identify the main barriers to EV infrastructure installation and scaling.

With the results of these efforts, LUMA is elaborating a robust framework for EV charging infrastructure growth on the island, focusing on customer education resources, supporting customers with Electric Vehicle Supply Equipment (EVSE) installation, developing a comprehensive EV market study on the economic aspects of EV adoption in Puerto Rico, and increasing the frequency of stakeholder engagement and industry involvement. At the same time, LUMA is already directing efforts to coordinate internally and proactively developing strategies to prepare its teams and the grid for increased load from scaling EV charging infrastructure.

## PR-EVAP Semi-Annual Report

### **4.2. The number and percentage of customers, by customer class for whom EVSE installation guidebooks were distributed**

The EVSE installation guidebooks are currently under development.

Developing these materials requires additional research on standards and benchmarking of other utilities to identify the best practices in the industry. As a result, LUMA is starting to develop and refine strategies to ensure that the guidebooks and manuals are based on the most current and accurate information tailored to specific customer needs.

Once the guidebooks are finalized, LUMA will determine the appropriate timing for the distribution of guidebooks based on its assessment of customer needs and readiness and the extent to which doing so best serves the objectives of the EV Program.

### **4.3. The number and percentage of customers, by customer class for whom EV Readiness Checklists were distributed**

Readiness checklists have not yet been developed.

LUMA is analyzing the results of the two ongoing surveys directed at general customers and has launched a specific survey for commercial and public transportation fleets. These surveys will provide insights to develop a checklist with suitable content targeting the specific needs and level of maturity of each customer class.

LUMA will determine the appropriate timing for the distribution of the EV Readiness Checklist based on its assessment of customer needs and readiness and the extent to which doing so best serves the objectives of the EV Program.

### **4.4. The number and percentage of customers, by customer class that received the Interconnection Guidelines and/or Project Connection Manual**

The number and percentage of customers categorized by customer class who received the Interconnection Guidelines and/or Project Connection Manual are currently unavailable for reporting, as these instructional materials have not yet been created or distributed.

The development of these instructional materials requires internal coordination. A working group was created, and meetings were held to address this task.

LUMA will determine the appropriate timing for the distribution of these materials based on its assessment of customer needs and readiness and the extent to which doing so best serves the objectives of the EV Program.

## PR-EVAP Semi-Annual Report

### 4.5. Total spending on guidebooks, checklists, guidelines and/or manuals in dollars (\$) and percentage (%) of total PR-EVAP Plan budget

This reporting period's expenditures on guidebooks, checklists, and/or manuals were \$9,075.85, corresponding to 3.6% of the total budget reserved for EV Infrastructure & System Improvement. LUMA understands that this number is below expected and is committed to developing and implementing different forms of documentation and communication that can effectively support customers through their journey towards the electrification of transportation.

LUMA will use publicly available EVSE installation guidebooks and EV Readiness Checklists as starting points, among other methods. The company will then revise and/or supplement these materials to address the specific needs of customers and the infrastructure of Puerto Rico's electric grid.

LUMA and its collaborating stakeholders may acquire new information throughout the planning process, leading to adjustments of earlier actions and initiatives. As EV technology and awareness evolve, so will the planning and implementation of the EV infrastructure. LUMA is committed to addressing the current and anticipated needs within the EV ecosystem, ensuring that planning is thorough and well-coordinated.

**Table 11: Expenditures on Guidebooks, Checklists, Guidelines and/or Manuals**

INITIATIVE	FY2024 INITIATIVE BUDGET*	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF BUDGET)
EV Infrastructure & System Improvement	\$250,000	\$9,075.85	3.6%

# PR-EVAP Semi-Annual Report

## 5.Action 5: Workforce Development

### 5.1. Summary and overview of progress during reporting period

LUMA has significantly increased workforce development efforts, primarily focusing on enhancing fundamental knowledge of electric vehicles and charging technologies, planning and economic aspects of fleet electrification, and the overlap of EVs and customer-side resources regarding demand response. Additionally, a significant portion of LUMA's workforce development activities has been dedicated to EV-TOU employee education to support customer interactions.

LUMA reinforces its commitment to continue fostering the team's knowledge base to continuously improve its programs and expand the learnings to a broader group of employees. For example, LUMA has created a video that is set to become mandatory training for 860 Customer Experience employees in the next quarter.

### 5.2. A description of each training session offered to employees, including related instructional materials

Table 12: Workforce Development Training

COURSE	HOST ENTITIES	DESCRIPTION/CONTENT
Electric Vehicle (EV) Champion Training Series	National Renewable Energy Lab (NREL) and Federal Energy Management Program (FEMP)	<p>A four-part training focusing on EV technology, financial considerations, EVSE power and installation, EV site assessments, and EV advanced site operations.</p> <ul style="list-style-type: none"> <li> <b>Training 1:</b> Focuses on the importance of EV technology and financial considerations for agencies considering fleet electrification. It introduces EV technology and considerations for electric vehicle supply equipment (EVSE) installation.         </li> <li> <b>Training 2:</b> Focuses on the importance of EVSE power requirements and electric utility infrastructure. It introduces the selection of the best EVs for a fleet and the planning and installing the necessary EVSE.         </li> <li> <b>Training 3:</b> Focuses on the importance of EV technology and EVSE and serves as an introduction to site planning and design of the necessary EVSE.         </li> </ul>

# PR-EVAP Semi-Annual Report

COURSE	HOST ENTITIES	DESCRIPTION/CONTENT
		<ul style="list-style-type: none"> <li><b>Training 4:</b> Focuses on considerations for EV site assessments, optimally operating a fleet of EVs, and managing workplace charging.</li> </ul>
Leveraging Utility Partnerships for Fleet Electrification	Federal Energy Management Program (FEMP)	This training covers the most relevant planning considerations and strategies for federal fleet electrification, including federal energy goals, electric vehicle acquisition, capital investments, and financial support.
EV-TOU Customer Support training session for LUMA Voice of Customers team	LUMA Internal Training	<p>Training sessions were developed for LUMA Voice of Customer employees to provide information about the Interim EV-TOU Pilot Program's rules and responses to potential customer questions. This training was directed to Customer Experience regional center leads (Train the Trainer format) so they can efficiently answer or guide customer questions that might come directly to call center employee desks.</p> <p>Agenda:</p> <ol style="list-style-type: none"> <li>1. What is the EV Time of Use (TOU) Pilot Program?</li> <li>2. Who is eligible?</li> <li>3. Shared Responsibility for Customer Support Excellence</li> <li>4. Customer Support Inquiries Workflow</li> <li>5. Customer Inquiry Tracking</li> </ol>
Development of the Interim EV-TOU Pilot Program training video	LUMA Internal Training	A 5-minute video in Spanish, featuring information about the Interim EV-TOU Pilot Program, has been added to the LUMA employee training portal, MyWorkday. While this training primarily targets the customer support and call center teams, it is also available to the entire company.
evPulse Customer Journey & Enrollment Validation	LUMA Internal Training	<p>Document developed as part of the EV-TOU Customer Support Training</p> <p>Agenda:</p> <ol style="list-style-type: none"> <li>1. evPulse Registration Flow</li> <li>2. Enrollment Validation</li> <li>3. Post Enrollment</li> </ol>

# PR-EVAP Semi-Annual Report

COURSE	HOST ENTITIES	DESCRIPTION/CONTENT
		4. Unenrollment
The Evolution of DR to DER	Peak Load Management Alliance (PLMA)	This one-day interactive course explains how today's demand response initiatives evolve to interact with an emerging future with distributed energy resources for peak load management, including the influence of electric vehicles on demand response programs.
Workshop: The impact of Electric Vehicles and other technologies on Demand Response programs (Part 1)	LUMA Internal Training	This workshop's main focus is to transfer the knowledge of the content learned at the PLMA's Course "The Evolution of DR to DER" to the rest of the EV team.

### 5.3. Number and percent of employees trained

During the reporting period, fourteen (14) employees underwent specialized training initiatives to strengthen their capabilities in understanding EVs, EV charging stations and serving EV customers, representing approximately 1.6% of the target workforce<sup>8</sup>. This number is expected to increase as the Interim EV-TOU Pilot Program training video becomes mandatory to all LUMA customer support and call center employees and available for the entire company next quarter.

LUMA's EV workforce development framework prioritized knowledge transfer and dissemination, continuous improvement, and investments to amplify and deepen its employees' expertise in the topic, all with the goal of achieving customer-centric excellence. Additionally, LUMA found the knowledge transfer workshop format to be successful and well received and intends to replicate this format on a regular basis.

### 5.4. Total spending on training in dollars (\$) and percent (%) of total PR-EVAP Plan budget

LUMA spent \$14,385.74 on workforce development initiatives during this reporting period. This corresponds to 7.2% of the total budget for FY2024.

Table 13: Total spending on training

INITIATIVE	FY2024 INITIATIVE BUDGET	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF INITIATIVE BUDGET)
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<sup>8</sup> The approximate number of employees designed for Customer Experience and Service totals 860.

## PR-EVAP Semi-Annual Report

Customer Education and Outreach	\$200,000	\$14,385.74	7.2%
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### 6.Action 6: EV Rates and Charging

#### 6.1. Summary and overview of progress during reporting period

In preparation for the launch of the Interim EV-TOU Pilot Program, LUMA focused its efforts on the following actions:

- **Soft Launch:** Five (5) test users evaluated the registration platform to verify the end-to-end enrollment process.
- **Billing Integration test:** Twelve (12) Internal and External stakeholders tested all steps involved in incorporating a new tariff into the bill, including printing and ensuring accurate customer billing.
- **Customer Education:** LUMA invested in incorporating information about the Pilot Program into its multiple communication channels in both English and Spanish to ensure the customers were well informed and could make an informed decision about participating in the program. The actions included:
  - Website updates
  - Email communication containing all pertinent information about the EV-TOU Tariff, Terms & Conditions, Enrollment agreement, and information on how to register.
  - Monthly Billing Integration Reports filed publicly before the Energy Bureau.
- **Customer Outreach:** LUMA developed and implemented the Customer Outreach and Enrollment Plan to ensure that targeted customers were reached, and participation was maximized. This plan included participation in in-person and online local events, interviews, webinars, and direct email outreach to over 130 customers who had already expressed interest in the Interim EV-TOU Pilot Program.
- **Customer Support:** LUMA developed and executed a comprehensive customer support strategy to ensure that customers receive effective assistance when using available communication resources, such as the call center or dedicated EV programs email. This was implemented through the following actions:
  - Development of training material targeted at LUMA's Customer Support team included a 5-minute video with a summary of the Interim EV-TOU Pilot Program (Appendix D).
  - In-person and virtual training with the Voice of Customers team (Appendix D).
  - New customer support cross-department process implementation to redirect the EV-TOU inquiries from the customer to the correct stakeholder (Appendix H).
  - Comprehensive platform provider enrollment customer journey documentation (Appendix D).
  - Platform provider enrollment and customer portal accessibility and information readiness (Appendix A).
- **Data management:** LUMA has employed secured data transfer protocols to establish information alignment between LUMA and the platform provider, with the support of the LUMA Information

## PR-EVAP Semi-Annual Report

Technology / Operational Technology (IT/OT) team, to ensure Personal Identifiable Information (PII) protection and data integrity.

The Interim EV-TOU Pilot Program was launched on April 30, 2024. With the Interim EV-TOU Pilot Program in operation, LUMA securely receives daily and monthly data from the platform provider, which contains the data to provide the required indicators for this report. LUMA has designated resources such as Subject Matter Expert (SME) business analyst to quarterly track and provide the required information.

The following indicators comprehend the period between April 30, 2024, and June 30, 2024.

### **6.2. The number and percentage of residential customers participating in the Interim EV-TOU Pilot Program**

During this reporting period, 71 customers applied for enrollment in the Interim EV-TOU Pilot Program. However, due to limitations in the billing system, as informed in previous filings, only a portion of these customers could be processed and fully enrolled in the Customer Care and Billing (CC&B) System<sup>9</sup>. Specifically, 34 customers were successfully processed and enrolled in the pilot program.

While the number of residential customers enrolled in the Interim EV-TOU Pilot Program is small compared to the total number of residential customers that meet the rate eligible to this program, it's important to note that not all LUMA residential customers meet all the eligibility criteria for this program, including owning or leasing an EV.

According to the latest data shared by DTOP, there were 15,971 EVs registered in Puerto Rico as of November 2023. Although LUMA does not have access to more recent data, assuming all EV owners are LUMA residential customers, the percentage of residential customers participating in the Interim EV-TOU Pilot Program is approximately 0.1944%.

### **6.3. The number of EV charging meters installed.**

The number of EV charging meters installed is not an applicable indicator as this program does not require new meters to be installed in order to bill the customer accordingly. Instead, as outlined in the January 13<sup>th</sup> Resolution and Order, the Platform provider relies on vehicle telematics or EV charger information, rather than meters, to manage billing.

### **6.4. The number and percentage of Interim EV-TOU Pilot Program participants where LUMA used vehicle telematics, data from**

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<sup>9</sup> See *Motion to Submit Revised EV TOU Tariff Sheet and Responses to Request for Information in Compliance with Order of May 22, 2024 and Inform on Compliance with Requirement to Submit Revised Model Bill*, submitted on June 3, 2024; also see *Notice of Barriers to Implementation of Interim EV-Tou Pilot Program Rate for New Customers* submitted on July 26, 2024 and *Supplementary Filing Regarding Barriers to Implementation of Interim EV-TOU Pilot Program Rate for NEM Customers and Request for Approval of Short-Term Proposals* submitted on August 2, 2024.

# PR-EVAP Semi-Annual Report

## customers' EV chargers, data from charging networks or aggregators, or other non-meter data sources

In managing the Interim EV-TOU Pilot Program, LUMA has employed various non-meter data sources to ensure accurate billing and program effectiveness. The distribution of data sources used among participants is as follows:

- Vehicles – 59 (78.6%)
- Chargers (EVSE) – 16 (21.3%)

Other data sources are not supported.

### 6.5. Average frequency of charging

The average frequency of charging for participants is calculated by dividing the total number of charging sessions by the number of participating pieces of equipment (vehicles or chargers). With 1,663 total charging sessions and a total of 71 participating units, the average comes to approximately 22.17 charging sessions per customer<sup>10</sup>.

### 6.6. Average length of charging

The Average Charge Session Duration is 2.9 hours.

### 6.7. Timing (by hour) of charging

Figure 7 below illustrates the aggregated EV charging consumption, measured in MWh per hour, for the period from April 30, 2024 (the launch date of the EV-TOU Rate), through June 30, 2024. The load profile demonstrates that participants are actively responding to the EV-TOU pricing periods, with a notable preference for charging their vehicles during the early hours of both off-peak and shoulder-peak periods. Specifically, over half of the participants (53%) choose to charge during shoulder-peak hours, compared to 34% during off-peak hours. In contrast, only 12% of charging occurs during on-peak hours (see Figure 8). This behavior highlights the effectiveness of the TOU pricing in influencing charging patterns towards more favorable times.

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<sup>10</sup> Although 34 customers were enrolled to the CC&B platform, LUMA obtained valuable insights from customers that used the EV-TOU platform provided by the vendor.

# PR-EVAP Semi-Annual Report

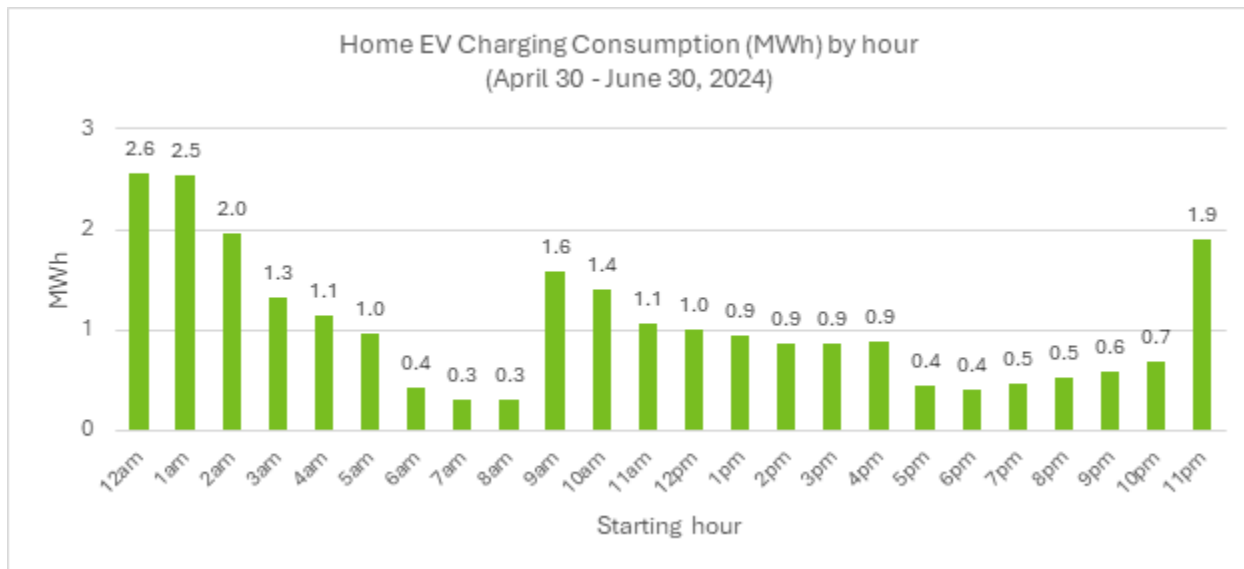


Figure 7: Home EV Charging Consumption (MWh) by hour

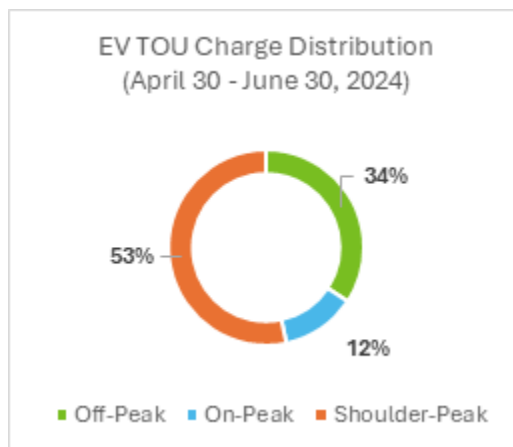


Figure 8: Distribution of the EV-TOU charging in each pricing period

## 6.8. Average and maximum kWh delivered per charging session

The energy delivered during each charging session exhibits a range, demonstrating the varied charging needs and habits of participants. This range provides insight into both typical and extreme usage patterns within the program.

- Average Charge Session Energy delivered: 15.2 kWh
- Maximum Charge Session Energy delivered: 79.82 kWh

## PR-EVAP Semi-Annual Report

### 7.PR-EVAP Budget and Expenditure Tables

LUMA has accelerated its efforts to implement the PR-EVAP, with costs reflecting the priorities outlined in previous filings. Although Puerto Rico is early in its EV journey, LUMA's progress is noticeable, particularly in activities related to education and outreach and the implementation of EV rates.

A substantial increase in expenditure was observed in the EV Rates and Load Management initiative, driven by the costs associated with highly specialized outsourced professional services and billing integration of the Interim EV-TOU Pilot Program. Although the estimated cost included in FY2024 was below the actual expenditures for the EV rates and load management initiative, it should be stabilized in the following reporting periods.

The lower expenditures on the EV infrastructure and System Improvement are explained by the fact that LUMA is still navigating through its EV strategy and engaging with internal and external stakeholders to define the best path forward for this initiative. This approach will ensure that future investments align with LUMA's priorities and are used effectively. Additionally, the planned budget for the EV hosting capacity map is not part of the EV infrastructure and System Improvement initiatives in the PR-EVAP. As a result, no spending has been incurred for the development of this map.

While the focus of this reporting period was the implementation of the Interim EV-TOU Pilot Program, significant efforts were also dedicated to education and outreach efforts related to the pilot's broader initiatives. This includes workforce development activities and advances on fleet electrification initiatives. These efforts have laid the groundwork for expanding education and outreach activities in future reporting periods.

The total expenditure for this reporting period is detailed in Table 14 and Table 15.

**Table 14: PR-EVAP Plan Budgets and Expenditures by Initiative**

INITIATIVE	FY2024 BUDGET	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF BUDGET)	TOTAL FY SPEND (\$)	TOTAL PR-EVAP SPEND (\$)
Education and Outreach	\$200,000	\$57,542.97	28.8%	\$94,145.30	\$94,145.30
EV Infrastructure & System Improvement	\$250,000	\$9,075.85	3.6%	\$9,075.85	\$9,075.85
EV Rates & Load Management	\$180,000	\$537,895.71	298.8%	\$584,065.25	\$584,065.25
<b>Total</b>	<b>\$630,000</b>	<b>\$604,514.92</b>	<b>96%</b>	<b>\$687,287.80</b>	<b>\$687,287.80</b>

# PR-EVAP Semi-Annual Report

Table 15: PR-EVAP Plan Budgets and Expenditures by Spending Category

INITIATIVE	FY2024 BUDGET	REPORTING PERIOD SPEND (\$)	REPORTING PERIOD SPEND (% OF BUDGET)	TOTAL FY SPEND (\$)	TOTAL PR-EVAP SPEND (\$)
Internal Resources	\$385,000	\$ 191,149.53	50%	\$227,539.25	\$227,539.25
Third-Party Contractor	\$245,000	\$ 413,365.39	169%	\$459,534.94	\$459,534.94
<b>Total</b>	<b>\$630,000</b>	<b>\$ 604,514.92</b>	<b>96%</b>	<b>\$687,287.80</b>	<b>\$687,287.80</b>

## 7.1. Explanation of Variances in FY2024 S2 Semi-Annual Report for EV Program

The variances in the reported expenditures for the Electric Vehicle (EV) Program in the FY2024 Semi-Annual Reports are primarily due to the timing of cost accruals, the natural progression of the fiscal year, and the implementation of mechanisms for improved cost tracking within LUMA. The first semi-annual report covered the period from July 1 to December 31, 2023, during which initial costs were expected to be lower, with an anticipated increase in expenditures in the following semester.

### 7.1.1. Education and Outreach

The first semi-annual report indicated that \$26,475 had been spent by the end of December 2023. However, this second semi-annual report shows that the total spending for the entire fiscal year was \$94,145.30. This suggests that approximately \$36,602.33 was spent during the first semester of FY2024, rather than \$26,475.

The variance is largely due to the accrual of additional costs in the second semester, as LUMA's outreach activities intensified. During the early part of FY2024, LUMA was also in the process of implementing more robust mechanisms to track expenditures specific to the EV budget, which contributed to the higher reported costs in this second semi-annual report. As LUMA refined its expense tracking and accrual processes, these additional costs were accurately recognized and included in this second semi-annual report, resulting in adjusted figures.

### 7.1.2. EV Rates & Load Management

The most significant variance occurred in the EV Rates & Load Management initiative. The first semi-annual report indicated that 96% of the budget had been spent, amounting to \$172,772 by December 31. In this second semi-annual report, spending reached \$584,065.25, or 298.8% of the allocated budget. This substantial increase was expected to some extent as costs naturally ramped up in the second semester. However, the variance was exacerbated by the underestimation of costs associated with third-party contractors engaged in the implementation of the Interim EV-TOU Pilot Program. As the program progressed, the scope and complexity of the required tasks expanded, leading to higher-than-anticipated costs. It is expected that these expenditures will stabilize following the full launch of the Pilot Program.

# PR-EVAP Semi-Annual Report

## 7.1.3. EV Infrastructure & System Improvement

In the first semi-annual report, no expenditures were recorded for the EV Infrastructure & System Improvement initiative, as it was expected that costs would be minimal during the first semester due to the focus on planning and groundwork. This second semi-annual report shows a total spending of \$9,075.85, representing 3.6% of the budget.

This expenditure primarily covers the labor costs associated with the Fleet Electrification Survey. The development of an EV Hosting Capacity Map, which would involve more significant expenses, was not undertaken during this period. This is because initiating such a map at this stage would be premature. Therefore, no costs beyond those related to the Fleet Electrification Survey were incurred, aligning with the project's current phase and planning requirements.

## 7.1.4. Total Budget and Spending

The total budget allocated for the EV program in FY2024 was \$630,000. However, the actual spending reached \$687,287.80, which is approximately 110% of the budget. This variance is primarily due to increased expenditure in the EV Rates & Load Management initiative, where costs were significantly higher than initially estimated.

The higher spending reflects the expected ramp-up in costs associated with the program's implementation during the second semester, as well as an underestimation of expenses related to third-party contractors. These factors contributed to the overall budget exceeding the planned amount.

LUMA is actively working to improve cost estimation processes for each initiative and is implementing standard procedures for tracking and reporting expenditures. These enhancements aim to provide more accurate budget forecasts and better control over spending, ensuring more precise financial management in future reporting periods.

# PR-EVAP Semi-Annual Report

## 8. Reached Milestones and Next Steps

LUMA is adding a new section titled "Reached Milestones and Next Steps" to the report. Although the Energy Bureau provided a template to follow, this additional section is being included to enhance clarity and transparency regarding LUMA's progress and future plans. The section will highlight key achievements to date and outline the upcoming steps for advancing ongoing initiatives.

LUMA has significantly advanced in the implementation of the PR-EVAP reporting cycle. In compliance with the February 12<sup>th</sup> Resolution and Order of the Energy Bureau, LUMA has amplified the focus on efforts to effectively increase engagement with the public transportation and fleet sectors, especially those serving disadvantaged communities.

Since then, LUMA has pursued two (2) federal funding opportunities targeted at multifamily dwellings and disadvantaged communities in Puerto Rico to deploy technology solutions to improve EV charging, increase resiliency, and improve grid capacity and reliability on the island. In accordance with DOE regulations, details of the funding opportunities cannot be disclosed.

Additionally, LUMA has established the foundation of the fleet electrification outreach strategy by developing educational resources to utilize in events and a survey targeted at commercial and public sector customers to gauge their interest and readiness in electrifying their fleets, with particular attention to public transportation.

LUMA also enhanced the data analytics backbone in preparation for significant data intake from the Interim EV-TOU Pilot Program and the surveys, which allows for better, data-driven decision-making. The information acquired by LUMA's programs enables collaboration with internal departments to enhance grid infrastructure planning and system improvement. As the EV penetration on the island progresses, this data becomes crucial for investment strategy decisions and developing projects that mitigate the impact of EV load in the grid.

### 8.1. Fleet Electrification Outreach Strategy

LUMA has defined the fleet electrification outreach strategy, which includes identifying priority customers and developing educational resources, including the website and pamphlet to be distributed at forthcoming events. Also, LUMA has prepared a survey (Appendix B - B5) aimed at companies and institutions with commercial or public transportation fleets operating in Puerto Rico. The goal is to understand how they are preparing to incorporate electric vehicles (and related infrastructure) into their fleets. The pillars used to design the Fleet Electrification Survey are detailed in Appendix G.

Based on the survey results, LUMA will focus on specific sectors and potential customers according to their readiness to support EV charging infrastructure and educational materials. LUMA will organize tailored events for each priority group, including those serving disadvantaged communities. Additionally, a list of targeted public transportation companies has been prepared for engagement in the next reporting period.

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## 8.2. Data Analytics & Survey Results

This initiative aims to establish a robust data analysis foundation for program measurement and verification (M&V), enabling effective and accurate analysis of active survey results. The insights gained will be used to drive more precise decision-making.

LUMA has dedicated significant efforts to developing and enhancing data analytics and reporting tools to process information from the Interim EV-TOU Pilot Program and the ongoing surveys. These efforts include workforce development, implementation of data management processes and tools, preparation of reports using MS PowerBI, and coordination with the Interim EV-TOU Pilot Program platform provider to enhance analytics capabilities.

LUMA also compiled the JD Power EV survey and the LUMA EV Survey results, which provide relevant insights about EV adoption and its relation to income, region, vehicle ownership, reliance on public transportation, and EV adoption drivers and barriers. LUMA also enhanced its existing EV survey and incorporated indicators on family composition. More details can be found in Appendix E and Appendix F.

All these efforts were necessary to realign LUMA's priorities and prepare for more effective, precise, and well-informed outreach activities.

## 8.3. Provisions for Public Transportation Sector and Disadvantaged Communities

Low-income customers or underserved communities are among the priorities for LUMA EV efforts in FY25. Based on the feedback received during the latest EV technical conference, LUMA has identified the following actions:

- A list of public transportation and school bus companies was created in preparation for outreach efforts.
- Designed and released a survey targeted to commercial and public fleets, including public transportation and school bus companies, with questions aimed at identifying whether they operate in or serve disadvantaged communities.
- A page about the benefits of fleet electrification was released on the LUMA Electric Vehicles webpage.
- Application to federal funding, aiming to support grid infrastructure planning and system improvements and mitigate the impact of increasing EV adoption in Puerto Rico, with LUMA participating as a subrecipient. In accordance with DOE regulations, details of the funding opportunities cannot be disclosed.

The only action pending is the engagement with public transportation companies and other fleet sectors to share educational information about the benefits of fleet electrification, which is being arranged.

## 8.4. Priorities for FY2025

**Action 1: Customer Education:**

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- Prioritize the development of fleet electrification educational resources.
- Enhance the Electric Vehicles webpage to facilitate readability and expand the content tailored to other groups.
- Develop educational material for specific target groups.

### **Action 2: Customer Engagement:**

- LUMA has created the backbone and is prepared to engage with the public transportation sector.
- Intensify outreach actions to increase the response rate to the ongoing surveys.

### **Action 3: Grid Infrastructure Planning and System Improvement:**

- Continue conducting the EV Information Exchange Working Group with the LUMA Distribution Planning team.
- Continue to enhance LUMA's Data Analytics capabilities.
- Continue supporting DEDC with the EV Market Study.
- Officially released the Survey on Electrification of Transportation in Puerto Rico.
- Continue engagement with DTOP, JD Power, and Sonnell Transportation to exchange information and provide support.

### **Action 4: EV Charging Infrastructure:**

- Continue supporting existing programs such as the local NEVI and other private parties.
- Prepare well-designed education materials tailored to Puerto Rico's public and specific fleet segments, utilizing accessible language strategies.
- Schedule educational events mainly targeting public transportation.

### **Action 5: Workforce Development:**

- Release training targeted at customer support employees on the MyWorkday platform.
- Continue to fund courses and conference participation for the EV team to enhance their knowledge and maintain current knowledge of the latest industry best practices.
- Continue the EV knowledge transfer workshops.

### **Action 6: EV Rates & Load Management:**

- Advance Measurement & Verification (M&V) for the Interim EV-TOU Pilot Program.
- Strengthen the Outreach and Education strategy to increase pilot enrollment.

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- Describe program limitations and alternatives to address barriers on including Net Energy Metering (NEM) customers in the pilot.

### 8.5. Interim EV-TOU Pilot Program Operating Phase

Since the Interim EV-TOU Pilot Program launch, LUMA has concentrated on increasing customer participation, improving educational resources, consolidating Measurement and Verification (M&V) tools, Data Management, billing accuracy, and customer support.

Notably, some barriers surfaced during the pilot operational phase, particularly those related to the billing system restrictions for NEM customers participation in the pilot phase<sup>11</sup>.

During the pilot operational phase for implementing the Interim EV-TOU Pilot Program, LUMA identified several barriers, particularly concerning the participation of NEM customers. A significant barrier was related to LUMA's CC&B system, which currently lacks the capability to support the simultaneous participation of General Residential Service (GRS) customers in both the NEM program and the Interim EV TOU Pilot Program. This limitation prevents NEM customers from being accurately billed under the new rate structure while also accounting for their solar energy generation.

Another challenge involves the system's ability to differentiate and appropriately calculate energy consumption and generation during on- and off-peak hours, which is crucial for accurate billing under the EV TOU rate. Due to these barriers, LUMA proposed to the Energy Bureau to unenroll affected NEM customers from the Interim EV TOU Pilot Program and proposed a research project to better understand EV charging behaviors and develop a more suitable long-term solution for NEM customers. The research project LUMA is proposing is a strategic approach to advance the implementation of the EV-TOU rate for eligible customers, while also maintaining NEM customers engaged in the Interim EV-TOU Pilot Program.

Barriers are to be expected as pilots provide opportunities to identify potential areas of improvement and unanticipated gaps. LUMA is committed to adequately addressing the identified barriers and will continue to prioritize billing accuracy and customer transparency. LUMA is also refining the pilot's M&V data analytics tools to generate meaningful insights to support the development of a permanent EV-TOU rate aligned with customer needs and preferences and expand its benefits to more EV owners.

### 8.6. PR-EVAP Update

In response to the Energy Bureau's directives and the ongoing need to support the transition to EVs in Puerto Rico, LUMA is planning to submit an update to the PR-EVAP in early 2025. This update will reflect updates based on recent developments, stakeholder feedback, and further analysis.

The original draft of the PR-EVAP, submitted on May 1, 2023, aimed to fulfill the requirements set forth by the Energy Bureau in the Resolution and Order NEPR-MI-2021-0013, dated November 18, 2021, and further refined by subsequent orders, including the Resolution and Order issued on January 13, 2023. The upcoming update aims to enhance the plan's alignment with regulatory expectations, integrating new insights and improvements to enable greater EV adoption and stakeholder participation in the EV ecosystem.

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<sup>11</sup> See *Notice of Barriers to Implementation of Interim EV-Tou Pilot Program Rate for New Customers*, submitted on July 26, 2024.

## PR-EVAP Semi-Annual Report

LUMA recognizes the importance of aligning the PR-EVAP with the Energy Bureau's guiding principles and the regulatory and policy framework outlined for the deployment of EV infrastructure. As such, the revised plan will:

1. **Update Provisions for Low-Income Customers:** LUMA understands the Energy Bureau's emphasis on ensuring equitable access to EV infrastructure, particularly for low-income and disadvantaged communities. The revised plan will provide a strategy for addressing these needs, including targeted programs and initiatives.
2. **Incorporate More Accurate Federal Funding Estimates:** Following the Energy Bureau's directives, LUMA has refined its approach to integrating federal funding opportunities into the PR-EVAP. This update will provide a clearer picture of the financial resources available to support EV infrastructure deployment and ensure that these resources are optimally utilized.
3. **Enhance Reporting Indicators:** Based on feedback from the Energy Bureau, LUMA will refine the indicators used to measure the success of the EV initiatives.
4. **Clarify Cost Recovery Mechanisms:** Understanding the importance of transparency and fiscal responsibility, the revised plan will offer a comprehensive overview of the cost recovery mechanisms associated with EV infrastructure investments. This will ensure that all stakeholders have a clear understanding of how costs will be managed and recouped.

### Guiding Principles and Compliance:

The revised PR-EVAP will continue to be guided by the principles established in the November 18 Resolution and Order. These principles emphasize the need for:

- **Grid Connectivity:** Ensuring that EV charging infrastructure is deployed in a manner that supports grid stability.
- **Customer-Centric Pilots, Programs, and Incentives:** Trialing, testing, and deploying various EV load-shaping interventions to encourage beneficial customer behavior and promote off-peak charging, thereby minimizing grid impacts.
- **Market Participation and Fair Competition:** Supporting a balanced approach to utility and third-party participation in the EV charging market to foster innovation and ensure fair competition.

The primary objective of submitting the updated PR-EVAP is to refine and enhance the existing plan by incorporating updated data, insights, and learnings gathered since the initial submission. This update aims to strengthen the program, making it more robust and aligned with Puerto Rico's energy and environmental goals.

LUMA is committed to working collaboratively with the Energy Bureau and stakeholders to ensure the continued successful implementation of the PR-EVAP, advancing the shared goal of establishing a sustainable, reliable, and equitable EV infrastructure in Puerto Rico.

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## Appendices

### Appendix A: Customer Education Materials

#### Appendix A1: LUMA EV TOU Webpage

**What is an Electric Vehicle?**

**Charging Types**

**Benefits**

**TOU Rate**

**Where Can I Charge on the Road?**

**LUMA's Role**

**EV Survey**

**LUMA's EV Time of Use (TOU) Residential Rate**

As part of LUMA's efforts to respond to the increasing number of Electric Vehicles circulating in Puerto Rico, LUMA launched the EV TOU Rate Pilot Program for residential customers with Eligible Vehicles and Chargers.

With the EV TOU Residential Rate, the cost of electricity needed to charge your EV varies based on the time of the day. Learn below how this rate works and the Benefits of the EV TOU Residential Rate.

**How does the EV TOU Rate work?**

The EV TOU Residential Rate empowers LUMA customers to choose how they manage their charging needs and allows them to save money by paying a less expensive rate depending on the time of day they decide to charge their EVs.

■ Lowest cost time to charge an EV     ■ Highest cost time to charge an EV

Time Period	Cost Level	Visual Representation
9AM – 5PM	Lowest cost (Off-peak)	Green bar with 1 dollar sign (\$)
5PM – 11PM	Highest cost (Peak)	Red bar with 3 dollar signs (\$\$\$)
11PM – 9AM	Medium cost (Shoulder-peak)	Yellow bar with 2 dollar signs (\$\$)

The graph shows how the cost of charging your EV varies throughout the day when you Enroll for LUMA EV TOU Residential Rate. Once enrolled, the customer will be charged based on all EV charging electricity consumption recorded through the customer's Eligible Vehicles and Chargers.

Check the EV TOU Pilot Program's Rules and Eligibility to learn more about pricing periods, tariff, and other applicable rules.

**Benefits of the EV TOU Residential Rate**

- Significant Cost Savings for Customers**
  - Customers can save up on electricity bills by avoiding peak hours when charging their vehicles.
- Empower Customers to Manage EV Energy Consumption**
  - By learning about their charging needs, customers will have more control over how much they want to spend.

Figure 9: Webpage<sup>12</sup>

<sup>12</sup> For more details, visit the webpage on electric vehicles at [LUMA Energy's website \(English\)](#). The page is also available in Spanish at [LUMA Energy's website \(Español\)](#).

# PR-EVAP Semi-Annual Report

## Appendix A2: EV-TOU Enrollment Webpage

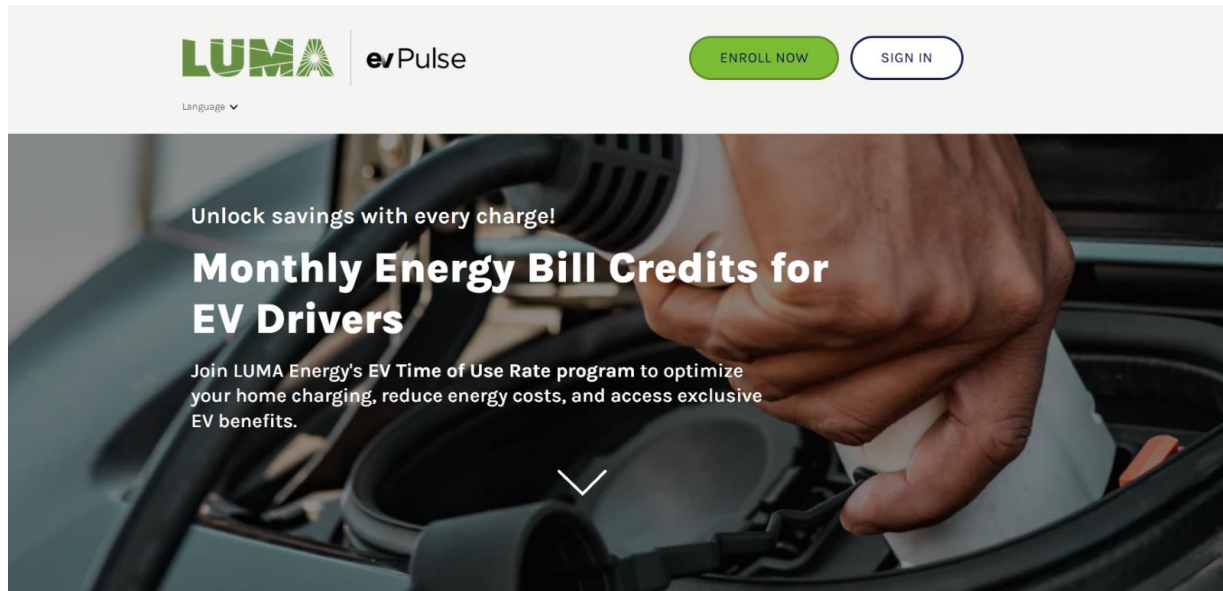


Figure 10: EV-TOU Enrollment Webpage<sup>13</sup>

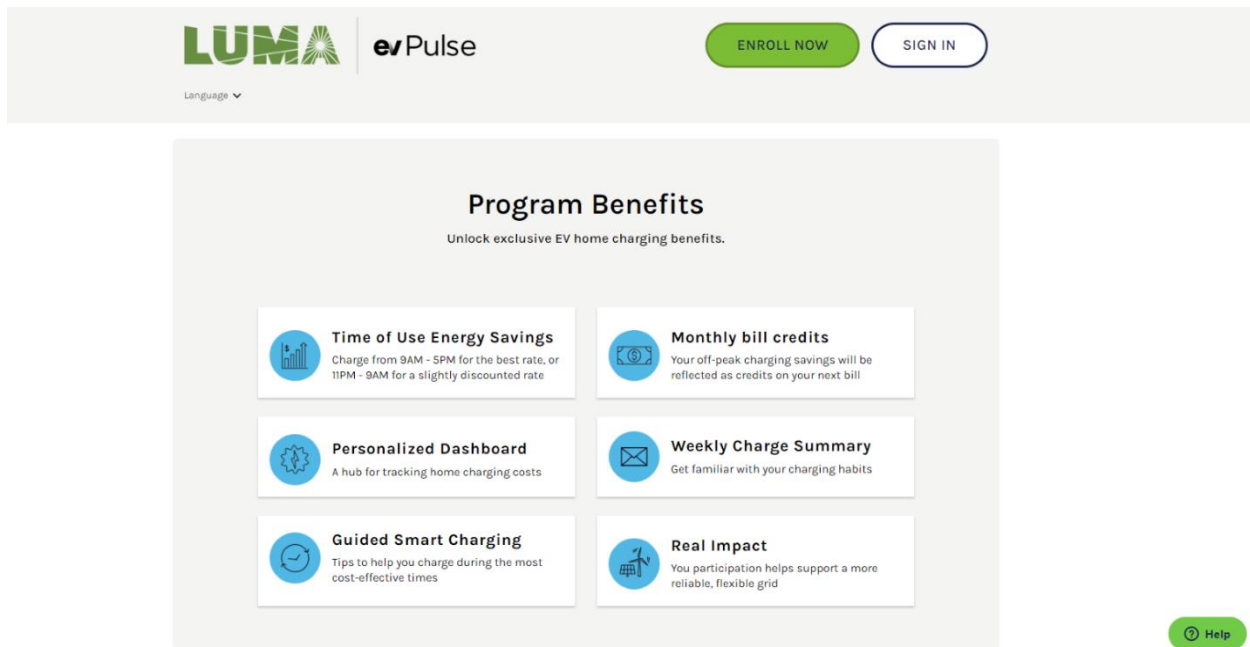


Figure 11: EV-TOU Program Benefits Section

<sup>13</sup> For more details, visit the EV Pulse webpage at [LUMA Energy's EV Pulse \(English\)](#). The page is also available in Spanish at [LUMA Energy's EV Pulse \(Español\)](#).

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## Appendix A4: Draft Fleet Electrification Pamphlet

### What is Fleet Electrification?

Fleet electrification is the process of replacing a group of traditional gasoline-powered or diesel-powered vehicles with electric vehicles (EVs) within an organization or business. This transition helps reduce greenhouse-gas emissions, mitigate climate change, and promote a cleaner, more sustainable transportation system. By adopting EVs, organizations can significantly cut costs, improve brand reputation, and contribute to environmental benefits such as reduced emissions and improved public health.

### Benefits:

Fleet electrification offers several advantages, including operational and economic benefits, as well as positive environmental impacts. Let's break it down:

#### Operational & Economic

- Significant fuel cost savings
- Simplified maintenance
- Lower operating costs
- Less vulnerable to fluctuations in the fossil-fuel markets
- Government incentives

#### Environmental & Social

- Eliminate or reduce tailpipe emissions
- Improve the air quality and public health
- Reduce greenhouse gas emissions and mitigate climate change



### How much your fleet can save fuel cost?

The U.S. Department of Energy in partnership with Argonne National Laboratory developed a tool to calculate the fuel savings based on where you are in the country. The **Driving Electric: Local Fuel Savings Calculator** compares the cost of driving a battery electric vehicle (BEV) or a plug-in hybrid electric vehicle (PHEV) to a conventional vehicle where you live.

The example below shows the potential savings for a Compact SUV in Old San Juan.

Battery Electric Vehicle (BEV)	Plug-in Hybrid Electric Vehicle (PHEV)
<b>\$ 0.04</b> Savings per Mile	<b>\$ 0.01</b> Savings per Mile
<b>\$ 18.90</b> Savings per Tank	<b>\$ 2.83</b> Savings per Tank
<b>\$ 302.78</b> Savings per Year <i>Driving the default or customized annual mileage</i>	<b>\$ 45.38</b> Savings per Year <i>Driving the default or customized annual mileage</i>
<b>\$ 560.10</b> Savings per Year <i>Driving 13,000 miles / year</i>	<b>\$ 83.95</b> Savings per Year <i>Driving 13,000 miles / year</i>

Source: <https://www.energy.gov/local-fuel-savings>.



LUMAPR.COM/ELECTRIC-VEHICLES

Figure 12: Fleet Electrification Pamphlet

# PR-EVAP Semi-Annual Report

## Appendix A5: EV-TOU Waitlist Invitation Email

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**From:** Electric Vehicles  
**Cc:** Electric Vehicles  
**Subject:** Información sobre el Programa Piloto de Tarifa por Tiempo de Uso para Vehículos Eléctricos (EV TOU) de LUMA  
**Attachments:** Motion Re-Submitting the Tariff Sheet for the Interim EV TOU Rate.pdf

Estimado cliente,

Gracias por su interés en participar en el Programa Piloto de Tarifa por Tiempo de Uso (TOU) para Vehículos Eléctricos de LUMA.

Antes de inscribirse, visite el sitio web de LUMA dedicado al Programa TOU para [Vehículos Eléctricos](#) para obtener información detallada sobre las reglas y los requisitos de elegibilidad, y revise cuidadosamente los siguientes documentos para que tengas la información necesaria para tomar una decisión informada:

- [Términos y condiciones](#)
- Tarifa por Tiempo de Uso (TOU) para EV, presentada el 29 de abril de 2024, encontrada en el [Expediente NEPR-MI-2021-0013](#) del Negociado de Energía de Puerto Rico.
  - La Hoja de Tarifas de TOU de EV revisada incluye la fórmula para la Tarifa de TOU de EV.
- [Acuerdo de inscripción](#)

Para inscribirse en el programa piloto EV TOU, acceda al sitio web de evPulse: <https://join.luma.ev-pulse.com/es-pr>. En este sitio, tendrás más informaciones sobre el proceso de registro.

¡Si tiene alguna pregunta, no dude en contactarnos!

Atentamente,

**Equipo de Vehículos Eléctricos de LUMA**



[EV@Lumapr.com](mailto:EV@Lumapr.com)

[lumapr.com/vehiculos-electricos/](https://lumapr.com/vehiculos-electricos/)

LUMA Energy ServCo, LLC, una compañía de responsabilidad limitada de Puerto Rico

Figure 13: Email Sent as an Invitation for Customers to Join the Waitlist

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## Appendix B: Customer Engagement Materials

### Appendix B1: GUIA Event Participation

**Organizer:** Grupo Unido de Importadores de Automóviles (GUIA)

**Presentation title:** La electrificación de la industria automotriz, sus retos y oportunidades

- **Presenter:** Juan C. Patiño (LUMA Energy)
- **Date:** March 5<sup>th</sup>, 2024
- **Duration:** 1.5h
- **Location:** Carolina, PR
- **Format:** In-person
- **Attendees:** Approximately 350
- **LUMA attendees:**
  - Johanis Salcedo
  - Larissa Paredes
  - Edgar Vega



Figure 14: GUIA Event Participation

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## Appendix B2: Participation on YouTube Podcasts

**Organizer:** Dr. Power (YouTube Channel)

**Episodio 227:** La Nueva Tarifa TOU, plan piloto para EV Charging en Puerto Rico

- **Presenter:** Juan C. Patiño (LUMA Energy)
- **Date:** April 2, 2024
- **Duration:** 1h
- **Format:** Online Live Streaming
- **Attendance:** 557 views
- **Access link:** <https://www.youtube.com/watch?v=mNRb49aIEZo>



Figure 15: YouTube Screenshot of DrPowerPR Podcast Episode 227

**Episodio 237:** Update de la Nueva Tarifa EV-TOU para Cargar EV's

- **Presenter:** Juan C. Patiño (LUMA Energy)
- **Date:** June 11, 2024
- **Duration:** 1h
- **Format:** Online Live Streaming
- **Attendance:** 367 views
- **Access link:** <https://www.youtube.com/watch?v=-x2Y6Yr56W0>

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Figure 17: YouTube Screenshot of DrPowerPR Podcast Episode 237

## Appendix B3: Survey on the Electrification of Transportation in Puerto Rico



Figure 18: Survey on the Electrification of Transportation in Puerto Rico

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## Appendix B4: Fleet Electrification Survey



Figure 19: Fleet Electrification Survey

## Appendix B5: List of Public Transportation and School Buses Companies in Puerto Rico

Table 16: List of Public Transportation and School Buses Companies in Puerto Rico

COMPANY	LOCATION	TYPE	WEBSITE
Autoridad de Transporte Integrado (ATI)	PR	Government Authority	<a href="https://www.ati.pr.gov/">https://www.ati.pr.gov/</a>
Autoridad Metropolitana de Autobuses (AMA)	Metropolitan Area	Passenger Transportation 	<a href="https://www.dtop.pr.gov/ama">https://www.dtop.pr.gov/ama</a>
La Línea de San Juan	San Juan	Passenger Transportation	<a href="https://sanjuan.pr/lineasj/">https://sanjuan.pr/lineasj/</a>
BayaTrolley / BayaRide	Bayamón	Passenger Transportation	<a href="https://www.municipiodebayamon.com/">https://www.municipiodebayamon.com/</a>
Sistema Intermodal de Transportación Carolinense	Carolina	Passenger Transportation	<a href="https://www.municipiocarolina.com/enlaces-de-interes/sitrac/">https://www.municipiocarolina.com/enlaces-de-interes/sitrac/</a>

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Programa SITRAS	Ponce	Passenger Transportation	<a href="https://sitrasponce.com/rutas-1">https://sitrasponce.com/rutas-1</a>
Gómez Bus Line	Mayagüez	Passenger Transportation	<a href="https://gomezbuslinepr.com/servicios/">https://gomezbuslinepr.com/servicios/</a>
Transporte Sonnell	PR	School Transportation	
Ocasio Bus Line	PR	Tourism Transportation	<a href="https://www.ocasiobusline.com/">https://www.ocasiobusline.com/</a>
Go Puerto Rico Shuttle Van Services & Tours	PR	Shuttles and Vans	<a href="https://shuttlevanpr.com/">https://shuttlevanpr.com/</a>
MyM Taxi & Tours	PR	Taxis and Tours	<a href="https://mymtaxisandtours.com/">https://mymtaxisandtours.com/</a>
City Cab	San Juan region	Taxis and Tours	<a href="https://www.citycabpr.com/about/">https://www.citycabpr.com/about/</a>
TransCita	PR	Medical Transportation 	<a href="https://transcita.com/">https://transcita.com/</a>

## Appendix B6: Conference Speaking Engagement

**Organizer:** Peak Load Management Alliance (PLMA)

**Presentation Title:** Supporting Grid Resilience in Puerto Rico

- **Presenter:** Larissa Paredes Muse (on behalf of LUMA Energy)
- **Date:** May 8, 2024
- **Location:** Portland, OR



Figure 20: Conference Speaking Engagement Image

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## Appendix C: Support for EV Charging Infrastructure: Guidebooks, Checklists, Guidelines/Manuals

The EVSE installation guidebooks are currently under development.

Developing these materials requires additional research on standards and benchmarking of other utilities to identify the best practices in the industry. As a result, LUMA is starting to develop and refine strategies to ensure that the guidebooks and manuals are based on the most current and accurate information tailored to specific customer needs.

Once the guidebooks are finalized, LUMA will determine the appropriate timing for the distribution of guidebooks based on its assessment of customer needs and readiness and the extent to which doing so best serves the objectives of the EV Program.

## Appendix D: Workforce Development Materials

### Appendix D1: EV TOU Voice of Customer Training (Train the Trainers)

**Presented by:** Larissa Paredes Muse and Sheila Bengochea

**Date:** April 29, 2024

**Attendance:**

- Marie Berríos (Voice of Customers)
- Diomar Cortés (Voice of Customers)
- Yulianne Ortiz (Voice of Customers)
- Camille Méndez (Voice of Customers)
- Elizabeth Curiel (Voice of Customers)
- Joangelic Pérez (Voice of Customers)
- Norris Gauthier (Voice of Customers)
- Félix Torres (Billing)
- David Meléndez (Billing)

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Figure 22: EV-TOU Voice of Customer Training (Train the Trainers)



### What is the EV Time of Use (TOU) Pilot Program?

**What the EV TOU means?**

- The EV Time of Use (TOU) pilot program was created to offer special rates to encourage residential customers to avoid charging their eligible EV on hours of high electricity demand (peak hours).
- It offers 3 different periods of the day with different rates each.

**How much it will cost to charge in each pricing period?**

- The electricity consumption in each time of use will vary based on the Fuel Cost Adjustment (FCA), which is published by PREB every quarter.
- The FCA will have a defined multiplier per time period, and each month, LUMA will use the customer EV charging consumption file to calculate how much each customer spent in each charging period.
- These tariffs might change from time to time, so please check the LUMA EV and PR's website periodically, which will have the latest tariff.
- The customer will also have access to a customer portal, where they will be able to check in real-time how much they are spending each day.

### Who is eligible?

- Number of accounts**
  - LUMA allows only one (1) account for either the vehicle or the charger, and one premise (service address) per account.
  - Scenarios for two (2) different vehicles on the same premise.
    - Vehicles of the same eligible brand are able to enroll with a single account.
    - Vehicles from different brands can enroll in the same account as long as they enroll with an eligible charger.
- Net metering**
  - Net metering customers are welcome to enroll to the EV TOU pilot program, but since LUMA cannot yet track from which source the customer is drawing electricity to charge their vehicles, LUMA will assume all EV charging will be GRID supplied at all times.

Time of Use	Time of day	Tariff multipliers
Off-peak	9am-5pm	58.54/820.9 FCA*
Peak	5pm-11pm	117.0873616 x FCA*
Shoulder-peak	11am-9am	3300% x FCA*

The EV TOU tariff, filed on April 29, 2024, can be found at Puerto Rico Energy Bureau Docket: [PR-2023-0011](#) and updated FCA tariff at: [PR-2024-0001](#).

# PR-EVAP Semi-Annual Report

### Enrollment issues and Unenrollment

**Why am I having trouble or cannot enroll in the evPulse website?**

- It's likely that either the program reached the registration limit established for the interim pilot phase or if your vehicle/charger is not yet supported by evPulse programs.
  - Either way, you will be automatically added to the waitlist in case
  - The enrollment will follow the order in which a customer submits the registration, providing all information is accurate and matches LUMA records.

**How to unenroll?**

- If you wish to withdraw from the program, please send an email to [EV@Lumapr.com](mailto:EV@Lumapr.com) requesting your exit from the program.
- For billing purposes, the unenrollment effective date will be the next calendar day of the unenrollment request email received by LUMA.

### What changes in my Bill?

- In the Service and Meter Information section of your bill, you will see the EV TOU charges are added to the current charges detail box.
- You will see how much electricity you used in each pricing period in the month multiplied by the current approved **tariff**.
- You will continue to be charged all applicable riders to the General Residential Service (GRS) tariff.
  - However, since the EV TOU rates already have Fuel Cost Adjustment (FCA) rider built in, you will notice that the electricity (kWh) used to charge your vehicle is not added into the FCA rider in the Reconciliation Clauses.

### Shared Responsibility for Customer Support Excellence

WeaveGrid	LUMA
<ul style="list-style-type: none"> <li>Technical frequent asked questions</li> <li>Registration support</li> <li>Consumption clarification</li> <li>Simple eligibility</li> <li>Data protection</li> </ul>	<ul style="list-style-type: none"> <li>Billing questions</li> <li>Terms &amp; Conditions</li> <li>Tariff</li> <li>Data protection</li> <li>Complex eligibility                             <ul style="list-style-type: none"> <li>Multifamily</li> <li>Net metering</li> </ul> </li> </ul>

### Customer Support Inquiries Workflow

- ✓ High-level simplified workflow.
- ✓ The full version will be sent separately.
- ✓ Most inquiries are expected to be received by EV Team
- ✓ Some technical questions related to the evPulse Portal will come directly to WeaveGrid Support team.

Figure 23: EV-TOU Voice of Customer Training (Train the Trainers)

## Appendix D2: Voice of Customers Company Wide email about the EV TOU Rates

**From:** @LUMA Voice of the Customer  
**Sent:** Wednesday, May 1, 2024 11:28 AM  
**Subject:** Tarifa por Tiempo de Uso (TOU) Vehículos Eléctricos | Time of Use Rate (TOU) Electric Vehicles

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged  
**Categories:** EV Customer Programs

### Tarifa por Tiempo de Uso (TOU)

LUMA respalda la construcción de un futuro de energía limpia para Puerto Rico que incluye impulsar el crecimiento de los Vehículos Eléctricos (EV).

A partir del **30 de abril de 2024**, LUMA ofrecerá una tarifa residencial conocida como Tiempo de Uso (TOU), donde los cargos de energía varían según la hora del día. Al utilizar esta tarifa especial, es posible que el cliente pueda ahorrar dinero pagando una tarifa más económica por cargar su vehículo.

Oriento al cliente a visitar nuestra página web para obtener más información sobre la tarifa y el proceso de inscripción en el Programa.

<https://lumapr.com/vehiculos-electricos>

### Time of Use Rate (TOU)

LUMA supports the building of a clean energy future for Puerto Rico that includes empowering the growth of electric vehicles (EV)

Beginning **April 30, 2024**, LUMA will offer a residential rate known as Time of Use (TOU), where energy charges vary by time of day. By using this special rate, customers may be able to save money by paying a lower rate to charge their vehicle.

Encourage the customer to visit our website for more information regarding the rate or Program's enrollment process.

<https://lumapr.com/electric-vehicles/charging>

Figure 24: Informative email about the EV-TOU

# PR-EVAP Semi-Annual Report

## Appendix D3: EV TOU Customer Journey and Enrollment



Figure 25: EV-TOU Customer Journey and Enrollment

## Appendix D4: Course: PLMA The Evolution of DR to DER

**Course:** The Evolution of DR to DER

**Participant from LUMA:** Larissa Paredes Muse

**Date:** May 6, 2024

**Location:** Portland, OR

**Format:** In person

**Duration:** 8h

**Agenda:** <https://plma.memberclicks.net/dr-evolution-training--portland-spring-2024>

**Summary:** This one-day interactive course explains how today's demand response initiatives evolve to interact with an emerging future with distributed energy resources for peak load management, including the Electric Vehicles' influence on Demand Response Programs.

# PR-EVAP Semi-Annual Report



Figure 26: Course PLMA The Evolution of DR to DER

## Appendix D5: Courses: US DOE EV Champion Training and other Courses

### Various EV Courses

**Period:** June 7 to June 17, 2024

#### Employees trained:

- Sheila Bengochea (1 course)
- Larissa Paredes Muse (5 courses)
- John Henriquez Ortiz (4 courses)
- Jesús Aguilazocho Sánchez (4 courses)

**Total Duration:** Average of 2h per Course = 28h

# PR-EVAP Semi-Annual Report

**WBDG**  
WISCONSIN BUILDING DEVELOPMENT GROUP

### Certificate of Completion

THIS IS TO CERTIFY THAT

**Sheila Bengochea**  
Successfully Completed Continuing Education Program

**EV Champion Training 4: Advanced Site Operations**

on  
06-10-2024  
Earning  
0.3 IACET CEUs

**WBDG**

National Institute of BUILDING SCIENCES  
Hon. Stephen Traversi, FAA, NAC, CCM, LEED AP  
Executive CEO  
nibs.org

**FEMPO**  
Federal Energy Management Program

Mary Solos, FEMPO Director  
energypa.gov/femp

FEMPO07128 | CertID: 766b6d6c-36486c-9355607632932d9f

**WBDG**  
WISCONSIN BUILDING DEVELOPMENT GROUP

### Certificate of Completion

THIS IS TO CERTIFY THAT

**LARISSA PAREDES MUSE**  
Successfully Completed Continuing Education Program

**Leveraging Utility Partnerships for Fleet Electrification**

on  
06-17-2024  
Earning  
0.2 IACET CEUs

**WBDG**

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Executive CEO  
nibs.org

**FEMPO**  
Federal Energy Management Program

Mary Solos, FEMPO Director  
energypa.gov/femp

FEMPO17895 | CertID: 748b6c76-908448736434c57735a587

**WBDG**  
WISCONSIN BUILDING DEVELOPMENT GROUP

### Certificate of Completion

THIS IS TO CERTIFY THAT

**John Steven Henriquez Ortiz**  
Successfully Completed Continuing Education Program

**EV Champion Training 1: Electric Vehicle Technology and Financial Considerations**

on  
06-10-2024  
Earning  
0.3 IACET CEUs

**WBDG**

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Executive CEO  
nibs.org

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Federal Energy Management Program

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energypa.gov/femp

FEMPO07109 | CertID: 78919e7c-4d2c494738664d58078a

**WBDG**  
WISCONSIN BUILDING DEVELOPMENT GROUP

### Certificate of Completion

THIS IS TO CERTIFY THAT

**John Steven Henriquez Ortiz**  
Successfully Completed Continuing Education Program

**EV Champion Training 2: Electric Vehicle Supply Equipment (EVSE) and Energy**

on  
06-11-2024  
Earning  
0.3 IACET CEUs

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Executive CEO  
nibs.org

**FEMPO**  
Federal Energy Management Program

Mary Solos, FEMPO Director  
energypa.gov/femp

FEMPO17116 | CertID: 18d6d41c20649773d5d27661611d14

**WBDG**  
WISCONSIN BUILDING DEVELOPMENT GROUP

### Certificate of Completion

THIS IS TO CERTIFY THAT

**John Steven Henriquez Ortiz**  
Successfully Completed Continuing Education Program

**EV Champion Training 3: Electric Vehicle (EV) Site Design**

on  
06-11-2024  
Earning  
0.4 IACET CEUs

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Executive CEO  
nibs.org

**FEMPO**  
Federal Energy Management Program

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energypa.gov/femp

FEMPO17117 | CertID: e8194c48bd4c344837933ac2602d66

**WBDG**  
WISCONSIN BUILDING DEVELOPMENT GROUP

### Certificate of Completion

THIS IS TO CERTIFY THAT

**John Steven Henriquez Ortiz**  
Successfully Completed Continuing Education Program

**EV Champion Training 4: Advanced Site Operations**

on  
06-11-2024  
Earning  
0.3 IACET CEUs

**WBDG**

National Institute of BUILDING SCIENCES  
Hon. Stephen Traversi, FAA, NAC, CCM, LEED AP  
Executive CEO  
nibs.org

**FEMPO**  
Federal Energy Management Program

Mary Solos, FEMPO Director  
energypa.gov/femp

FEMPO17120 | CertID: 1750889d6644f133aa64d84512d1

# PR-EVAP Semi-Annual Report



# PR-EVAP Semi-Annual Report

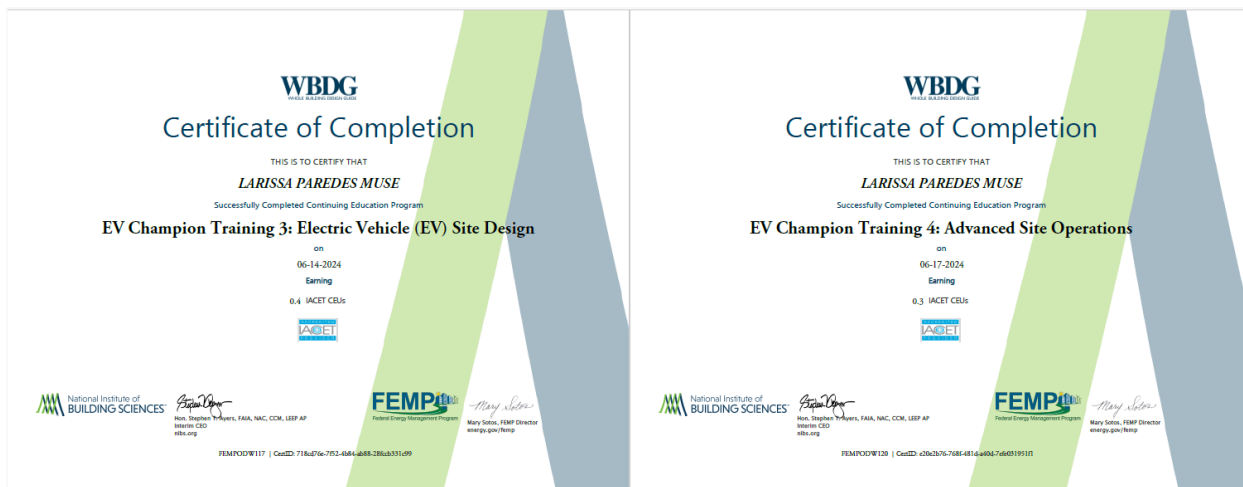


Figure 27: US DOE EV Champion Training and other Courses

## Appendix D6: Conference and Event Participation

**Event:** The 49<sup>th</sup> PLMA Conference  
**Organizer:** Peak Load Management Alliance (PLMA)  
**Location:** Portland, OR  
**Dates:** May 6-8, 2024  
**Participant from LUMA:** Larissa Paredes Muse

Thursday, June 20, 2024 2:59 PM - 4:31 PM Download

<b>5</b> Attended	<b>2:59 PM - 4:31 PM</b> Start and end time	<b>1h 31m 44s</b> Meeting duration	<b>1h 30m 22s</b> Average attendance time
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**Participants**

Name	First join	Last leave	In-meeting duration	Role
Larissa Paredes Muse Larissa.Muse@Lumapr.com	3:00 PM	4:31 PM	1h 30m 21s	Organizer
John S Henriquez John.S.Henriquez@Lumapr.com	2:59 PM	4:31 PM	1h 31m 42s	Presenter
Jesús M Aguilazoch Sanchez JesusM.AguilazochSa@Lumapr.com	2:59 PM	4:31 PM	1h 31m 32s	Presenter
Sheila V Bengochea Rodriguez Sheila.Bengochea@Lumapr.com	3:00 PM	4:31 PM	1h 30m 35s	Presenter
Juan C Patino Peralta Juan.PatinoPeralta@Lumapr.com	3:03 PM	4:30 PM	1h 27m 41s	Presenter

Figure 28: The 49<sup>th</sup> PLMA Conference and Event Participation

# PR-EVAP Semi-Annual Report

## Appendix D7: Internal Workshop: The impact of Electric Vehicles and other technologies on Demand Response programs (Part 1)

**Presented by:** Larissa Paredes Muse  
**Date:** June 20, 2024  
**Format:** Online  
**Duration:** 1:30h  
**Attendance:**

- Sheila Bengochea
- John Henriquez Ortiz
- Jesús Aguilazochó Sánchez
- Juan Patiño Peralta



### Increasing EV Hosting Capacity

- Just a few EVs charging at the same time can overload a service transformer.
- EV TOU Rates can modify charging behavior for bulk system benefits
- However, EV-TOU rates can create new, and often localized peaks

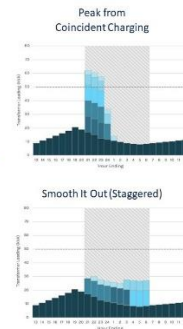
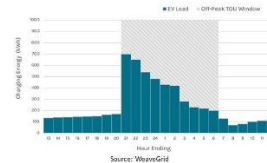


Figure 29: Internal Workshop: The impact of Electric Vehicles and other technologies on Demand Response programs (Part 1)

## Appendix E: EV-TOU Materials

### Appendix E1: Summary of JD Power Survey Responses

Table 17: Summary of JD Power Survey Responses

PERIOD	TOTAL NUMBER OF RESPONDENTS	VALID RESPONSES
2022	4,269	3,185 (74.6%)
2023	2,903	2,213 (76.2%)
2024 (H1)	967	738 (76.3%)

# PR-EVAP Semi-Annual Report

<b>Total</b>	<b>8,139</b>	<b>6,136 (75.4%)</b>
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## Appendix E2: Vehicle Ownership per Income

Table 18: Valid Responses per Period (Item 1)

2022	2023	2024 (H1)	TOTAL
3,199	745	87	<b>4,031</b>

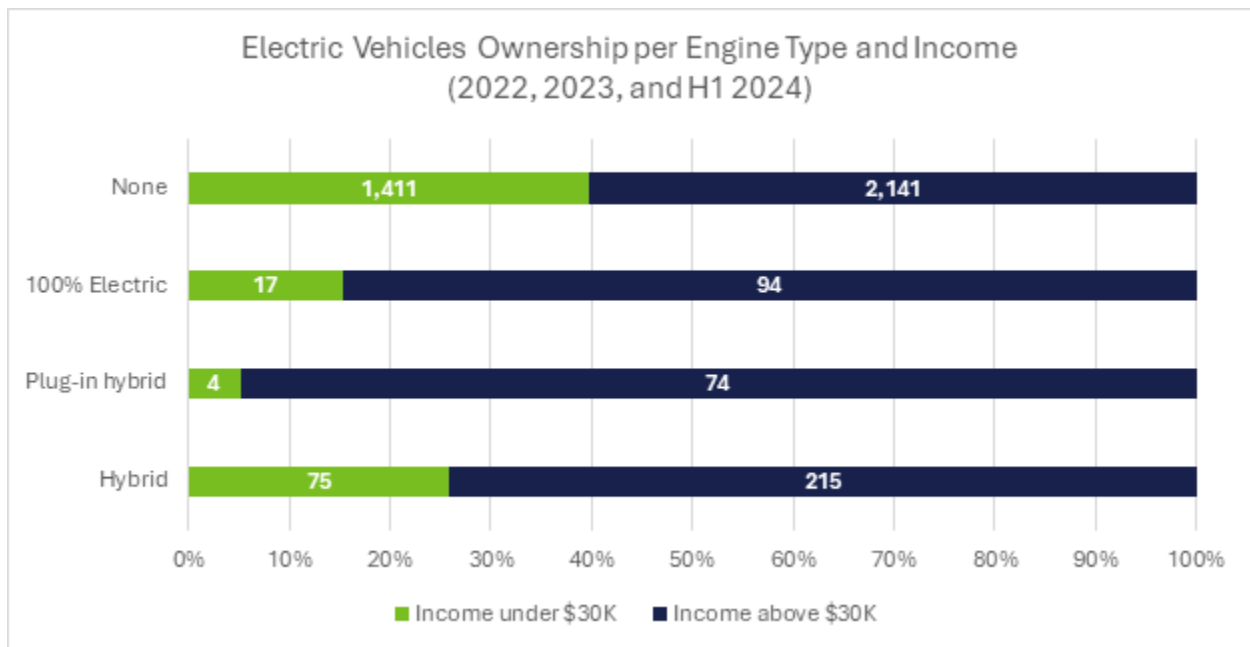


Figure 30: Vehicle Ownership per Income

# PR-EVAP Semi-Annual Report

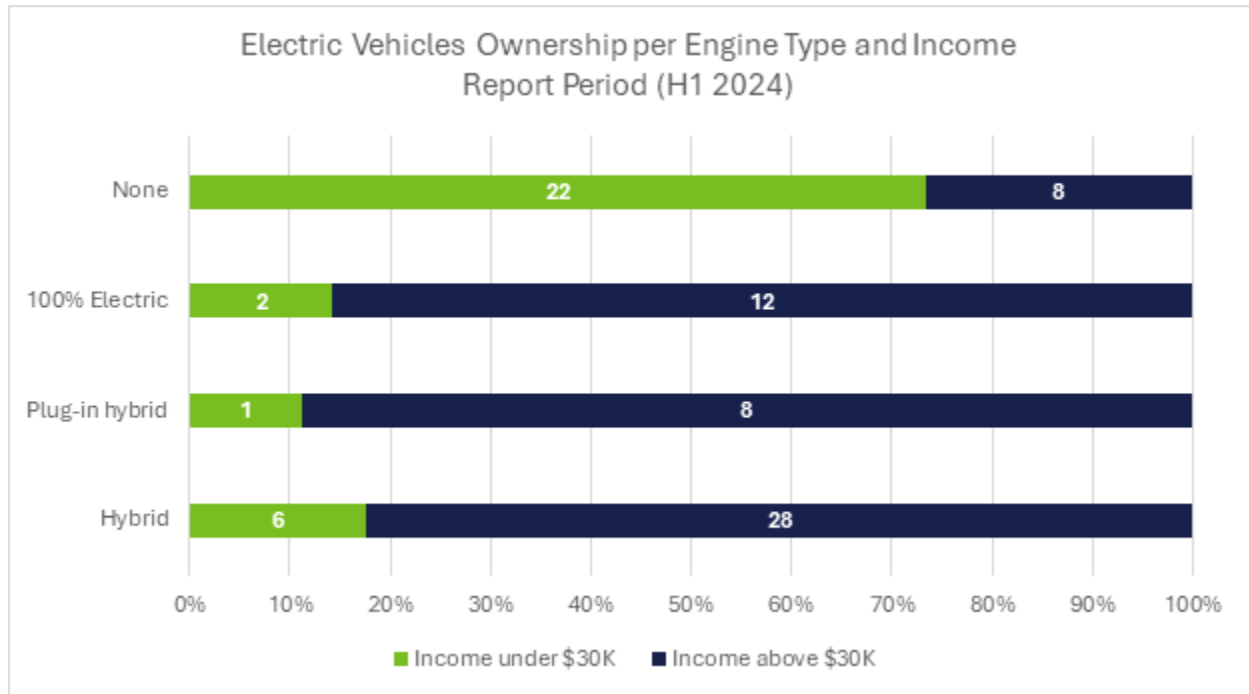


Figure 31: Vehicle Ownership per Engine Type (all years)

## Appendix E3: Vehicle Ownership per Engine Type (All Years)

Despite the limited number of valid responses on H1 2024, the proportion of EVs and Hybrid vehicles is increasing compared to the previous year’s response. It is unclear whether the surveyor changed the target audience recently, such that would drive those results, or if the low or zero emissions vehicle ownership is increasing.

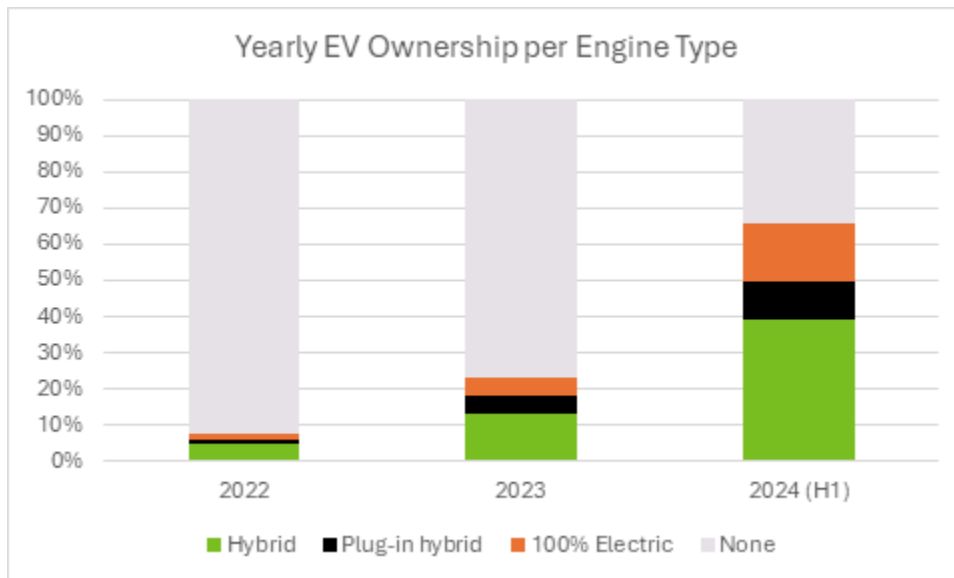


Figure 32: Yearly EV Ownership per Engine Type

# PR-EVAP Semi-Annual Report

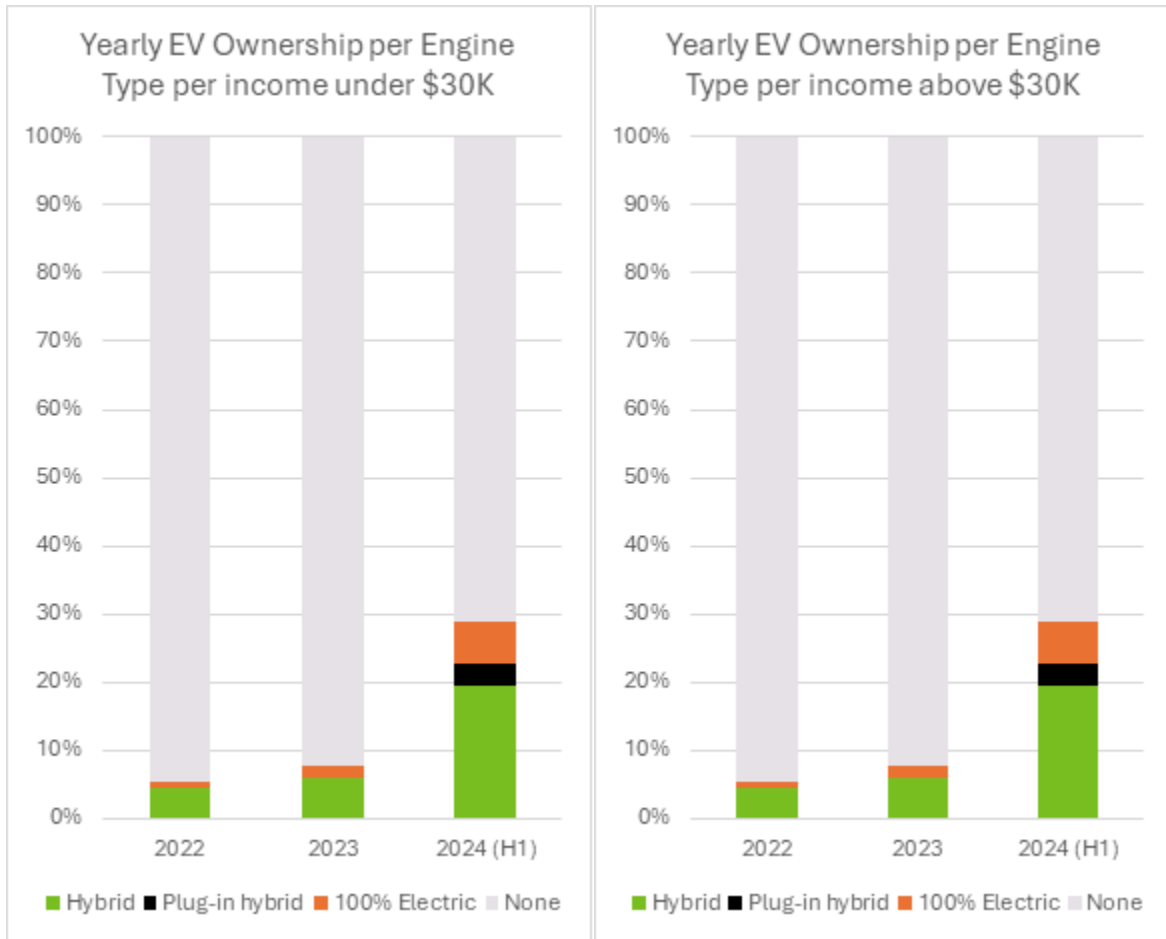


Figure 33: Yearly EV Ownership per Engine Type per Income under \$30K and above \$30K

## Appendix E4: EV Charging Location (H1 2024)

No Data from H1 2024

## Appendix E5: Item 1: Familiarity and Awareness (H1 2024)

No Data from H1 2024

## Appendix E6: Item 2: Familiarity and Awareness (H1 2024)

No Data from H1 2024

## Appendix E7: Item 3: Greatest Concern in Decision to Purchase an EV (H1 2024)

The survey presents 3 formats for this question, including a top 3 ranking. The table below represents the overall results (no ranking).

# PR-EVAP Semi-Annual Report

**Table 19: Concerns in EV Purchase**

<b>LEV3: GREATEST CONCERN IN THE DECISION TO PURCHASE</b>	<b>UNDER \$30K</b>	<b>\$30K +</b>	<b>TOTAL</b>
Electricity system reliability (%)	22.8	28.4	26.3
Price of electric vehicles (%)	17.8	21.0	19.8
Price of electricity rates (%)	17.1	14.7	15.6
Don't know enough about EVs to make a decision (%)	27.4	15.1	19.8
Other (%)	6.8	3.9	5.0
Availability of public charging stations (%)	1.4	6.1	4.3
Ability to charge it at home (%)	2.5	3.7	3.3
Electric vehicle driving range (%)	0.4	2.8	1.9
Amount of time it takes to charge (%)	1.1	2.0	1.6
Availability of electric vehicles (%)	1.4	2.0	1.8
Ability to charge it at work (%)	1.4	0.2	0.7
<b>Total Valid Respondents</b>			<b>738</b>

# PR-EVAP Semi-Annual Report

## Appendix E8: EV Acquisition Drivers (H1 2024)

According to the surveyor, **reliability** is more important than cost among low-income customers. Respondents are also more likely to need assistance installing home charging stations.

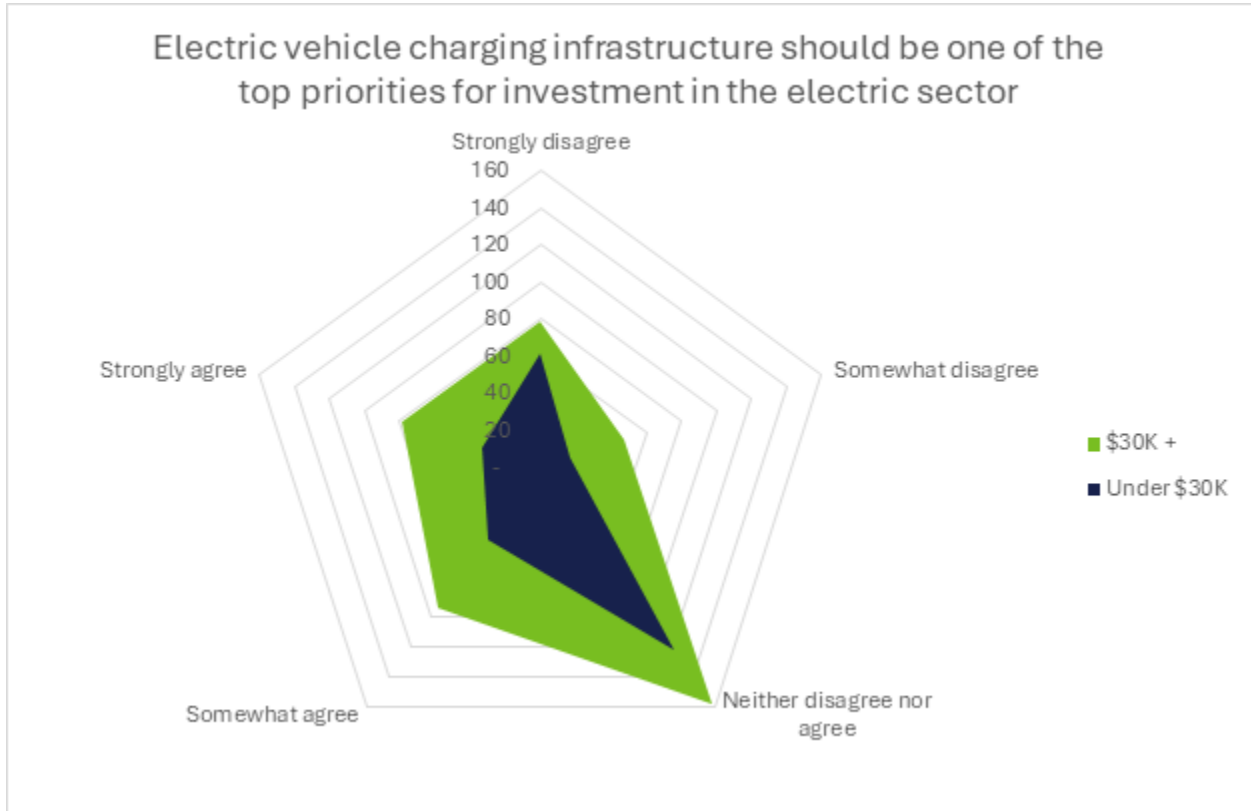
**Table 20: Factors Increasing EV Purchase Interest by Income**

LEV4: WHICH OF THE FOLLOWING WOULD MOST LIKELY INCREASE YOUR INTEREST IN PURCHASING OR LEASING AN ELECTRIC VEHICLE?	UNDER \$30K (%)	\$30K + (%)	TOTAL (%)
Improve the reliability of the electricity system (%)	34.4	32.2	33.1
Offer discounted electricity rates for electric vehicle owners (%)	27.2	27.6	27.5
Install public charging stations along highways (%)	15.8	17.6	16.9
Provide information and assistance with installing a home charging station (%)	11.5	8.2	9.5
Offer rebates to install a home charging station (%)	8.2	7.3	7.7
Improve access to charging stations at apartment buildings (%)	1.8	6.2	4.5
Improve access to workplace charging stations (%)	1.1	0.9	1.0
<b>Total Valid Respondents</b>			<b>717</b>

# PR-EVAP Semi-Annual Report

## Appendix E9: Item 4: Investment Prioritization

The graphic indicates that most respondents are neutral on the statement subject of the question, tending for more customers to agree than disagree in both income tiers.



Total valid respondents: 738

Figure 34: Investment Prioritization Graphic

# PR-EVAP Semi-Annual Report

## Appendix F: LUMA EV Survey Results

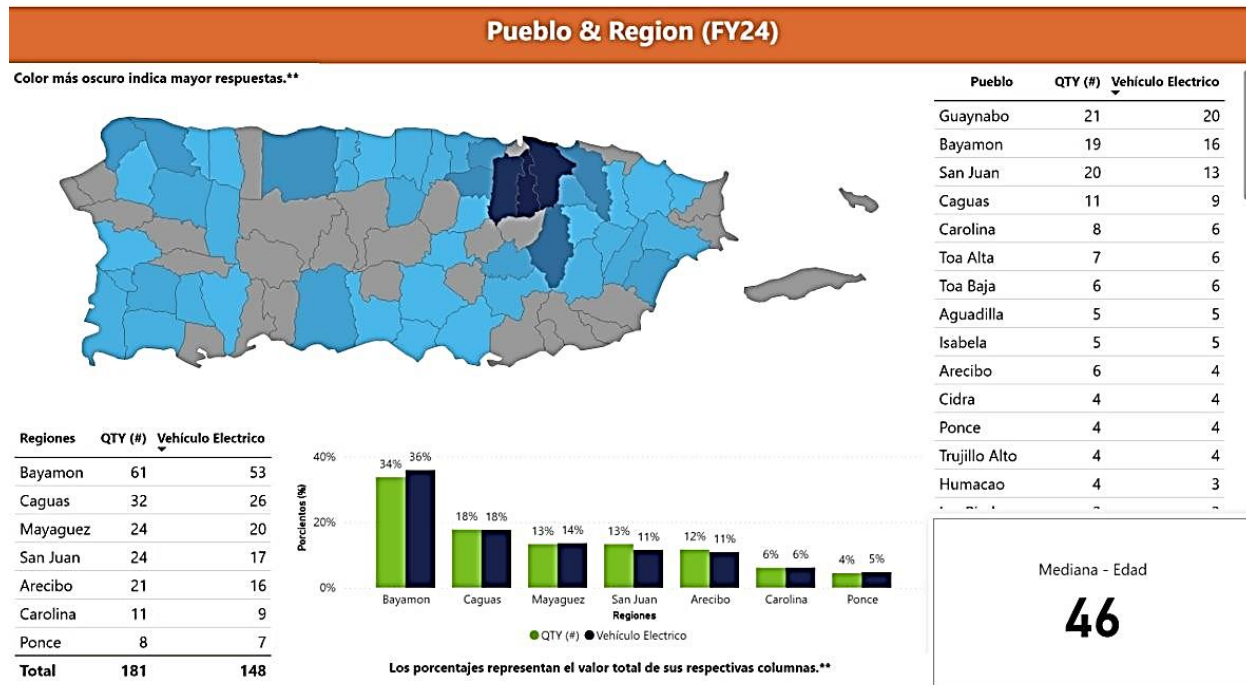


Figure 35: Geographic Target Responses

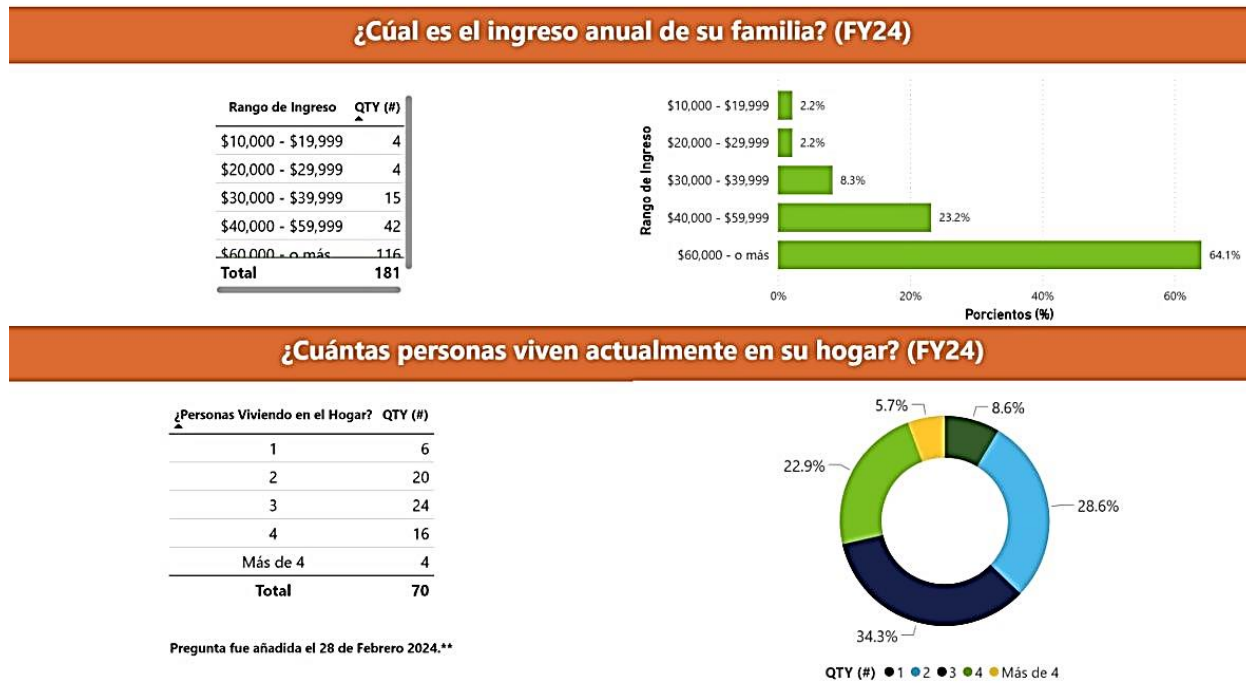
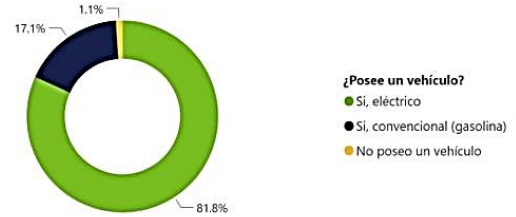


Figure 36: Household Income Figures

# PR-EVAP Semi-Annual Report

## ¿Posee un vehículo? (FY24)

¿Posee un vehículo?	QTY (#)
No poseo un vehículo	2
Si, convencional (gasolina)	31
Si, eléctrico	148
<b>Total</b>	<b>181</b>



## ¿Cuál es la forma más común de usted transportarse de un lugar a otro? (FY24)

¿Forma más común de transporte?	QTY (#)
Comparto el viaje con otras personas	3
Conduzco mi carro solo	177
Ebike	1
<b>Total</b>	<b>181</b>

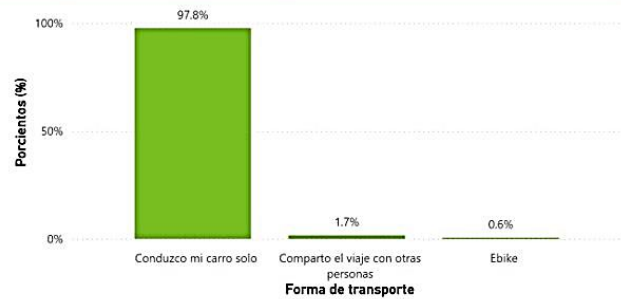


Figure 37: Transportation Method Figures

## ¿Con qué frecuencia utilizas el transporte público? (FY24)

¿Uso del Transporte Público?	QTY (#)
Nunca	126
Rara vez	38
Todos los días	15
Algunas veces en la semana	2
<b>Total</b>	<b>181</b>



## ¿Cuánto sabes sobre vehículos eléctricos? (FY24)

¿Cuánto sabes sobre vehículos eléctricos?	QTY (#)
Mucho	164
Poco	17
<b>Total</b>	<b>181</b>

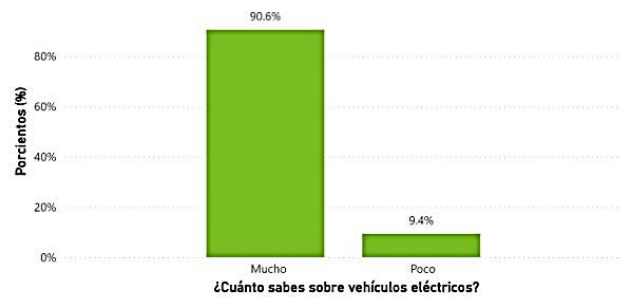


Figure 38: Public Transportation Frequency Figures and EV Knowledge

# PR-EVAP Semi-Annual Report

## ¿Qué Incentivos o apoyo le animarían a cambiar a un vehículo eléctrico? (FY24)

Incentivos o apoyo para vehículo eléctrico	QTY (#)
Ofrecer tarifas eléctricas con descuento para dueños de vehículos eléctricos	146
Incentivos financieros o subsidios	131
Ofrecer descuentos para instalar una estación de carga en su hogar	104
Mejorar la confiabilidad del sistema eléctrico	99
Opciones de financiamiento flexibles	46
Programas de educación sobre vehículos eléctricos	23
<b>Total</b>	<b>549</b>

Los clientes podrían escoger más de una opción, incluyendo una opción para 'otros', la cual no se está considerando.\*\*

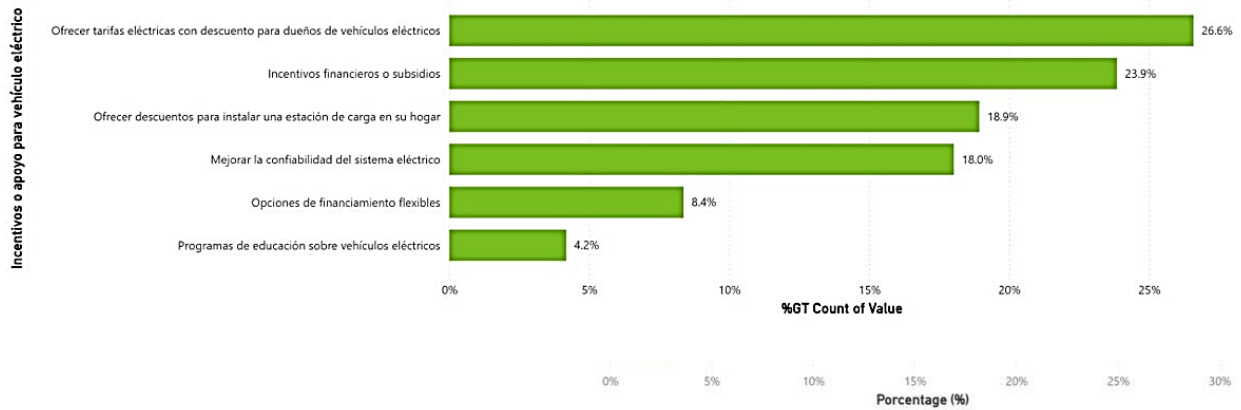


Figure 39: Motives for EV Purchase

## ¿Qué tan important es cambiar a transporte eléctrico? (FY24)

¿Importancia del transporte eléctrico?	QTY (#)
Muy importante	160
Importante	14
Neutro	3
No importante	3
Poco importante	1
<b>Total</b>	<b>181</b>

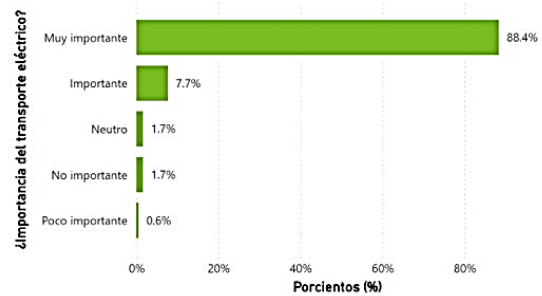
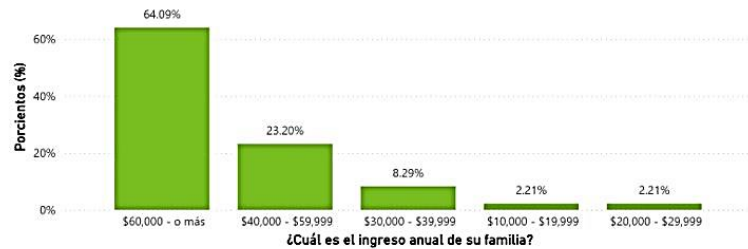


Figure 40: Notion of EV Importance

# PR-EVAP Semi-Annual Report

## Ingreso anual familiar & Personas Viviendo en el Hogar (FY24)

¿Cuál es el ingreso anual de su familia?	¿Personas Viviendo en el Hogar?
\$60,000 - o más	116
\$40,000 - \$59,999	42
\$30,000 - \$39,999	15
\$20,000 - \$29,999	4
\$10,000 - \$19,999	4
<b>Total</b>	<b>181</b>



## Ingreso anual familiar & Posee vehículos eléctricos (FY24)

¿Cuál es el ingreso anual de su familia?	Si, eléctrico
\$10,000 - \$19,999	2
\$20,000 - \$29,999	1
\$30,000 - \$39,999	9
\$40,000 - \$59,999	34
\$60,000 - o más	102
<b>Total</b>	<b>148</b>

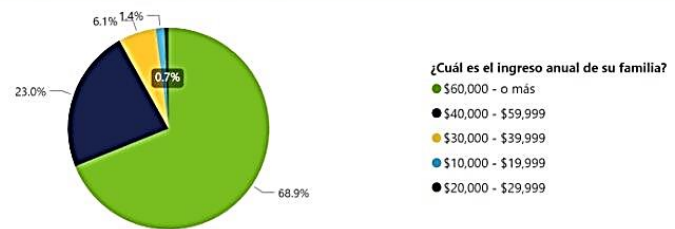
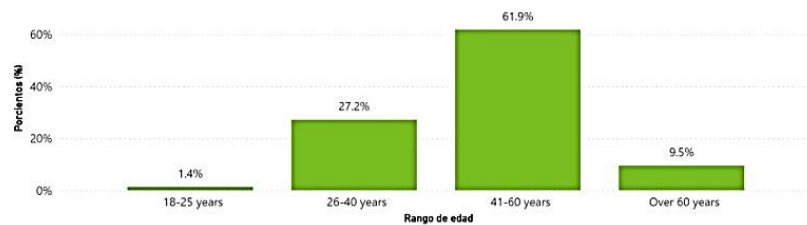


Figure 41: Annual Income Figures

## Rango por edad & Posee vehículos eléctricos (FY24)

Rango de edad	Si, eléctrico
18-25 years	2
26-40 years	40
41-60 years	91
Over 60 years	14
<b>Total</b>	<b>147</b>



## Género & Posee vehículos eléctricos (FY24)

Género	Si, eléctrico
Femenino	14
Masculino	134
<b>Total</b>	<b>148</b>

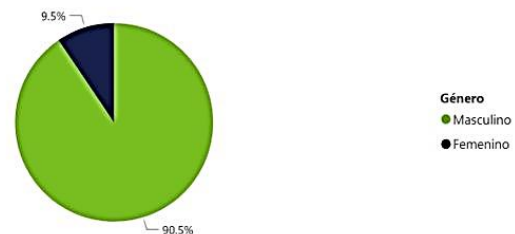


Figure 42: Age and Gender Figures

# PR-EVAP Semi-Annual Report

## Appendix G: Fleet Electrification Survey Pillars

### Purpose

1. Evaluate which fleet categories (See Figure 1) and regions LUMA should prioritize for new programs, educational activities, and investments in grid upgrades.
2. Understand the fleet profile, needs, and scope for each fleet category.
3. Identify where the customers are regarding knowledge and readiness on their journey to electrify their fleets.
4. Understand how and when fleet owners and managers are preparing for the electrification of their fleets.
5. Estimate the potential load demand that would be created by fleet electrification in the next 5 years.

### Specific Objectives

1. Assess how much fleet owners know about fleet electrification.
2. Understand the appetite for fleet electrification and where they are in the journey (assessing organizational and workforce readiness for each fleet category, gauging interest in EV adoption, and how soon they plan to adopt).
3. Learn about the fleet profile (type/niche, vehicle size/category, quantity) and travel needs (location, daily distance traveled, schedule, operating hours & shifts).
4. Hear customer opinion on the main barriers to switching to EV (acquisition cost, EV & EVSE maintenance cost, EV Range, EVSE availability, battery market/availability, environmental concerns).
5. Create a report with the survey results, location, size, readiness, and type of fleets to have a high-level idea of where and when LUMA can expect a change (electrification).

### Target audience

- LUMA Fleet Services (Internal testing)
- Fleet managers, decision-makers/influencers
- Commercial and Public Sector, especially medium-large size fleets (>10 vehicles)
- Main fleet categories

# PR-EVAP Semi-Annual Report

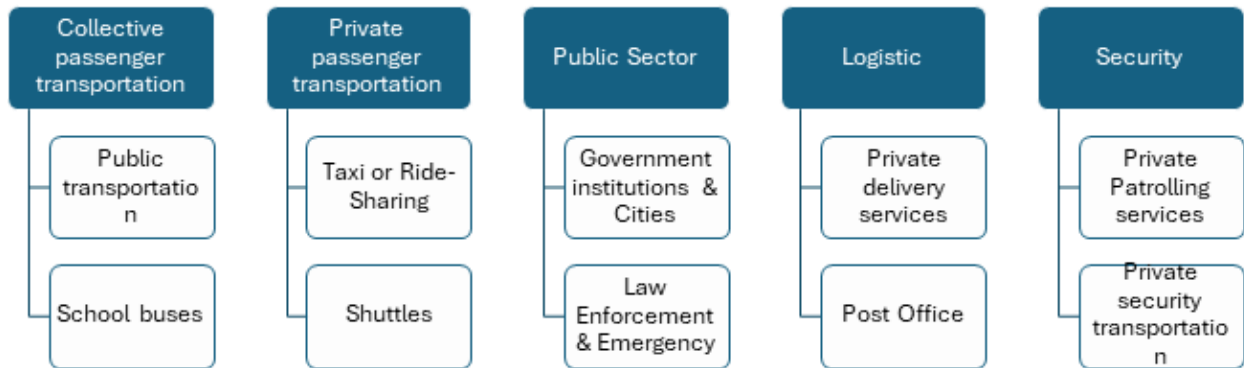


Figure 43: Fleet Categories

## Survey Format and Duration

- < 5-minute Survey
- Divided into 5 main sections following the objectives
- Most questions should be multiple choice, with some Likert scale, Dropdown list, Ranking, and open-ended questions.

## Survey Outreach

- Website
- Email targeted to the company/institution
- Bill inserts for small commercial companies

## Data Analysis

- Diagnose the awareness/literacy about the topic and technology maturity of each fleet category.
- Identify each fleet category's trends and preferences.
- Group the responses by region to understand the areas where demand would increase, emphasizing the timeline for EV adoption per fleet category.
- Determine the yearly additional load from each category based on the existing fleet profile and travel needs.
- Detect the fleet owners' sentiment regarding EV adoption.

# PR-EVAP Semi-Annual Report

## Appendix H: EV-TOU Customer Support Process Workflow

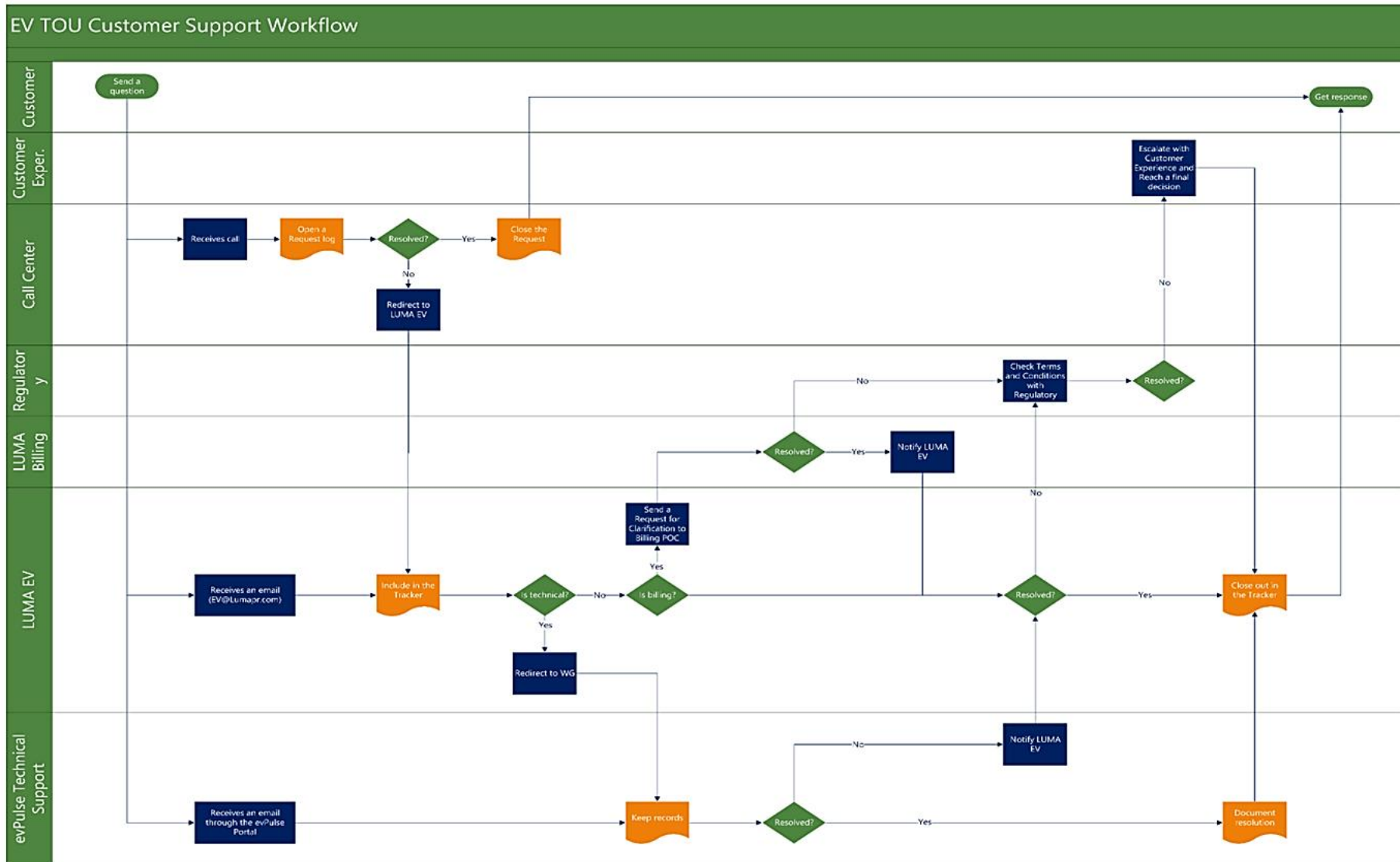


Figure 44: EV-TOU Customer Support Workflow