

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

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DEMAND RESPONSE PLAN REVIEW,
IMPLEMENTATION, AND MONITORING

CASE NO.: NEPR-MI-2021-0006

SUBJECT: Submittal of Proposed
EE/DR Transition Period Plan

**MOTION SUBMITTING PROPOSED EE/DR TRANSITION PERIOD PLAN
TO THE HONORABLE PUERTO RICO ENERGY BUREAU:**

COME now **LUMA Energy, LLC** (“ManagementCo”), and **LUMA Energy ServCo, LLC** (“ServCo”), (jointly referred to as “LUMA”), and respectfully state and request the following:

1. LUMA herein submits its proposed Energy Efficiency and Demand Response Transition Period Plan. *See* Exhibit 1 (“Proposed EE/DR Transition Period Plan”). LUMA anticipates and welcomes receiving feedback on this proposed plan from the Energy Bureau, stakeholders, and members of the public during this proceeding and having the opportunity to respond to and address this feedback, including making any necessary revisions to this proposed plan to arrive at a final version that is approved by this honorable Energy Bureau.

Procedural Background

2. On December 10, 2020, the honorable Energy Bureau of the Puerto Rico Public Service Regulatory Board (“Energy Bureau”) adopted the Regulation for Demand Response (“Regulation for DR”)¹ (*see* Energy Bureau’s Resolution of that date in Case Number NEPR-MI-2019-0015, *In Re: Regulation for Energy Efficiency and Demand Response*) requiring, in pertinent

¹ Regulation for DR, December 21, 2020, Regulation 9246.

part, that the Puerto Rico Electric Power Authority (“PREPA”) or its successor, LUMA, file with the Energy Bureau a Three-Year Demand Response Plan (“Three-Year DR Plan”) within six months of its effective date and providing for the Energy Bureau to establish, by resolution or order, the filing deadline for the Three-Year DR Plan. *See* Regulation on DR, Section 3.02(C)(1)(a).

3. On March 24, 2021, PREPA filed with the Energy Bureau a motion requesting the Energy Bureau to schedule a Technical Conference to clarify questions regarding the Three-Year DR Plan, its contents, the DR baseline, and potential studies. *See* PREPA’s *Motion to Request a Pre-Filing Technical Conference Regarding PREPA’s Three Year Demand Response Plan*, filed on that date in Case Number NEPR-MI-2019-0015, *In Re: Regulation for Energy Efficiency and Demand Response*.

4. On April 21, 2021, the Energy Bureau issued a Resolution and Order (“April 21st Order”), which commenced the instant proceeding, scheduling, and ordering PREPA and LUMA to attend, a Technical Conference for April 27, 2021, and ordering PREPA and LUMA to provide responses to questions included in an Attachment A to the April 21st Motion (the “April 21st Attachment A”), on or before April 23, 2021, to “begin the discussion related to the Three-Year DR Plan”.

5. On April 23, 2021, PREPA and LUMA filed a joint motion requesting an extension to respond to the questions in the April 21st Attachment A until April 30, 2021, and to reschedule the Technical Conference for May 11, 2021 (*see Joint Motion to Request Extension to Comply with Resolution and Order Entered on April 21st 2021 and to Reschedule Technical Conference* filed by PREPA and LUMA on that date), which requests were granted by the Energy Bureau by Resolution and Order issued on April 26, 2021.

6. On April 30, 2021, PREPA and LUMA submitted their responses to the April 21st Attachment A in compliance with the April 21st Order. *See Joint Motion in Compliance with Resolution and Order Entered on April 21, 2021*, filed by PREPA and LUMA of that date.

7. On May 7, 2021, the Energy Bureau issued a Resolution and Order rescheduling the May 11th Technical Conference to June 15, 2021.

8. On June 11, 2021, LUMA filed with the Energy Bureau the presentation to be offered by LUMA consultants during the June 15th Technical Conference. *See LUMA's Motion submitting Presentation for Technical Conference Scheduled for June 15, 2021*, of that date.

9. After other procedural events, on June 15, 2021, LUMA filed with the Energy Bureau a revised presentation to be offered by its consultants during the June 15th Technical Conference. *See Exhibit 1 of LUMA's Motion Submitting Revised Presentation for Technical Conference Scheduled for June 15, 2021*, of that date (the "June 15th Presentation").

10. On June 15, 2021, the Technical Conference was held (the "June 15th Technical Conference"). LUMA's consultants provided the June 15th Presentation in which they proposed a phased and integrated EE-DR development approach and extended timeline for implementation, given the lack of baseline and potential studies and unavailability of a PR Cost Test.

11. On January 21, 2022, the Energy Bureau published the final version of the Regulation for Energy Efficiency ("EE Regulation")². The EE Regulation requires, in pertinent part, that PREPA or its successor, LUMA, file with the Energy Bureau, on or before March 1, 2022, a plan to implement "quick start" Energy Efficiency programs during a two-year transition period ("Transition Period Plan"), covering the period from July 1, 2022 through June 30, 2024

² The EE Regulation was at the time assigned the number 9354 by the Puerto Rico State Department. Regulation number 9354 was subsequently annulled and the EE Regulation was resubmitted to the State Department and approved by the Puerto Rico Department of State on March 25, 2022, being assigned number 9367.

(*see* Regulation for EE, Section 2.01) and develop and file with the Energy Bureau a Three-Year EE Plan to be implemented over a three-year period following the mentioned transition period, covering the period from July 1, 2024 through June 30, 2027, and each subsequent three year period (*see id.* at Sections 4.02 and 4.03).

12. On February 1, 2022, this Energy Bureau issued a Resolution and Order (the “February 1st Order”) to detail the actions that directly follow the approval of the EE Regulation consisting of “1) [...] establish[ing] a schedule for the filing of the first Three-Year DR Plan to coincide with the Transition Period Plan and the start of the [EE] programs 2) [...] invit[ing] all stakeholders to participate in a workshop [scheduled for February 28, 2022 (the “February 28th Workshop”)], regarding the process for developing and implementing the Three-Year DR Plan and its association with the Transition Period Plan; and 3) [...] providing a template for the Transition Period Plan under Section 2.02(C) (4) of the EE Regulation.” See February 1st Order at p. 2. In the February 1st Order, the Energy Bureau also indicated that a related purpose of the order referred to “the coordination of various processes to implement the EE Regulation and the Regulation for [DR]” and “expanded the scope of the instant proceeding to include EE alongside DR”. *See id.*

13. In addition, in the February 1 Order, the Energy Bureau amended the deadline to submit both the Three-Year DR Plan and the EE Transition Period Plan to June 6, 2022, providing an implementation start date for both of October 1, 2022, and for both to cover the period from October 1, 2022, to June 30, 2024. *See id.* at pp. 2-3.

14. Furthermore, the Energy Bureau identified several simultaneous actions taking place that required coordination- to wit: (a) the development of the Puerto Rico Test for cost effectiveness (ongoing in case NEPR-MI-2021-0009); (b) the solicitation of a consultant to

conduct a market baseline and potential studies on energy efficiency as per the EE Regulation; (c) “LUMA’s ongoing efforts to prepare for demand response, as discussed during the June 15, 2021, Technical Conference”; and (d) “LUMA’s actions to prepare a Transition Period Plan for [EE] and [DR], as required by the EE Regulation and Section II of [the February 1st Order]”. *See id.* at p. 3. The Energy Bureau further indicated that the February 28th Workshop also had the purpose of “maximizing coordination and optimizing efforts across these different actions”. *See id.*

15. Finally, the Energy Bureau directed LUMA to “prepare to present, during the [February 28th Workshop], its current plans for the development and launch of quick-start EE and DR programs, as well as the other types of activities it is planning to undertake during the Transition Period to facilitate the ramp-up of the EE and DR programs and development of the EE and DR workforce.” *See id.* at p. 3.

16. The February 28th Technical Workshop was thereafter rescheduled by this Energy Bureau for March 9, 2022, at 10:00 a.m. *See* Energy Bureau’s Resolution and Order of February 25, 2022.

17. On March 8, 2021, LUMA submitted to this Energy Bureau a copy of LUMA’s presentation for the March 9th Workshop. *See* Exhibit 1 of LUMA’s *Motion to Submit LUMA’s Presentation for Workshop Scheduled for March 9, 2022* (“March 9th Presentation”).

18. The March 9th Workshop was held as scheduled and LUMA representatives appeared therein and provided the March 9th Presentation. In this presentation, LUMA proposed filing with the Energy Bureau a proposed integrated EE and DR Transition Period Plan (“EE/DR Transition Period Plan”) by the established June 2022 deadline (*see* March 9th Presentation at slide 9), which programs/pilots would be launched in October 2022 (*see id.* at slide 10). LUMA explained that it would “include the Transition Programs for EE and DR within a joint filing to

minimize redundancy and present an integrated EE/DR portfolio structure”. *See id.* This proposed EE/DR Transition Period Plan would include “descriptions of each pilot program along with the information on portfolio management and implementation”. *See id.*

19. On June 2, 2022, LUMA submitted a motion requesting an extension until June 21, 2022, to submit the proposed EE/DR Transition Period Plan.

20. On June 8, 2022, the Energy Bureau issued a Resolution and Order granting LUMA’s request to extend the filing deadline for the EE and DR Transition Period Plan by fifteen (15) days, until June 21, 2022. In addition, the Energy Bureau scheduled a Workshop on the EE and DR Transition Period Plan to be held on June 29, 2022, at 10:00 a.m., indicating that LUMA should anticipate presenting the plan in detail and answering questions from the Energy Bureau and participants regarding the plan.

WHEREFORE, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned and accept the Proposed EE/DR Transition Period Plan in *Exhibit 1* herein.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 21st day of June 2022.

We hereby certify that we filed this Motion using the electronic filing system of this Energy Bureau and that we will send an electronic copy of this Motion to the attorneys for PREPA, Joannely Marrero-Cruz, jmarrero@diazvaz.law; and Katiuska Bolaños-Lugo, kbolanos@diazvaz.law.



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Exhibit 1

Proposed EE/DR Transition Period Plan



Transition Period Program Plan for Energy Efficiency and Demand Response

June 21, 2022

NEPR-MI-2021-0005

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1.0 Introduction

This document presents LUMA's Transition Period Plan for Energy Efficiency and Demand Response. This Plan summarizes LUMA's proposed portfolio of programs, which are designed to achieve objectives established in the regulations for Energy Efficiency and Demand Response. The following section provides background information and a summary of LUMA's Transition Period Programs.

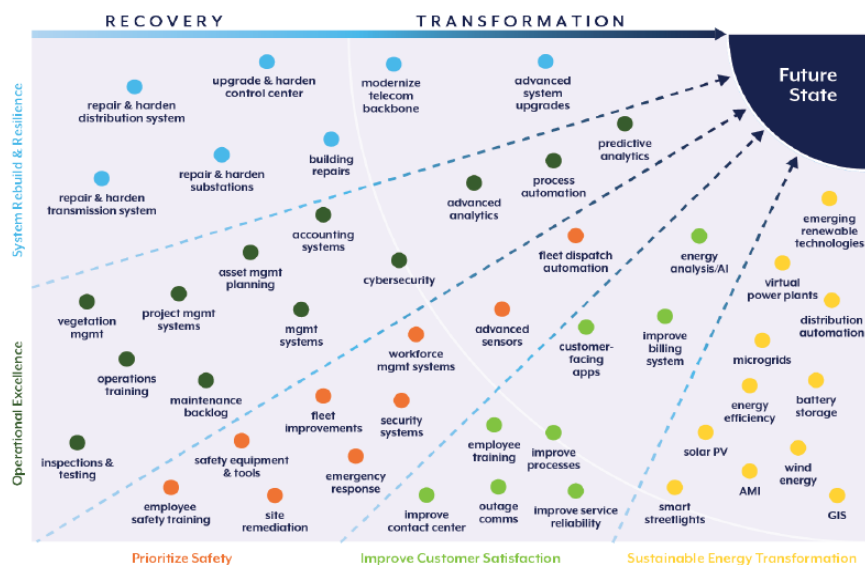
1.1 Background

Puerto Rico's electricity system is at a crucial inflection point. Decades of neglect and mismanagement compounded by damage from Hurricanes Irma and Maria in 2017, and earthquakes in late 2019 and early 2020 provide a powerful impetus for meaningful change. Puerto Rico has set ambitious public policies to transform the electricity grid into a flexible, modern, smart grid platform leveraging renewable energy resources. LUMA is committed to supporting the transformation to a reliable, resilient and sustainable energy future for the people of Puerto Rico.

The utility's infrastructure and IT OT systems are still recovering from decades of damage and neglect. Nearly all organizational systems and processes require substantial changes or complete replacement to enable more systematic, standardized and cost-effective deployment of resources and capital. LUMA has made substantial progress in our first year of operations, though significant recovery work remains.

LUMA's strategy to implement the change mandated by the Government of Puerto Rico is comprised of two phases: recovery and transformation. During the Recovery phase, LUMA will complete foundational investments to repair the grid in the near term while implementing new processes, systems and training for more effectively managing fundamental utility operations. In this Transformation phase, the utility will be redesigned to meet Puerto Rico's energy policies and needs for the coming decades. This phase will accelerate the transition to greater reliance, and eventually full reliance on renewable generation and distributed energy resources, made possible through advanced operational systems and technologies designed for the utility of the future.

Figure 1-1. Recovery & Transformation Roadmap



WHY ENERGY EFFICIENCY PROGRAMS?

An important component of Puerto Rico's Recovery & Transformation is growing the market for energy efficiency (EE) and demand response (DR) products and services. Investments in EE and DR can provide benefits to Puerto Rico by reducing electricity bills and business operating costs, creating local jobs, reducing dependence on imported fuel, bolstering grid resiliency, reducing emissions, and eventually contributing to lower utility infrastructure costs.

However, there are widely known barriers to customer adoption and investment in energy efficiency technologies:

- **Lack of Information.** Customers often lack adequate information about how they consume energy and the best ways to reduce within the limited resources customers have available to invest in building improvements.
- **Service Provider Expertise.** Customers have trouble finding local contractors with adequate knowledge and training in energy efficiency equipment and installation practices.
- **High Upfront Cost.** Customers often lack access to capital to cover the higher upfront cost of energy efficiency equipment and services.

Energy Efficiency Programs help overcome these barriers to adoption in several important ways, by providing:

- **Education** and information to raise awareness of energy use and opportunities to reduce electricity bills, leading to increased demand for energy efficiency products and services.
- **Training** and resources for contractors and service providers on efficient technologies and practices.
- **Incentives** and financing that reduce the upfront cost of products and services.

In this Transition Period Plan, LUMA outlines the first steps in launching programs that will begin to tackle these barriers to customer adoption and advance the energy efficiency marketplace in Puerto Rico. However, in addition to the general barriers to adoption listed above, there are numerous additional local considerations and barriers to adoption in Puerto Rico. We discuss these considerations in the following section to provide greater context for stakeholders.

LOCAL CONSIDERATIONS AND BARRIERS

It is LUMA's goal to launch and deliver new programs for Puerto Rico that will increase economic activity, help create jobs and grow local businesses, while improving the bottom line of industry, businesses, and households. These are ambitious goals that will take significant time and investment to achieve in Puerto Rico. The size and scope of Puerto Rico's energy efficiency programs will be limited by practical considerations of program implementation during the next few years. These considerations are related to an additional set of unique barriers to EE adoption in Puerto Rico:

- **New Market.** The energy efficiency market in Puerto Rico is in its infancy. The market needs to be developed by first creating a demand for products and services through customer education which will in turn create the need for trained and certified energy-efficient products and service providers.

Value of Energy Efficiency

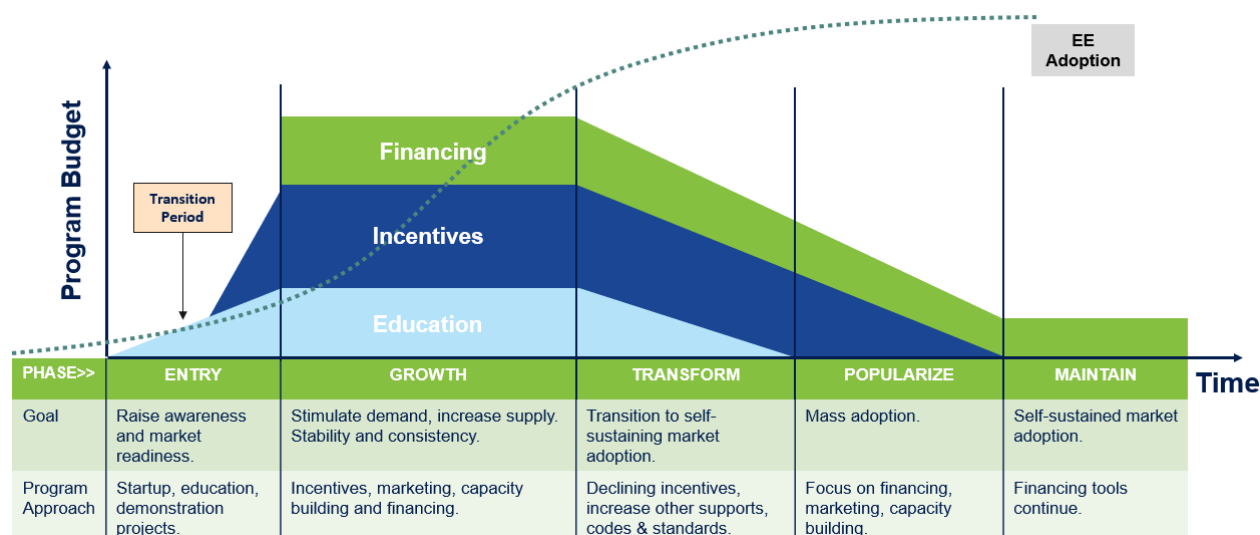
- Reduces electricity bills and business operating costs
- Creates local jobs
- Reduces dependence on imported fuel
- Helps improve grid reliability and reduce infrastructure costs
- Reduce emissions and air pollution

- **State of the T&D System.** The current and near-term state of reliability and generation resource adequacy of the electricity system leaves customers asking first-and-foremost for reliable power. This context creates challenges for LUMA in communicating about energy efficiency and demand response in a way that will resonate with customers who are experiencing frequent outages and load shedding events.
- **EE Program Delivery Experience.** Mass-market energy efficiency incentive programs are complex to administer and have never been offered in Puerto Rico. Because of this complexity, large-scale EE programs are typically delivered through “Implementation Contractors” that are experts in the design and delivery of EE programs; however, there are no experienced implementation contractors currently in operations on the island. LUMA plans to engage an implementation contractor in the delivery of Transition Period Programs (TPP), however, these contractors will take time to establish effective operations in Puerto Rico.
- **Information and Awareness.** Energy efficiency literacy in Puerto Rico needs improvement to understand the benefits of EE technologies to the degree necessary to motivate investments. EE incentive programs typically cover 30-50% of the incremental cost of EE equipment. Significant investment is still required from customers, who are less willing to invest if they do not fully understand the return on their investment. There are few widely available local resources for such energy information. Building and equipment characteristics and energy use patterns differ significantly from those in the mainland United States, meaning that solutions and resources that work in the mainland may not be applicable in Puerto Rico.
- **Local Workforce.** Energy efficiency programs rely on a network of trained, certified local contractors and engineers to conduct energy assessments, identify upgrade opportunities and properly install equipment. This is a significant opportunity for local jobs and workforce development. However, there are currently few Puerto Rican contractors with any type of energy assessment or building science training and certification. Customers often locate qualified contractors through training/credentialing organizations like LEED and Building Performance Institute (BPI), though these organizations show few if any contractors listed in their directories for Puerto Rico. The training and oversight provided by these organizations ensure that customers are not vulnerable to false-advertising and poor workmanship.
- **Availability of technology and materials.** Highly efficient equipment and appliances are not widely available in Puerto Rico. Many local stores do not carry energy efficiency appliances offered in the mainland US. It can also be difficult and expensive to ship equipment from the mainland.
- **Fuel Costs.** Puerto Rico relies on imported fossil fuels for power generation, which are subject to volatile global price dynamics, and are more than twice as high as average rates in the mainland U.S. Any increase in electricity cost feels extraordinarily burdensome for consumers, leaving little appetite for ratepayer funded EE programs, especially when customers do not fully understand the benefits.
- **Demographics.** Energy efficiency requires customer investment (even with incentive programs), however approximately 50% of housing units in Puerto Rico are living at or below the poverty line, with little disposable income to invest in EE.
- **Financial.** PREPA is still in bankruptcy with over \$9 billion in debt, and a viable plan for emerging from debt is still unclear. This has resulted in a lack of access to capital for upgrading LUMA’s technology and systems.

- Enabling Technology.** LUMA operates outmoded legacy IT OT and billing systems that do not allow for advanced EE/DR capabilities such as Time of Use (TOU) rates or on-bill financing. The utility does not have an advanced metering infrastructure (AMI) network or interval meters, which are critical enabling technologies for many EE and demand response (DR) programs. The legacy IT and telecommunications systems and networks still face a level of damage, disrepair and underinvestment that severely limits data traffic and communications, impacting the utility's ability to provide enhanced customer service or control the grid.

All these factors present significant challenges to creating a robust market for EE products and services and must be addressed over time in order to achieve Puerto Rico's ambitious savings goals. Long-term solutions require collaborative approach and LUMA is committed to working with the Energy Bureau and the dedicated local stakeholders to accelerate adoption of EE technologies in Puerto Rico. Figure 1.2 depicts LUMA's vision for the long-term transformation of the EE products and services market in Puerto Rico, accelerated by education, incentive, and financing programs.

Figure 1.2. Energy Efficiency Market Transformation Roadmap



1.2 LUMA's Transition Period Plan Summary

In response to the Energy Bureau's orders in Docket NEPR-MI-2021-0006, LUMA is pleased to present the Transition Period Plan (TPP) for Energy Efficiency and Demand Response programs. To facilitate the smooth ramp-up of programs, a "Transition Period" of two consecutive years has been established by the PREB to build market readiness prior to beginning a full-scale, comprehensive portfolio delivered on a standard 3-year program cycle. The TPP will be delivered over a two-year Transition Period corresponding to the LUMA fiscal years of July 1, 2022, to June 30, 2023 (Year 1) and July 1, 2023, to June 30, 2024 (Year 2).

LUMA has taken a strategic and systematic approach to the development of the TPP portfolio to contribute to Puerto Rico's energy and sustainability goals. We have proposed quick-start programs that provide opportunities for customers to participate across sectors and have the potential to be scaled up and enhanced as funding is increased. Figure 1-3 below shows the breakdown of programs in the TPP. Each portfolio is composed of various "quick-launch" programs and initiatives, each of which is intended

to be expanded after the Transition Period. The TPP quick-launch programs will provide a greater understanding of the Puerto Rico market, customer needs and preferences, and how best to address barriers to adoption across LUMA's broad customer mix.

Figure 1-3. Proposed Transition Period EE and Portfolio



As per the market transformation strategy above, the main objective of Transition Period programs is raising awareness and market readiness. The first year of the Transition Period will focus on LUMA's proposed Education and Awareness Program, which is designed to foster a culture of conservation and sustainability, while increasing customer knowledge and awareness of the opportunities and benefits of energy efficiency and demand response. The program will provide informational resources and demonstration projects to raise awareness of EE technologies and benefits such as energy bill savings. The Residential Rebates and Business Rebates programs will also be launched during Program Year 1 as funding allows.

In selecting the programs for the TPP, LUMA was mindful of the overarching goal of 30% improvement in energy efficiency by 2040, from the Puerto Rico Energy Transformation and Relief Act and the Puerto Rico Energy Public Policy Act.¹ The TPP is designed as a starting point to begin contributing toward achieving these targets. This TPP portfolio was designed to include programs that could be launched quickly, to achieve savings at the scale of 0.1% of annual sales in Program Year 1 and 0.25% in Program Year 2, per Energy Bureau targets. Table 1-1 below summarizes the estimated costs to reach the savings targets for years 1 and 2 of the TPP for both EE and DR programs.

Table 1-1. Summary of Program Savings and Cost Estimates

	Program Year 1	Program Year 2
Total Estimated Annual Savings (MWh)	16,557	41,301
Total Estimated Annual Peak Demand Savings (MW)	19.8	46.6
Total Estimated GHG Savings (MT CO ₂)	148,544	336,555
Total Estimated Program Cost (\$M)	\$9.9	\$20.5

¹ Act No. 57-2014 and Act No.17-2019.

2.0 Overview of Transition Period Program

The objective of this section is to provide a high-level overview of LUMA's Transition Period Plan (TPP).

2.1 Overview of “Transition Period”

On December 10, 2020, the Energy Bureau issued a Resolution approving the Regulation for Demand Response (“Regulation for DR”). The Regulation for DR requires that PREPA or its successor, LUMA, file with the Energy Bureau a Three-Year Demand Response (“DR”) Plan (“Three-Year DR Plan”) within six months of its effective date of the regulation and provides that the Energy Bureau shall establish the filing deadline for the Three-Year DR Plan by order or resolution. See Regulation on DR, Section 3.02(C)(1)(a).

On April 21, 2021, the Energy Bureau issued a Resolution and Order in case NEPR-MI-2021-0006 scheduling a Technical Conference to discuss the Three-Year DR Plan. After other procedural events, the Technical Conference was held on June 15, 2021, wherein the timeline for development and implementation of the Three-Year DR Plan was discussed. LUMA provided a presentation during the workshop in which it proposed an integrated EE-DR development approach and extended timeline for implementation given the lack of baseline and potential studies and unavailability of a PR Cost Test.

On January 21, 2022, the Energy Bureau issued a Resolution approving the Regulation for Energy Efficiency. The EE Regulation establishes orders LUMA to design and implement energy efficiency programs to achieve the statutory efficiency goal. The EE Regulation requires that LUMA:

- Develop and file a Transition Period Plan to implement “quick-start” transition programs during a two-year transition period (“Transition Period Plan”) with the Energy Bureau by March 1, 2021, to cover the period from July 1, 2022, through June 30, 2024 (see EE Regulation, Section 2.01); and
- Develop and file with the Energy Bureau a Three-Year Energy Efficiency Plan (“Three-Year EE Plan”) to be implemented over a three-year program implementation period following the quick start programs undertaken in the Transition Period Plan, covering the period from July 1, 2024, through June 30, 2027, and each next three-year period (see EE Regulation, Sections 4.02 and 4.03).

On February 1, 2022, the Energy Bureau issued a Resolution and Order in case NEPR-MI-2021-0006 detailing the actions to follow the approval of the EE Regulation, establishing a revised schedule for the Three-Year DR Plan and the EE Transition Period Plan and addressing matters related the coordination of the processes to implement the EE Regulation and the Regulation for DR, while also expanding the scope of that proceeding to consider EE and DR together. The Energy Bureau established a deadline to submit the Three-Year DR Plan and the EE Transition Period Plan for June 6, 2022, both covering the period from October 1, 2022 to June 30, 2024. The Energy Bureau also scheduled a Technical Workshop to consider various actions, including to prepare a Transition Period Plan for EE and DR and provided a template for the Transition Period Plan. Accordingly, during the Technical Workshop, held on March 9, 2022, LUMA indicated it would be submitting an integrated EE and DR Transition Period Plan included in a joint filing to minimize redundancy and present integrated EE/DR portfolio structures. On June 8, 2022, the Energy Bureau issued a Resolution and Order granting a request for extension to submit the EE and DR Transition Period Plan of fifteen days, until June 21, 2022, and scheduled a Workshop to discuss this Plan, obtain feedback from participants and answer Energy Bureau questions. This document was

prepared as the proposed EE/DR Transition Period Plan to be filed by the June deadline and to be discussed in the Workshop.

The implementation of Energy Efficiency programs and Demand Response Programs requires a coordinated effort to train specialized contractors, engage vendors, raise customer awareness, and prepare the market and utility for program launch. To facilitate the ramp-up of programs, a “Transition Period” of two consecutive years has been established in accordance with the PREB Resolutions and Orders and LUMA proposals described above to accommodate the required market transformation and learning efforts prior to beginning a full-scale, comprehensive portfolio delivered on a standard 3-year program cycle.

2.2 Summary Description of Transition Period Plan

LUMA has developed a Transition Period Plan (TPP) which is comprised of a portfolio of energy efficiency, demand response and education and outreach programs. The primary objective of this TPP is to quickly launch EE and DR programs and projects that raise awareness of energy efficiency and begin contributing towards Puerto Rico’s energy reduction targets.² These programs will target energy savings of roughly 0.1% of annual MWh sales in year 1 and 0.25% of annual MWh sales in year 2 of the Transition Period.

This Plan provides a portfolio of programs designed to achieve objectives established in *The Regulation for Energy Efficiency* (EE Regulation)³. The structure of the TPP follows the Templates required by *Resolution and Order: Notice of Revised Transition Period Plan Schedule, Workshop, and Plan Template*⁴. The remainder of the TPP is organized as follows:

- **Section 2** presents a summary of the TPP and the process used to develop it.
- **Section 3** presents summary information of the estimated energy savings and program costs.
- **Section 4** presents a detailed description of each program.
- **Section 5** presents an overview of program management and implementation strategies.
- **Section 6** presents an overview of program reporting and tracking systems.
- **Section 7** presents an overview of quality assurance, and evaluation, measurement and verification (EM&V) processes
- **Section 8** presents a description of program costs, funding sources and cost recovery mechanisms.
- **Section 9** presents a discussion of how the TPP complies with regulatory and policy goals

2.3 Summary Description of Process to Develop TPP

LUMA has taken a strategic and systematic approach to the development of the TPP portfolio to contribute to Puerto Rico’s energy and sustainability goals. We have included quick-start programs that have the potential to be scaled up and enhanced as funding is increased. We have chosen a suite of

² *Puerto Rico Energy Public Policy Act*, Act No. 17-2019 (S. B. 1121), 5th Regular Session, 18th Legislative Assembly of Puerto Rico

³ PREB, NEPR-MI-2021-0005, *Regulation for Energy Efficiency*, 21 January 2022

⁴ PREB, NEPR-MI-2021-0006, *Resolution and Order: Notice of Revised Transition Period Plan Schedule, Workshop, and Plan Template*, 1 February 2022

measures across the portfolio that provide opportunities for customers to participate across sectors and geographies.

The traditional data-driven approach to developing Energy Efficiency Portfolio Plans begins with conducting a “Market Baseline Study,” which is an extensive study of current building conditions and equipment specifications. Data collected from the Baseline Study is then used in an accompanying “Market Potential Study” to model the total achievable, cost-effective energy savings given current market conditions and constraints. Incentive and financing programs are then designed to acquire the energy savings opportunities identified in these studies.

The Energy Bureau is currently conducting the first Market Baseline and Potential Studies for Puerto Rico, which will provide a wealth of information to guide future program design and planning. However, this data was unavailable to guide the development of the TPP programs through the traditional process outlined above. For this reason, LUMA has based its program designs on the technical expertise of internal staff and that of its consultant, Guidehouse, as well as external stakeholders. Initial program research and development also leveraged information from published resources in Puerto Rico as well as Program Plans and Technical Reference Manuals from other jurisdictions.

In selecting programs to include in the TPP, LUMA incorporated stakeholder feedback received at the Technical Workshop of March 9, 2022, where LUMA presented its planning process, progress to date on the TPP and suite of proposed programs. These programs were selected to launch quickly and fill gaps in the market currently unserved by other local programs such as the Weatherization Assistance Program and others offered by the Department of Economic Development and Commerce.⁵

The completion of the Baseline and Potential Studies and annual evaluation of the Transition Programs will expand the available data and generate lessons learned that can be incorporated into LUMA's continuous improvement approach in the delivery of the TPP programs. As part of the continuous improvement process depicted in Figure 2-1 below, LUMA will make ongoing adjustments, as needed, to the eligible measure lists, incentive levels and other program elements in response to market conditions, customer uptake, and stakeholder feedback, while maintaining stable program offerings to avoid market confusion.

⁵ <https://refuerzoeconomico.com/>

Figure 2-1. Continuous Improvement Cycle of Program Development



2.4 Summary Tables of Savings Targets and Estimated Program Costs

Section 2.02 of the EE Regulation sets non-binding energy savings targets for year 1 and year 2 of the TPP to reduce consumption by 0.1% and 0.25% of annual MWh sales respectively. Table 2-1 below shows the resulting savings targets in MWh for each year of the TPP.

Table 2-1. Summary of Savings Targets by Sector as Required by EE Regulation

Market Sector	2023 Sales Forecast (MWh)	Year 1 Savings Goal (MWh): 0.1% of Sales	2024 Sales Forecast (MWh)	Year 2 Savings Goal (MWh): 0.25% of Sales
Residential Sector	7,186,665	7,187	7,159,654	17,899
Low-Income	972,017	972	968,363	2,421
Non-Low-Income	6,214,648	6,215	6,191,291	15,478
Commercial, Industrial and Agriculture (C&I) Sector	9,370,481	9,370	9,360,683	23,402
Small Business	2,082,801	2,083	2,080,623	5,202
Government/Public ¹	n/a	n/a	n/a	n/a
Portfolio Total	16,557,146	16,557	16,520,337	41,301

- 1) LUMA does not have a rate class for government or data which disaggregates this segment from C&I. As a result, LUMA has not disaggregated targets or savings for government/public sector. This segment is also targeted by other programs and is not a priority target market for LUMA's Transition Period programs.
- 2) LUMA has assumed that there will be no savings achieved for the Education and Outreach Program in year 1 and year 2.

Table 2-2 shows the energy and peak demand savings by market sector for the TPP during Program Years 1 and 2.

Table 2-2. Planned Energy and Peak Demand Savings by Market Sector for TPP

Market Sector	Program Year 1			Program Year 2		
	Annual Electricity Savings (MWh)	Lifetime Electricity Savings (MWh)	Peak Demand Savings (MW)	Annual Electricity Savings (MWh)	Lifetime Electricity Savings (MWh)	Peak Demand Savings (MW)
Residential Sector	7,209	91,730	4.6	17,955	227,940	14.9
Low-Income	869	10,034	0.5	5,591	68,632	1.8
Non-Low-Income	6,340	81,696	4.0	12,364	159,308	13.0
Commercial, Industrial and Agriculture (C&I) Sector	9,370	101,164	15.2	23,402	252,645	31.7
Small Business	2,083	22,486	0.6	5,268	56,874	1.4
Other Commercial/ Industrial and Agricultural Sector	7,288	78,678	14.7	18,134	195,771	30.3
Government/Public	n/a	n/a	n/a	n/a	n/a	n/a
Portfolio Total	16,580	192,894	19.8	41,357	480,585	46.6

Table 2-3 shows the estimated program costs to achieve the savings targets above by market sector for each of the program years of the TPP and includes both EE and DR program costs.

Table 2-3. Program Costs by Market Sector for Transition Period Programs

Market Sector	Program Year 1		Program Year 2	
	Program Implementation Costs (\$M) ¹	Participant Costs (\$M) ²	Program Implementation Costs (\$M) ¹	Participant Costs (\$M)
Residential Sector	\$2.3	\$3.4	\$7.4	\$6.9
Low-Income	\$0.6	\$0.5	\$1.7	\$1.3
Non-Low-Income Residential	\$1.7	\$2.9	\$5.7	\$5.6
Commercial/Industrial and Agricultural Sector	\$4.6	\$13.8	\$10.2	\$30.5
Small Business	\$0.5	\$1.5	\$1.3	\$3.8
Other Commercial/ Industrial and Agricultural Sector	\$4.1	\$12.3	\$8.9	\$26.7
Government/Public	n/a	n/a	n/a	n/a
Education and Outreach Program	\$1.5	n/a	\$1.5	n/a
Cross-Cutting Planning, Admin & Startup	\$1.5	n/a	\$1.5	n/a
Portfolio Total	\$9.9	\$17.2	\$20.5	\$37.4

1. Program Implementation costs include administration, rebates to customers or contractors, marketing, and EM&V.
2. Participant costs are defined as including customer share of total project costs; costs incurred by customers to implement measures in a project. The EE measure rebates for Business have been largely structured as per the rebate offering from Hawaii Energy for similar EE program. The Hawaii rebate catalogue (accessed on May 22, 2022, <https://hawaiienergy.com/images/for-business/PY21/rebate-summary-sheet.pdf>) does not provide full project or participant costs but provides only rebate per measure. Additionally, limited market outreach was conducted to seek this information from local contractors who could provide equipment cost information for lighting and water heating measures only. No data was available on project installation/labor, engineering design and other costs that would be incurred by participants. As a result, the total participant costs in the table are understated as they only reflect the portion of the purchase price of the measure cost a participant would incur.
For DR, LUMA did not assume any participant costs. Only manual DR is considered for the two Large C&I DR programs, which are the Emergency and Economic DR programs. For the Battery DR program, customers are assumed to already own a battery, so the cost of the battery is not part of the DR program.
3. Programs that target low-income customers are a subset of residential market sector and are reported separately.
4. Programs that target small business and government/public sector customers are a subset of the commercial/industrial/agriculture market sector and are reported, separately, where possible. LUMA does not have a rate class for government or data which disaggregates this segment from C&I. As a result, LUMA has not disaggregated targets or savings for government/public sector.

2.5 Summary of Proposed Funding Sources

A reliable and long-term source of funding is required for successful planning and delivery of energy efficiency (EE) programs to meet Act 17 objectives. LUMA has investigated funding sources such as federal funding, which can provide grant funding for individual EE *projects*, but do not provide funding directly to utilities for the ongoing operation of EE *programs*. Utility-sponsored energy efficiency programs require a stable annual source of funding established by the regulator, recovered through utility rates. However, rates are a sensitive topic in the current economic environment and the decision about introduction of an EE Rider requires careful consideration by the Energy Bureau. LUMA will support the Energy Bureau in making an informed decision by providing relevant data and analysis, as requested. LUMA does not recommend the introduction of the EE Rider during present economic conditions. Details on funding sources and cost recovery can be found in Section 8.0.

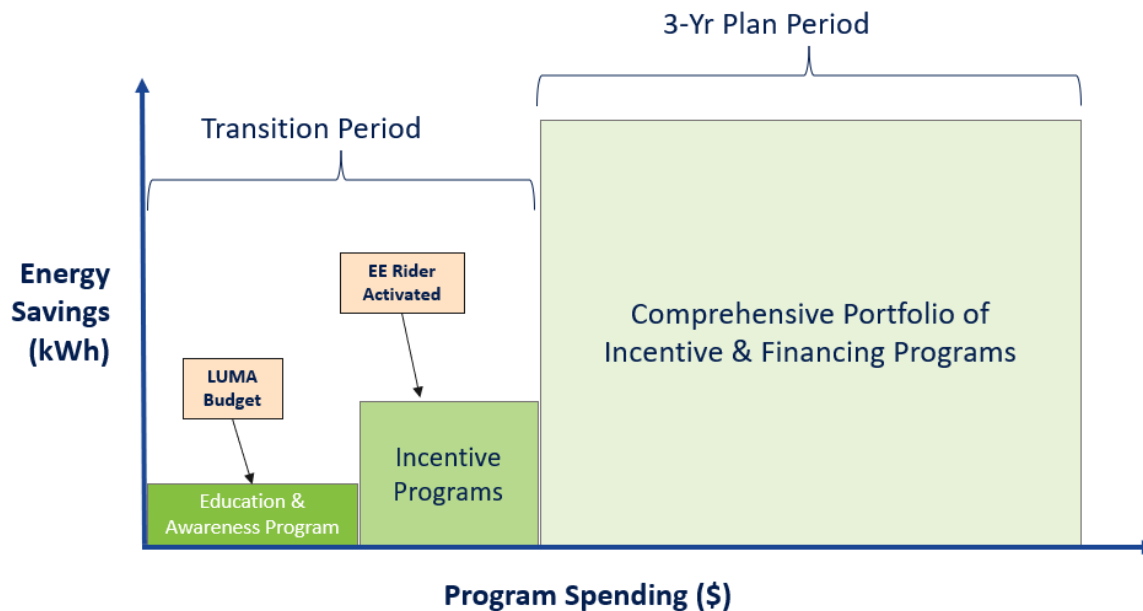
LUMA estimates that a total of approximately \$10M will be needed to fund Program Year 1 operations, to meet the energy savings targets set by the Energy Bureau. LUMA has allocated approximately \$5M of internal budget for initial program startup costs and for the Education and Outreach program, which does not include customer incentives. To recover the cost of customer incentives, the Energy Bureau will need to establish an Energy Efficiency fund, as EE incentives are not covered within the base rate. LUMA estimates an EE Rider of \$0.00032/kWh would recover the cost of program incentives. For perspective, this amounts to less than \$0.20 per month for the average residential customer.

LUMA plans to launch the Education & Outreach Program in Program Year 1. However, with uncertainty around the EE Rider activation to fund incentive programs, LUMA cannot yet provide exact timelines for the launch of all incentive programs, which will require 3-6 months for launch once funding is secured. Figure 2-2 below presents an illustrative overview of the relationship between funding and program launch. As the savings targets and program funding increase over time, LUMA will introduce additional programs and measures to scale up the portfolio accordingly.

LUMA will commence QuickStart programs that can be supported with existing resources. For example, the Street Lighting Conversion Program is part of LUMA's Community Streetlight Initiative (CSI). This is a FEMA-funded program designed to repair or replace the streetlight infrastructure and upgrade to applicable codes and standards, such as light emitting diodes (LED). LUMA will also commence

engagement with potential customers in Demand Response programs, such as Commercial and Industrial customers that may participate in Emergency Demand Response and/or Economic Demand Response.

Figure 2-2. Illustrative Overview of Funding Roadmap



2.6 Summary of Proposed Program Implementation Schedule

The TPP is designed to test and refine a suite of quick-start programs and projects before scaling them up to full program operations. The TPP programs will provide a greater understanding of customer preferences, and local contractor and equipment availability (i.e., “market readiness”). The transition programs will also help LUMA determine internal operational requirements (e.g., IT, billing, call center, etc.) and organizational changes required to effectively administer EE and DR programs. LUMA will need time to hire implementation contractors and internal staff, to develop promotional materials and necessary IT systems for rebate processing, and to begin outreach to recruit program participants.

Detailed implementation schedules for each program are presented in Section 4.0 within each Program Description, as the timelines are different for each individual program. Figure 2-3 provides a general overview of the activities that need to be completed after TPP approval and prior to program launch, each of which is discussed further in the following sections.

Figure 2-3: Overview of Program Launch Activities

PRE-LAUNCH IMPLEMENTATION PLANNING

While the Transition Plan is in review and discussion with the Energy Bureau, LUMA will issue an RFP for a turnkey Implementation Contractor(s) for program delivery. Once selected, LUMA must work with the Implementation Contractor to finalize the program design details (measures, incentives, delivery strategies, etc.) for each program, leveraging the Contractor's program delivery expertise and outreach to local contractors, retailers, and stakeholders as needed. LUMA and the Implementation Contractor will also work to incorporate any feedback received from the Energy Bureau during the TPP approval process.

The Implementation Contractor will work closely with LUMA departments such as Customer Experience and IT, to determine which program activities (e.g., marketing, customer service, application processing) need to be conducted via internal systems and which activities the contractor will be required to provide/develop. This work will inform the "Pre-Launch Implementation Planning" process, which will detail all activities that need to be completed prior to program launch to ensure a smooth, successful program launch and ongoing delivery. See Section 5.0 for more details about LUMA's program management strategy.

EDUCATION & OUTREACH PROGRAM LAUNCH

LUMA has included funding for the Education & Outreach program within its Annual Budget. During the Transition Period, the Education & Outreach Program will be the focus of LUMA's efforts, unless additional funding is secured. The Education and Outreach Program will provide educational materials, technical assistance, online customer engagement tools, and demonstration projects to build awareness and "market readiness" for mass-market incentive programs. The Education & Outreach Program will be launched as soon as the Implementation Contractor has completed the required Pre-Launch Planning activities. See Section 4.2 for more details.

EE RIDER ACTIVATED FOR PROGRAM FUNDING

As detailed in Section 8.0, the timing of launch for Year 1 incentive programs will be dependent on securing additional funding for customer incentives. LUMA has budgeted for a portion of the estimated Year 1 program costs, though this does not include incentives, which are not covered within the base rate and could be collected through the EE Rider. The decision about the introduction of the EE Rider requires careful consideration. LUMA does not recommend the introduction of an EE Rider during present economic conditions.

INCENTIVE PROGRAM LAUNCH

Depending on the timing of funding availability, implementation contractor procurement processes, and internal administrative startup requirements, LUMA intends to launch limited EE and DR programs during Program Year 1 of the Transition Period. Table 2-4 below provides an overview of the launch timeframe for each program. Due to uncertainty about program funding, exact program launch dates cannot be determined. Year 1 incentive programs are expected to launch three to six months after program funding is secured. LUMA will maintain flexibility in its approach and launch timing to respond to changing market conditions and unforeseen challenges in program administration and delivery.

Table 2-4. Program Implementation Schedule

Program	Program	Launch Timeframe
Education & Outreach Program	Customer Education / Awareness	Program Year 1
Residential Program	Residential Rebates	Program Year 1-2
	In-Store Discounts	Program Year 2
	Battery DR	Program Year 2
Commercial & Industrial Program	Business Rebates	Program Year 1-2
	Emergency DR	Program Year 1
	Economic DR	Program Year 2

2.7 Summary of Performance Targets

The Transition Period is an opportunity to learn more about EE and DR markets and program implementation and how to effectively overcome barriers to EE adoption in Puerto Rico. Through testing a range of programs across its customer base, LUMA will track program performance and learnings but will not seek additional revenues for achieving performance targets. LUMA is proposing to defer the identification of performance targets for the delivery of the TPP due to the uncertainty in the timing of when programs can be implemented.

3.0 Transition Period Program Summary Tables

The objective of this section is to provide a quantitative overview of the Transition Period Plan energy savings and program cost estimates.

3.1 Summary Information on Residential, C&I, Low Income, and Small Business Programs

Table 3-1 presents annual and lifetime electricity savings from EE programs and peak demand savings from both EE and DR programs.

Table 3-1. Energy and Peak Demand Savings for Transition Period by Program

Program	Program Year 1			Program Year 2		
	First-Year Annual Electricity Savings (MWh)	Lifetime Electricity Savings (MWh)	Peak Demand Savings (MW)	First Year Annual Electricity Savings (MWh)	Lifetime Electricity Savings (MWh)	Peak Demand Savings (MW)
Residential Rebates	7,209	91,730	4.6	14,536	184,393	9.2
In-Store Discount	n/a	n/a	n/a	3,419	60,203	2.2
Business Rebates	9,370	101,164	2.5	23,402	252,645	6.3
Emergency DR	n/a	n/a	10.5	n/a	n/a	21.1
Economic DR	n/a	n/a	2.2	n/a	n/a	4.4
Battery DR	n/a	n/a	n/a	n/a	n/a	3.5
Education & Outreach	n/a	n/a	n/a	n/a	n/a	n/a
Total Portfolio	16,580	192,894	19.8	41,357	497,241	46.6

3.2 Summary Information on Program Costs

Table 3-2 presents a summary of total program cost estimates for Program Year 1 of the Transition Period. See Section 7 for more information on funding.

Table 3-2. Total Estimated Costs for Program Year 1 by Activity

Programs	Program Planning and Administration (PP&A) ¹	Participant Incentives ²	EM&V (Included in PP&A and estimated at 3% of total budget) ³	Total Program Budget
Residential Program	\$787,500	\$1,462,500	\$67,500	\$2,250,000
Residential Rebates	\$787,500	\$1,462,500	\$67,500	\$2,250,000
C&I Program	\$1,830,827	\$2,772,962	\$145,750	\$4,603,789
Business Rebates	\$787,500	\$1,462,500	\$67,500	\$2,250,000
Emergency DR	\$843,327	\$1,264,990	\$63,250	\$2,108,317
Economic DR	\$200,000	\$45,472	\$15,000	\$245,472
Education & Outreach	\$1,500,000	\$0	\$45,000	\$1,500,000
Cross-Cutting Planning, Administration & Startup Costs⁴	\$1,500,000	\$0	\$0	\$1,500,000
Total Portfolio	\$5,618,327	\$4,235,462	\$258,250	\$9,853,789

- 1) Program Planning and Administration (PP&A) includes all the program delivery costs (e.g., FTEs working on EE and DR programs, internal labor, employee expenses, materials, and overhead, vendor-related expenses and legal) except for the incentive budget used to defray the measure costs. The PP&A budget therefore includes marketing, sales, technical assistance and training. The allocation of specific budget for marketing, sales, technical and assistance and training within the PP&A budget will be finalized by LUMA in consultation with the selected implementation contractor. For the purposes of initial budgeting for the TPP and tendering for an implementation contractor, LUMA has allocated each total program budget based on a 65% allocation of the total budget to incentives and 35% to PP&A for the EE programs. For the DR programs, incentives constitute 80% of the total program budget for the Emergency DR and Economic DR programs that target large C&I customers, with the remaining 20% for PP&A. For the other DR programs targeting residential and small C&I customers, incentives constitute 60% of the total budget and the remaining is 40% is toward PP&A. Where there are no incentives, 100% of the budget is allocated to PP&A. Each program's PP&A budget also contains the EM&V budget.
- 2) Participant Incentives are defined as including rebates for equipment and mid-stream/up-stream product discounts. For the TPP, the participant incentives are exclusively to defray eligible measure costs. For DR, incentives constitute ongoing participation incentives to enrolled customers for agreeing to reduce/shift load when called. The type and level of incentive varies by program and is stated in the program descriptions in Section 4.0.
- 3) Evaluation, Measurement, and Verification (EM&V) includes costs of market assessment, impact and process evaluations. LUMA has allocated 3% of each total program budget to EM&V, which is a standard practice for EM&V expenditures for third party evaluation.
- 4) Cross-Cutting Planning, Administrative and Startup includes costs that are not directly allocated to individual programs, which are related to preparing new processes and operational systems (IT, application systems, professional services, etc) for program implementation.

Table 3-3 presents a summary of program cost estimates for Program Year 2 of the Transition Period.

Table 3-3. Total Estimated Costs for Program Year 2 by Activity

Programs	Program Planning and Administration (PP&A)	Participant Incentives	EM&V (Included in PP&A and estimated at 3% of total budget)	Total Program Budget
Residential Program	\$2,862,500	\$4,497,534	\$220,801	\$7,360,034
Residential Rebates	\$1,968,750	\$3,656,250	\$168,750	\$5,625,000
In-Store Discount	\$393,750	\$731,250	\$33,750	\$1,125,000
BTM Battery DR	\$500,000	\$110,034	\$18,301	\$610,034
C&I Program	\$3,855,404	\$6,322,645	\$310,249	\$10,178,049
Business Rebates	\$1,968,750	\$3,656,250	\$168,750	\$5,625,000
Emergency DR	\$1,686,654	\$2,529,981	\$126,499	\$4,216,634
Economic DR	\$200,000	\$136,415	\$15,000	\$336,415
Education & Outreach	\$1,500,000	\$0	\$45,000	\$1,500,000
Cross-Cutting Planning, Administration & Startup Costs	\$1,500,000	\$0	\$0	\$1,500,000
Total Portfolio	\$9,717,904	\$10,820,179	\$576,050	\$20,538,083

4.0 Program Descriptions

Section 4.0 begins with a detailed description of the process used for selecting the TPP programs, followed by a detailed description of each program.

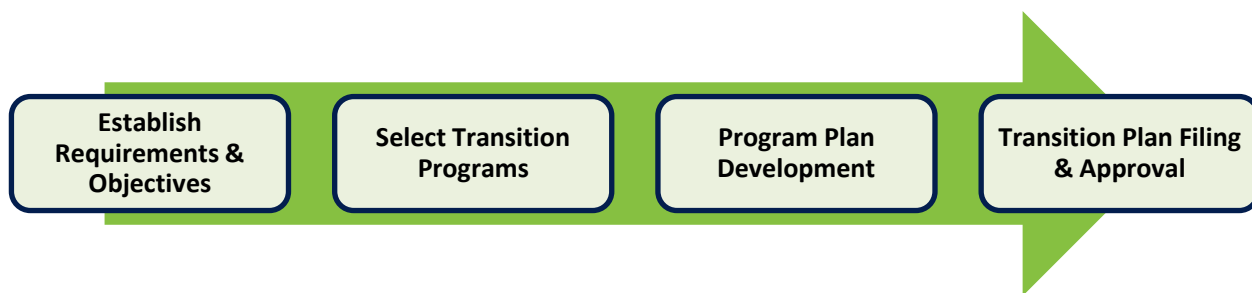
4.1 Criteria and Process Used for Selection of Programs

PLANNING PROCESS OVERVIEW

The process of planning and designing EE and DR programs traditionally follows a quantitative, data-driven approach involving market research and analysis to determine the most cost-effective programs and measures. This process traditionally begins with a “Market Baseline Study,” which is an extensive study of the efficiency level of current buildings and equipment. Data from the Baseline Study is then used in an accompanying “Market Potential Study” to identify the most cost-effective energy savings opportunities given current market conditions.

However, none of these studies were available to guide the development of this Transition Period Plan. The Energy Bureau will be conducting these Baseline and Potential Studies for Puerto Rico over the coming year(s), which will provide data to guide development of the 3-year energy EE/DR portfolio. For this reason, LUMA employed an alternative approach to selecting programs and measures. LUMA used a qualitative process to identify and select programs that best meet the objectives and requirements set forth in the EE and DR Regulations. Figure 4-1 below outlines the planning process LUMA has used for identifying and selecting the TPP programs, obtaining PREB approval and launching approved programs. Each of these steps is further detailed in the following sections.

Figure 4-1. Overview of Transition Period Planning Process



ESTABLISH REQUIREMENTS AND OBJECTIVES

To identify program requirements and objectives to guide program selection, LUMA reviewed the Regulation for Energy Efficiency, related Resolutions and Orders from PREB, stakeholder and PREB feedback from the Technical Workshop on EE-DR planning on March 9th, 2022 (Technical Workshop) and broader Puerto Rico energy policy objectives. LUMA synthesized this information into a list of primary Transition Period Objectives, shown in Table 4-1, for determining the programs to be included in the TPP. LUMA presented these objectives at the Technical Workshop and received stakeholder feedback on them. No changes to the objectives were suggested.

Table 4-1. Objectives for EE-DR Program Selection for the TPP

Category	Transition Period Objectives	Description
Customer	Energy/Bill Savings	Include measures that achieve bill savings or provide education on savings opportunities
	Ease of Participation	Easy for customers to enroll and participate
	Customer Equity/Access	Provide options for low-income and small business customers
Market / Economic	Contribute to Workforce Development	Provide local jobs, training and/or stimulate economic activity for local companies
	Raise Energy Education and Awareness	Provide information to raise customer awareness of benefits of EE/DR and how to participate
	Fill Gaps in Market	Provide services that are not already being offered by other programs (e.g. DDEC programs).
Regulatory	Cost-effectiveness	Programs that are generally known to be cost-effective.
	Quick-Launch Program	Programs that are possible to launch during the Transition Period.
	Savings Potential (scalability)	Programs that have the potential to scale up and achieve high savings to meet IRP targets.
Program Administrator	Timeline/Ease of Implementation	Programs that are not too complex to set up and launch during the Transition Period.
	Market/workforce readiness	Local availability of equipment and/contractors for installation.

SELECT PROGRAM PROGRAMS

LUMA screened a broad range of potential program offerings to identify those that meet the Objectives above. LUMA used a simple prioritization framework to qualitatively value each program's contribution to the key Objectives above. A qualitative prioritization matrix was used to inform program selection, combined with subject matter expert judgement of operational considerations and needs. Figure 4-2 presents the portfolio of programs that resulted.

Figure 4-2. Transition Period Program Portfolio

LUMA presented the initial set of programs for discussion at the Technical Workshop. Based on PREB and stakeholder feedback and guidance, LUMA finalized the programs for the TPP. Table 4-2 provides the rationale for the selection of each of the programs proposed to be included in the TPP.

Table 4-2. Selected Year 1 and Year 2 EE-DR Programs and Rationale for Selection

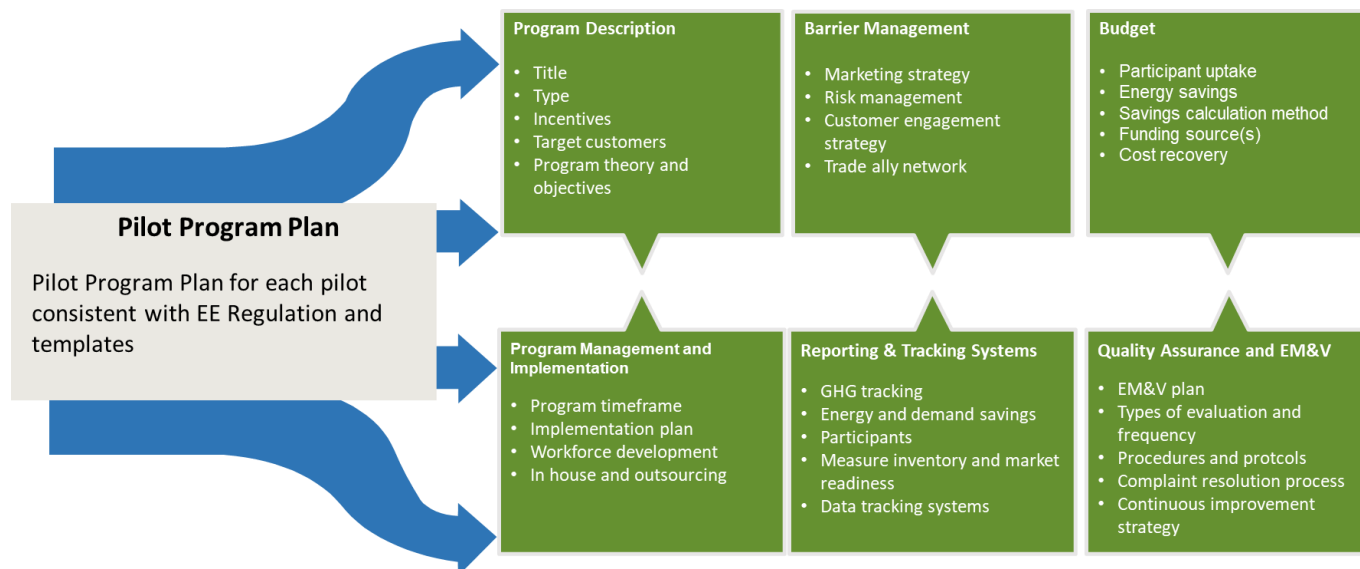
Program	Rationale for Selection
Education Outreach – EE - Customer Ed./Awareness Campaign Program	Energy efficiency literacy in Puerto Rico needs improvement to understand the benefits of EE technologies to the degree necessary to motivate investments. There are few widely available local resources for energy information. This program provides resources to build market awareness and readiness.
Residential – Energy Efficiency Rebate Program	Provides broad range of measures covering multiple energy end-uses in the home; offers the ability to provide higher incentives to low-income consumers; can go to market quickly using mail/online rebate approach. This type of deemed savings program is well-established in other jurisdictions and provides a foundation on which to offer additional measures over time.
Residential – Energy Efficiency In-Store Discount Program	Builds on the Residential Rebate program by offering an additional delivery channel through in-store point of sale discounts on eligible products. This approach should increase participant uptake and savings by avoiding an application process. Because the program requires recruitment of retail outlets and potential changes to in-store offering and processing of discounts, the program has a longer lead time to set up and launch, which could be accomplished in the second year of Transition Period Plan delivery. This type of deemed savings program has had success in many jurisdictions across North America.
Residential – Battery Demand Response Program	Reduces energy use through load shifting to behind the meter (BTM) batteries during peak demand periods. This could be relevant given the growing adoption of BTM batteries for resiliency benefits. Batteries could be a sizeable resource in future and therefore it may be useful to conduct a program to begin learning to operate these as a grid resource.
Commercial and Industrial – Business Rebate Program	Provides a broad range of measures covering multiple energy end-uses in commercial and industrial establishments, including small businesses and the common areas of multi-residential buildings. Can go to market quickly using mail/online rebate approach. This type of deemed savings program is well-established in other jurisdictions and provides a backbone on which to offer additional commercial and industrial programs over time.
Commercial and Industrial – Emergency Demand Response Program	Addresses system emergency needs and is of high strategic importance to LUMA to help avoid under-frequency load shedding events. Successfully implemented in other jurisdictions.

Commercial and Industrial – Economic Demand Response Program	Addresses economic situations with high energy prices (avoid energy purchase at high prices during peak demand periods).
Street Lighting Conversion Program	This program improves public safety and customer experience by restoring streetlights to working order, while saving energy from the conversion of lamps to LEDs. This is an ongoing FEMA-funded program, already underway.

PROGRAM PLAN DEVELOPMENT

The process for developing each program is described in Figure 4-3. It is based on and is consistent with the PREB template to be followed for the TPP. Each program plan covers industry-standard topic areas: program descriptions, budget, barrier management plan, program management and implementation plan, reporting and tracking system descriptions, and an evaluation plan.

Figure 4-3. Program Plan Development



LUMA undertook limited measure analysis for the EE programs, which included selecting measures and estimating savings and costs for each measure. For measure savings estimates, LUMA utilized Puerto Rico specific information resources including the Puerto Rico Energy Efficiency Scenario Analysis Tool⁶ from NREL and the corresponding Puerto Rico: Emerging Opportunities for Energy Efficiency and Equitable Clean Energy Development report. LUMA also undertook a jurisdictional review of existing Technical Reference Manuals (TRM) and rebate catalogues. For measure cost estimates, LUMA gathered limited information from local vendors (suppliers, hardware stores, and electrical contractors) to compare with other jurisdictions. Based on previous experience from stakeholders working on similar programs like the State Energy Program, the Weatherization Assistance Program, and the Energy Efficiency Block Grant, LUMA performed a comparison of the selected measures and their respective prices to determine the equipment cost used to calculate budget and incentives.

⁶ <https://www.nrel.gov/state-local-tribal/preesat.html>

TPP FILING AND REGULATORY APPROVAL

LUMA has prepared the TPP based on the planning process described above and has documented in the TPP the results of that planning consistent with the PREB templates. Following the filing of the TPP with PREB, as discussed at the Technical Workshop, PREB will convene a workshop with stakeholders to discuss the TPP and obtain stakeholder feedback.

4.2 Education and Outreach Program

The following section provides a detailed description of the Education and Outreach Program.

PROGRAM DESCRIPTION

Program Summary: The Education and Outreach Program is comprised of educational tools, information resources and outreach initiatives to increase customer and stakeholder understanding of energy efficiency and demand response technologies for achieving energy bill savings. Messaging will be delivered through various channels and will include information on energy reduction actions, bill savings and other programs offerings (once available). The program will also include online informational tools and resources, community/stakeholder engagement initiatives and/or demonstration projects.

Services Provided: The Program will provide information that is easy to understand on energy efficiency technologies and energy bill reduction strategies for the home and business. Messaging may also highlight the importance of saving energy during critical periods. The program will need to work to develop and refine messaging that resonates with customers, given current conditions with generation reliability and fuel prices. Depending on feasibility of implementation, the program may include additional features such as:

- Online energy audit and/or “efficiency marketplace” tools.
- Customer-oriented energy savings/cost estimation tools.
- Home energy reports with personalized information about customer consumption patterns.
- Technical assistance for community demonstration projects (e.g., on-site energy audits and project recommendations), potentially including limited matching grants and assistance developing case studies and promotional materials.
- Technical assistance for project proponents in pursuing additional matching funds from external grant sources.
- Initiatives to support the development of a local stakeholder advisory group.

The specific details of services provided will be finalized based on input from the implementation contractor selected to deliver the program. The implementation contractor selected will be an expert in these programs and may offer innovative ideas or other considerations that will change final program design details.

Incentive Strategy: No financial incentives will be offered. However, the program may use contests, prizes, small grants or in-kind donations of technical support to encourage project implementation.

Incentive Rationale: This is an educational and awareness program focused on providing information rather than incentives. Financial incentives available in the Residential Rebates and Business Rebates programs (once available) will be cross promoted.

PROGRAM THEORY AND OBJECTIVES

Designing and delivering energy efficiency and demand response programs in Puerto Rico is a new effort. Improving customer engagement and awareness is critical to the success of LUMA's future EE and DR programs. The program is designed to foster a culture of conservation and sustainability, while increasing customer knowledge and awareness of the opportunities and benefits of energy efficiency, demand response, solar PV and battery storage.

TARGET CUSTOMER POPULATION

The target population includes all customers. Program messaging and features will be tested with small populations before scaling to the broader populations.

BARRIER ANALYSIS

Table 4-3. Barrier Analysis for Customer Education/Awareness Campaign

	Barrier	Risk	How the Program will Address
Varying levels of customer knowledge levels of EE	✓		Provide simple messaging requiring minimal level of understanding, building knowledge over time.
Different customer interests relevant to EE	✓		Will provide different types of messaging catering to customer interests including climate benefits, financial benefits, and energy savings.
Messaging about conservation and load reduction could create negative responses from customers who are experiencing outages due to loadshedding events		✓	LUMA will test messaging and monitor which messages are resonating and which to eliminate/revise.
No financial incentives to promote energy efficiency actions might result in lower customer responsiveness	✓		LUMA will work to support and cross promote other local programs (i.e. DDEC, Vivienda, Green Trust, etc) and community initiatives.
Developing a culture of conservation and sustainability takes significant time	✓		Measure changes in awareness over time (through process evaluation activities) to enhance messaging effectiveness. This may include questions about actions taken in response to messaging.

MARKETING STRATEGY

LUMA will leverage various communication channels to provide information on energy efficiency related actions. The program will target residential customers through a range of marketing channels that may include:

- Engagement and promotion through LUMA's website and social media channels
- Online customer-engagement resources such as an Online Energy Audit tool and/or Energy Efficiency Marketplace tool
- Cross-promotion with other programs
- Demonstration projects and/or contests for community efficiency projects, with recognition, prizes and limited grant funding

BENEFITS: ESTIMATED ENERGY SAVINGS AND PROGRAM COSTS

This is an education and awareness program. Energy and greenhouse gas savings will be achieved but are "hard-to-measure." The main benefits of this program are increased residential customer awareness of energy efficiency and DR as well as cross-promotion of other residential programs. The program will

attempt to provide information that is accessible to all LUMA customers, therefore it is difficult to estimate a specific number of “planned participants.”

Table 4-4. Estimated # Participants, and Costs for Customer Education/Awareness Program

Description	Yr. 1 Estimate	Yr. 2 Estimate	Total
Energy Savings (MWh)	N/A	N/A	N/A
Planned Participants	TBD	TBD	TBD
Total Costs (\$)	\$1,500,000	\$1,500,000	\$3,000,000

IMPLEMENTATION STRATEGY

The program will be delivered by a third-part implementation contractor who will work with LUMA finalize program design details, develop program materials, and deliver customer education and engagement initiatives.

PROGRAM TIMEFRAME

The table below shows the key tasks and timetable for pre-launch activities that must be completed in preparation for program launch. The program is expected to begin in FY23, as soon as an implementation contractor can be engaged, and pre-launch activities completed.

Table 4-5. Program Timeframe – Education & Awareness Program

Pre-Launch Activities	FY23				FY24
	Q1	Q2	Q3	Q4	Q1+
Engage Program Delivery Contractor					
Finalize Program Design Details					
Develop Program Materials					
Begin Customer/Stakeholder Outreach					
Program Launch & Implementation					

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)

The table below describes the EM&V plan including procedures that will be implemented to determine whether the program achieved its objectives.

Table 4-6. EM&V for Customer Education/Awareness Campaign

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> Empower residential customers to take more control over their energy use Provide positive channels for customers to engage on energy efficiency Channel customers into incentive-based energy efficiency programs to increase their savings opportunities, such as the residential and business rebate programs
Evaluation objectives	<ul style="list-style-type: none"> Improve the design and implementation of existing and new/future programs through process evaluation

Key impact evaluation procedures	<ul style="list-style-type: none"> • Not applicable
Key process evaluation procedures	<ul style="list-style-type: none"> • Review all related materials (nudges, tips, contests, draws etc.) for effectiveness and make recommendations for improvement • Conduct annual customer satisfaction surveys to evaluate impact of tips and nudges
Key Performance Indicators	<ul style="list-style-type: none"> • Tracking of website and social media posts – number, likes etc. • Impact of tips and nudges on overall customer perception/satisfaction with LUMA • Self-reported actions taken in response to messaging • Self-reported increase in awareness of EE benefits • Mi LUMA notifications and other data collection from the app • Customer outreach emails regarding concerns and positive feedback
Suggested schedule	<ul style="list-style-type: none"> • Conduct process evaluation annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none"> • Respond to requests and provide information requested in a timely manner as available • Require implementation contractors to respond to requests and provide information requested in a timely manner as available

4.3 Residential Portfolio

The Residential Portfolio contains the following programs: Residential Rebates, In-Store Discounts, and Battery Demand Response. Each of these is described below.

4.3.1 Residential Energy Efficiency Rebate Program

PROGRAM DESCRIPTION

Program Summary: The Residential Rebate program will provide customers a financial incentive for purchasing and installing high-efficiency measures from a list of eligible measures. Customers are required to submit their rebate application by mail, email or online to LUMA (depending on application system capabilities). LUMA's implementation contractor (once engaged) will review and approve the application and process an incentive check. Details about each project will be recorded in a detailed tracking database to ensure accurate reporting and verification.

Services Provided: A prescriptive financial incentive (\$/unit) will be offered for the installation of eligible measures. The program may also include informational resources and cross promotion with the Education & Outreach Program. The specific details of final incentive levels, measure lists and other services provided will be finalized based on input from the implementation contractor selected to deliver the program.

Eligible Measures: Limited data is available in Puerto Rico on baseline building and equipment conditions, from which to design a list of improvement measures. It is anticipated that HVAC, lighting, water heaters will be the primary focus of the program during Year 1, as these are well-understood to be cost-effective measures. The program will add appliance, building envelope, and other measures as budget allows. Table 4-7 presents a preliminary list of eligible measures, with indicative estimates of savings per measure and incentive per measure. Without the benefit of a Baseline Study, these measure savings estimates rely on inputs and assumptions from other jurisdictions and represent indicative estimates for planning purposes. The measure list and incentive amounts will be finalized before program launch and updated as needed to reflect actual market conditions and budget availability.

Table 4-7. EE-Residential Rebate Program Measure List

End-Use	Eligible Measures	Savings per measure (kWh)	Incentive per measure (\$) Residential	Incentive per measure (\$) Low-income
HVAC	Ductless Air Conditioner	395	200	300
HVAC	Window Air Conditioner	331	50	175
Lighting	ENERGY STAR LED Lighting	30	3	5
Water Heating	Solar Water Heater	1,825	250	500
Water Heating	Tankless Water Heater	529	50	75
Food Services	ENERGY STAR Refrigerator	51	50	100

Incentive Strategy: A prescriptive (fixed amount per measure) financial incentive will be available for each eligible measure, which will be reviewed on a regular basis and updated as needed based on changing market conditions and pricing of the eligible measures. Low-income customers may be offered higher incentives per measure for select measures to provide greater access to energy efficiency opportunities. To obtain the financial incentive, participants will fill out a rebate application form, through

either email, mail, or an online form. LUMA will review and approve the application form and mail out the rebate check. The program will likely start with a limited selection of measures and introduce additional measures periodically. The rationale for this phased strategy is to avoid oversubscribing the program by adding too many measures at once, resulting in early program closure.

Incentive Rationale: A prescriptive incentive strategy was selected to simplify the customer application process. Prescriptive incentives were determined based on a review of Technical Reference Manuals from relevant jurisdictions as well as investigation of pricing for the measures in Puerto Rico and LUMA's local knowledge. The main references were the NREL Puerto Rico Energy Efficiency Scenario Analysis tool (specifically the Virgin Islands source material), Puerto Rico: Emerging Opportunities for Energy Efficiency and Equitable Clean Energy Development report, State of Hawaii Market Potential Study, Hawaii Energy TRM, and the current Hawaii Energy rebate catalogue. Additional resources included the Texas TRM, Florida Power and Light and Keys Energy rebate catalogues, New Orleans TRM, and Illinois TRM. We chose a range of residential end uses to provide potential participants with choice of measures and measure cost for making home improvements to improve energy efficiency.

PROGRAM THEORY AND OBJECTIVES

Residential customers will have a range of eligible energy efficiency measures. A financial incentive of roughly 30%-50% of incremental cost will be available for each eligible measure to help defray the up-front cost of the measure. Program savings will be determined based on deemed savings per measure, eliminating the need for expensive, complicated on-site energy savings analysis which can present a barrier to adoption. In recognition of the energy burden faced by low-income customers, the program may offer higher incentives for income-qualified participants, depending on the feasibility of income-based eligibility screening.

By providing energy savings opportunities for a range of lower cost residential measures, the program will provide customers, both low-income and non-low-income residential customers, with opportunities to achieve energy and bill savings as well as opportunities to reduce greenhouse gases and help Puerto Rico achieve its energy efficiency target. The program will focus on measures that are not already incentivized through other programs. During the Transition Period, this program will help LUMA gain a better understanding of which measures will have the greatest uptake and savings for customers, as well as opportunities to improve the customer journey.

TARGET CUSTOMER POPULATION

All residential customers, including low-income and including multifamily units.

BARRIER ANALYSIS

Table 4-8. Barrier Analysis - Residential Rebate Program

	Barrier	Risk	How the Program will Address
Lack of knowledge of EE opportunities	✓		The program will conduct marketing and outreach to potential participants that will include information about energy savings. The Education and Outreach Program will provide outreach and engagement to complement this program.
Lack of customer capital to purchase EE products	✓		The program provides incentives to reduce the up-front cost of high-efficiency equipment. Income-qualified

			customers may be eligible for higher rebates per measure.
Lack of availability of eligible products	✓		LUMA will work with equipment suppliers to better understand stocking and availability of products locally. LUMA will update the list of eligible measures on a regular basis based on consultation with participants, potential participants and equipment suppliers and distributors in Puerto Rico.
Lack of available contractors for facility assessments and measure installation	✓		As part of delivery of the program in year 1, LUMA will reach out to contractor networks and associations in Puerto Rico and identify opportunities to help grow the network of trained contractors. LUMA will identify training needs and will initiate work to fill those needs either through direct offering of training or through working with local educational institutions.
Eligible product price uncertainty		✓	LUMA understands that in 2022 there are inflationary pressures which may continue into 2023 and beyond. LUMA will monitor inflationary pressures and price volatility and adjust incentive levels if appropriate.
Uncertainty of energy savings estimates	✓	✓	LUMA has selected measures that are most likely to be cost-effective. LUMA will continue to refine energy savings estimates using data collected from participating projects.

MARKETING STRATEGY

Marketing for the Residential Rebate Program will be conducted by an Implementation Contractor, with oversight from LUMA. The marketing strategy target residential customers through a range of marketing channels that may include:

- Engagement and promotion through LUMA's website and social media channels, by providing information such as program description, frequently asked questions and answers, and contact information
- Cross-promotion with other programs
- Downloadable rebate applications and online rebate application process
- Program information, presentations and advertisements at appropriate events targeted at residential customers or trade allies that support the sector
- Attendance at community events to promote the program.

BENEFITS: ESTIMATED ENERGY SAVINGS AND PROGRAM COSTS

Table 4-9 below provides an initial estimate of energy savings and costs for the Residential Rebate Program during the Transition Period.

Table 4-9. Estimated Savings, # Participants, and Costs for the Residential Rebate Program

Description	Yr. 1 Estimate	Yr. 2 Estimate	Total
Residential			
Annual Electricity Savings (MWh)	7,209	14,536	21,746
Lifetime Electricity Savings (MWh)	91,730	184,393	276,124
Peak Demand Savings (MW)	4.6	9.2	13.7
Planned Participants	8,306	17,240	25,546

Low-Income			
Annual Electricity Savings (MWh)	869	2,173	3,042
Lifetime Electricity Savings (MWh)	10,034	25,085	35,120
Peak Demand Savings (MW)	0.5	1.3	1.9
Planned Participants (#)	1,897	4,743	6,640
Total Costs (\$)	\$2,294,450	\$5,097,636	\$7,392,086

PROGRAM LAUNCH TIMEFRAME

The table below shows the key tasks and timetable for pre-launch activities that must be completed in preparation for Launch. Due to uncertainty about program funding, an exact program launch date cannot be determined, though the program will be ready for launch three to six months after program funding is secured.

Table 4-10. Program Timeframe - Residential Rebate Program

Pre-Launch Activities	Q1	Q2	Q3	Q4	Q5+
Engage Implementation Contractor					
Finalize Program Design Details & Operational Requirements					
Create Program Materials and Application Process					
Program Launch & Implementation					

During the first quarter of FY2023, LUMA will issue an RFP for an implementation contractor. LUMA will work with the implementation contractor to finalize program design details (e.g., measure list, incentive levels, program requirements, etc.), create program materials and rebate application processes. These pre-launch implementation preparation activities typically take 3-6 months before the program is ready for launch. However, the exact date of program launch will depend on securing additional funding for incentives (see Section 8.0 for details on Funding and Cost Recovery).

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)

The table below describes the EM&V plan including procedures that will be implemented to determine whether the program achieved its objectives.

Table 4-11. EM&V for Residential In-Store Discount Program

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> • Achieve savings target • Provide measures for range of residential end uses with financial incentives • Provide potential participants with choice of measures for making home improvements to improve energy efficiency • Engage low-income participants by providing higher incentive levels • Assess barriers and program readiness for scale-up
Evaluation objectives	<ul style="list-style-type: none"> • Document energy and demand savings • Provide verification and due diligence of project savings

	<ul style="list-style-type: none"> • Improve the design and implementation of existing and new/future programs through process evaluation
Key impact evaluation procedures	<ul style="list-style-type: none"> • Review approximately 5% of project applications through due diligence inspections of a sample of project documentation • Review tracking database and make recommendations for improvement • Conduct phone or online survey for verification of installation, and savings accuracy
Key process evaluation procedures	<ul style="list-style-type: none"> • Review program documentation, including program plans or filings, marketing materials, implementation contractor contract documents, and program website(s) • Conduct interviews with utility program staff and implementation contractors • Conduct surveys (could address both impact and process matters in the same survey) with sample of participants to understand the effectiveness of program design, marketing and customer acquisition, and program administration or delivery, and to assess customer satisfaction
Key Performance Indicators	<ul style="list-style-type: none"> • Energy savings reported and verified • Demand savings reported and verified • Total participants reported and verified • Total measure quantities by measure type reported and verified • Customer satisfaction
Suggested schedule	<ul style="list-style-type: none"> • Conduct impact and process evaluation bi-annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none"> • Respond to requests and provide information requested in a timely manner as available • Encourage implementation contractors to respond to requests and provide information requested in a timely manner as available

FUTURE PROGRAM EVOLUTION

LUMA will review the list of eligible measures for potential addition or removal of measures, and adjustments to the incentive levels. LUMA will consider offering a larger selection of measures such as more lighting and HVAC measures and other types of equipment not currently covered (e.g. building envelope measures). LUMA will also explore opportunities with local lenders to offer financing for eligible measures. Any program evolution will be informed by best practices in other jurisdictions as well as experience and learnings from the delivery of the program in year 1, and customer and stakeholder feedback.

4.3.2 Battery Demand Response Program

PROGRAM DESCRIPTION

Program Summary: This program will target residential customers with behind the meter (BTM) batteries and provide incentives for load shifting to batteries during DR event periods. The program will encourage participants to shift home load from grid to batteries during DR event periods in response to emergency/reliability or economic triggers. Participants will be provided with an incentive for incremental load shifting to batteries during DR event periods (beyond their baseline load shift patterns). Participants will be notified of DR events either a day in advance (for events with economic trigger) or on the day of the event (for events with reliability/emergency triggers). This program will develop and test operational procedures for leveraging distributed batteries as a demand response resource.

Services Provided: LUMA will provide participants a financial incentive for load shifting to BTM batteries during peak demand periods. The specific details of services provided will be finalized based on input from the implementation contractor selected to deliver the program.

Eligible Measures: BTM batteries.

Incentive Strategy: This program will either offer prescriptive incentives (\$/kWh) or fixed bill credits (\$/month) for incremental load shifting to batteries during peak demand periods relative to baseline load. The determination of which incentive structure to offer will be contingent upon the enabling technology required to measure and bill for specific kWh reduction. LUMA does not have time-of-use interval meters and will need to develop a method for collecting battery telemetry data to verify the amount of load shifted.

Incentive Rationale: Incentives will be determined based on avoided generation costs during peak period, and benchmarking with similar programs offered in other jurisdictions.

PROGRAM THEORY AND OBJECTIVES

BTM batteries could potentially provide significant grid benefits, which will be tested through this program. Battery adoption is expected to grow significantly, primarily driven by resiliency, and this program will help customers leverage those assets for additional bill savings opportunities, while helping to maintain grid reliability. DR events for this program will be triggered either by reliability/emergency and economic conditions. The reduction in energy use during reliability/emergency grid conditions can help reduce the possibility of outages. Additionally, DR events, triggered by economic conditions, will help lower energy costs during high demand periods. Participants will have an opportunity to reduce their consumption during peak demand periods and thereby reduce their bills and contribute to Puerto Rico savings target and GHG reduction target.

TARGET CUSTOMER POPULATION

The program will start with a small number of customers to develop and test operation procedures, software functionality and billing procedures. If successful, this program would scale up to be eligible for any customer with a BTM battery.

BARRIER ANALYSIS

Table 4-12. Barrier Analysis for Battery Demand Response Program

	Barrier	Risk	How the Program will Address
Implementation Risk	✓	✓	This program will require a software platform to control dispatch of batteries during DR events. Before implementation, LUMA will need to contract with a third-party provider for the software platform (issue RFP and factor in sufficient time for vendor selection and contracting) and ensure that the platform is interoperable (communicate and control) with the battery software systems provided by the different battery vendors.
Billing and settlement	✓	✓	There is uncertainty about how to integrate third-party battery telemetry data into billing systems for settlement of customer incentives. LUMA's billing system currently does not have the ability to perform these activities, potentially affecting the timing and scale of the program unless alternative solutions can be devised through an external implementation contractor or aggregator.
Lower than expected enrollment		✓	Program will closely monitor enrollment and ramp up and/or re-strategize on program marketing and customer outreach methods to ensure that the value proposition for participation is clearly communicated.
Low response to DR events		✓	Program will closely monitor customer response to DR events using battery telemetry data and performance tracking systems (that allows viewing of battery load profiles of enrolled customers), and address how the DR event response rate could be increased through additional customer outreach methods and stronger messaging.
Resistance to shift load		✓	Program will monitor customer load shifting behaviors during event period and adjust program parameters as necessary.

MARKETING STRATEGY

Marketing for the Battery DR Program will be conducted by an Implementation Contractor, with oversight from LUMA. Customers will be notified of DR events using web-based notification and communication channels, including SMS and email notifications through an implementation contractor or aggregator. Program marketing and customer outreach may involve the following:

- Direct outreach to existing service providers (e.g., solar/battery system installers).
- Engagement and promotion through LUMA's website and social media channels.
- Program information and presentations at events targeted to customers or trade allies that support the sector.
- Case studies available to residential customers and trade allies to showcase program successes.
- Leverage vendor marketing efforts and communication channels to promote the program.

BENEFITS: ESTIMATED PEAK DEMAND SAVINGS AND PROGRAM COSTS

This program targets residential customers with BTM batteries. The program will start with a small number of customers to test the operation procedures. The savings estimates assumed that 5% of residential customers with BTM batteries in Year 2 enroll in the program and shift their whole house load to batteries during DR event periods. Participants receive an incentive for shifting their load to batteries and are compensated based on system marginal generation costs during the peak period. The total program costs include customer incentives plus the program administration costs. Table 4-13 shows the peak demand savings, planned participants and total costs in year 2 of the program.

Table 4-13. Estimated Savings, # Participants, and Costs for Battery DR Program

Description	Yr. 1 Estimate	Yr. 2 Estimate
Total Peak Demand Savings (MW)	-	3.5
Planned Participants	-	2,000
Total Costs (\$)	-	\$610,034

IMPLEMENTATION STRATEGY

LUMA expects to administer this program through an implementation contractor for undertaking the following business functions:

- **Define Program Parameters and Initiate Load Control Events**
 - Define dispatch criteria (economic, reliability, emergency, operating reserves, NWA, etc.)
 - Define program parameters (e.g., applicable months, event hours, event duration, annual limit on event hours, event frequency)
 - Initiate load control events
- **Marketing, Customer Recruitment & Outreach**
 - Undertake marketing, customer education, and outreach via third-party implementation support
- **Technology Provision and Enablement**
 - Contracting with a third-party to provide the software platform needed for dispatch of batteries during DR events
- **Data Support and Performance Analysis**
 - Obtaining data from customer batteries and tracking program performance
- **Billing and Settlement**

- Billing and settlement of customer incentive payments using battery telemetry data, since LUMA does not have smart meters. This will be conducted via third-party contractor during the Transition Period as LUMA's internal billing system will require time to integrate these features.
- **Evaluation, Measurement and Verification (EM&V)**
 - Assisting with independent ex-post impact and process evaluation of the program and establishing the analytical framework for conducting annual impact and process evaluations

PROGRAM TIMEFRAME

The Battery Demand Response Program is expected to launch in Year 2 of the TPP, as this program is expected to require additional time for administrative startup and technology enablement. The timelines below provide illustrative timetables for the duration of activities required before program launch. The exact timing of the beginning of pre-launch activities is contingent on the procurement of a Distributed Energy Resource Management System (DERMS) platform or contracting with a service provider.

Table 4-14. Program Timeframe - Battery Demand Response Program

Pre-Launch Activities	Q1	Q2	Q3	Q4	Q5+
Engage Implementation Contractor					
Finalize Program Design Details and Program Operational Requirements					
Begin Customer Outreach and Enrollment					
Program Launch & Implementation					

**Launch and Implementation contingent on selection of platform provider.*

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)

Table 4-15. EM&V for Battery Demand Response Program

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> ● Improve grid reliability and provide bill savings opportunities to customers
Evaluation objectives	<ul style="list-style-type: none"> ● Document demand savings ● Provide verification and due diligence of program savings ● Improve the design and implementation of existing and new/future programs through process evaluation
Impact evaluation	<ul style="list-style-type: none"> ● The impact evaluation will entail establishing a method for determining baseline demand (based on standard EM&V methods and protocols) and measuring load reduction during DR events vis-à-vis the customer baseline load. ● Impact evaluation will be conducted bi-annually and will provide ex post and ex ante estimates of the following metrics: <ul style="list-style-type: none"> ○ Average per event impacts (kW)

	<ul style="list-style-type: none"> ○ Aggregate seasonal/annual impacts (kW)
Process evaluation	<ul style="list-style-type: none"> • The process evaluation will assess whether program objectives were met, assess customer satisfaction with the program and provide suggestions for future improvements. • The evaluation process will include the following: <ul style="list-style-type: none"> ○ Review program documentation review, including program plans or filings, marketing materials, implementation contractor contract documents, and program website(s) ○ Conduct customer/contractor satisfaction surveys and focus group discussions (if possible) ○ Conduct interviews with LUMA program manager and other program staff and implementation contractor
Key KPIs and metrics	<ul style="list-style-type: none"> • Average event savings (reported and verified) • Aggregate program savings (reported and verified) • Total enrolled customers (reported and verified) • DR event response rate • Customer satisfaction
Suggested schedule	<ul style="list-style-type: none"> • Conduct impact and process evaluation bi-annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none"> • Respond to requests and provide information requested in a timely manner as available • Require implementation contractors to respond to requests and provide information requested in a timely manner as available

4.3.3 In-Store Energy Efficiency Discount Program

PROGRAM DESCRIPTION

Program Summary: The In-store Discount Program will offer a point-of-sale discount for eligible measures at participating retail stores. Participating retailers will sign an agreement with LUMA to participate and agree to the discount redemption process. Participating retailers will agree to use program signage in the store, stock eligible measures, and participate in any seasonal programming such as holiday discounts.

Services Provided: LUMA will work directly with retailers to provide an instant in-store discount for measures, by-passing the traditional rebate application process, to make participation as easy as possible for customers. The specific details of final incentive levels, measure lists and other services provided will be finalized based on input from the implementation contractor selected to deliver the program.

Eligible Measures: The program will start with low-cost measures such as lighting, potentially expanding to HVAC, water heaters, and appliances as funding allows. The table below presents a draft measure list with indicative estimates of savings per measure and incentive per measure. These will be reviewed and finalized before launch and updated as needed to reflect changing market conditions and program learnings. Without the benefit of a Baseline Study, these measure savings estimates rely on inputs and assumptions from other jurisdictions and represent indicative estimates for planning purposes.

Table 4-16. EE-In-Store Discount Program Measure List

End-Use	Measures	Savings per measure (kWh)	Incentive per measure residential (\$)
Lighting	ENERGY STAR LED Lighting	30	3
HVAC	Air Conditioner	300	200
Water Heating	Tankless Water Heater	530	50
Food Services	ENERGY STAR Refrigerator	50	50

Incentive Strategy: A fixed (\$/unit) discount will be available for each eligible measure, which will be updated as needed to reflect changing market conditions and pricing of the eligible measures. LUMA will collaborate with participating retailers to adjust incentive levels and help facilitate changes to stocking practice and discount levels. The program will likely start with a limited selection of measures and introduce additional measures periodically. The rationale for this phased strategy is to avoid oversubscribing the program by adding too many measures at once, resulting in early program closure.

Incentive Rationale: A prescriptive incentive strategy was selected to simplify the customer experience and program administration process. Measure characteristics were determined based on a review of Technical Reference Manuals from relevant jurisdictions as well as investigation of pricing for the measures in Puerto Rico. LUMA chose a range of residential end uses to provide participants with product and price choices for making home improvements for improved energy efficiency and to also engage a variety of retail stores. The main references were the NREL Puerto Rico Energy Efficiency

Scenario Analysis tool (specifically the Virgin Islands source material), Puerto Rico: Emerging Opportunities for Energy Efficiency and Equitable Clean Energy Development report, State of Hawaii Market Potential Study, Hawaii Energy TRM, and the current Hawaii Energy rebate catalogue. Additional resources included the Texas TRM, Florida Power and Light and KEYS Energy rebate catalogues, New Orleans TRM, and Illinois TRM. While LUMA has classified this program as part of Residential portfolio, LUMA expects small businesses which make equipment purchases at retail stores to also benefit from this program.

PROGRAM THEORY AND OBJECTIVES

An instant discount will be available at the cash register of participating retailers for each eligible measure purchased to help defray the cost of the measure. Participating retailers will redeem the value of the discounts provided through the LUMA redemption process. LUMA will review and approve the redemption materials provided by each participating retailer and issue the redemption check.

Stores in low-income areas may be geo-targeted for the start of in-store discount rollouts to provide greater access to energy efficiency opportunities. Eligible measures will focus on measures that will provide residential customers with low-cost savings opportunities. LUMA expects to gain a greater understanding of which measures will have the greatest uptake and savings for residential customers, as well as opportunities to improve the customer journey.

TARGET CUSTOMER POPULATION

All residential customers, with potential spillover to small business customers who purchase these eligible measures in retail stores. LUMA will begin the program with a small number of stores (potentially beginning in low-income areas), to establish and refine policies and procedures.

BARRIER ANALYSIS

Because this program requires recruiting retail outlets for the program and potential changes to in-store offerings and processing of discounts, this program has a longer lead time to set up and launch, which is planned to be accomplished in the second year of TPP delivery.

Table 4-17. Barrier Analysis - In-Store Discount Program

	Barrier	Risk	How the Program will Address
Difficulty including full range of retailers	✓		The program will be open to any retailer who can offer eligible measures at the point of sale and is able to meet the LUMA's program requirements, including requirements of the redemption and data tracking process.
Inconsistencies between retailers		✓	Inconsistencies will be avoided through LUMA's standardized requirements for retailer participation and measure list with standard incentive level per measure.
Lack of understanding of EE opportunities	✓		The program will include customer information regarding energy saving opportunities. The Education and Outreach Program will provide

			outreach and engagement to complement the program outreach and engagement.
Lack of availability of eligible products	✓		LUMA will update the list of eligible measures in consultation with participating retailers. LUMA will provide any changes to the eligible measures list and pricing in advance to the extent possible to allow retailers to make timely adjustments to SKUs and stocking practices.
Eligible product price uncertainty		✓	Incentives will be based on prices in the PR market as well as consultation with retailers. LUMA understands that in 2022 there are inflationary pressures which may continue into 2023 and beyond. LUMA will monitor inflationary pressures and price volatility and adjust incentive levels if appropriate in consultation with retailers. LUMA will harmonize any changes with the Residential Rebate Program as appropriate.
Potential for retailer fraud		✓	Participating retailers are required to sign a participation agreement, with terms and conditions for data tracking and consequences for fraudulent activities. The implementation contractor provides regular QA/QC checks and oversight to ensure program requirements are being met.

MARKETING STRATEGY

Marketing for the In-Store Discount Program will be conducted by an Implementation Contractor, with oversight from LUMA. Marketing collateral will include in-store literature or signage on the energy-saving benefits of eligible products. LUMA will work with retailers to identify other opportunities for in-store marketing. In addition to specific in-store promotion, LUMA will use a wide range of marketing channels which may include:

- Engagement and promotion through LUMA's website and social media channels, by providing information such as program description, frequently asked questions and answers, and contact information
- Program launch with media event
- Cross-promotion with other programs

BENEFITS: ESTIMATED ENERGY SAVINGS AND PROGRAM COSTS

Table 4-18. Estimated Savings, # Participants, and Costs for In-Store Discount Program

Description	Yr. 1 Estimate	Yr. 2 Estimate	Total
Annual Electricity Savings (MWh)	-	3,419	3,419
Lifetime Electricity Savings (MWh)	-	60,203	60,203
Peak Demand Savings (MW)	-	2.2	2.2
Gross Lifetime GHG Savings (MT of CO ₂)	-	46,361	46,361
Planned Participants	-	4,035	4,035
Total Costs (\$)	-	\$1,125,000	\$1,125,000

PROGRAM LAUNCH TIMEFRAME

The In-Store Discount Program is expected to launch in Year 2 of the TPP, as this program is expected to require additional time for administrative startup. Due to uncertainty about program funding, an exact program launch date cannot be determined. Table 4-19 below provides illustrative timetables for the duration of activities required before program launch.

Table 4-19. Program Timeframe - In-Store Discount Program

Pre-Launch Activities	Activity Duration	Q1	Q2	Q3	Q4	Q5+
Engage Implementation Contractor	2-3 Months					
Finalize Program Design Details and Program Operational Requirements	1-3 Months					
Recruit and Enroll Retailers	2-3 Months					
Develop Retailer Tracking & Invoicing Processes	1-3 Months					
Program Launch & Implementation	6-12 Months Total					

During the first quarter of FY2023, LUMA will issue an RFP for an implementation contractor. LUMA will work with the implementation contractor to finalize program design details (e.g., measure list, incentive levels, program requirements, etc.), and begin recruiting participating retailers. These pre-launch implementation preparation activities are expected to take 6-12 months before the program is ready for launch.

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)

The table below describes the EM&V plan including procedures that will be implemented to determine whether the program achieved its objectives.

Table 4-20. EM&V for In-Store Discount Program

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> Achieve savings target Provide measures for a range of residential end uses with financial incentives Assess barriers and program readiness for scale-up
Evaluation objectives	<ul style="list-style-type: none"> Document energy and demand savings Provide verification and due diligence of project savings Improve the design and implementation of existing and new/future programs through process evaluation
Key impact evaluation procedures	<ul style="list-style-type: none"> Review tracking database and make recommendations for improvement
Key process evaluation procedures	<ul style="list-style-type: none"> Program documentation review, including program plans or filings, marketing materials, and implementation contractor contract documents Review redemption process and make recommendations for improvement of retail participant journey

	<ul style="list-style-type: none"> • Conduct interviews with utility program staff, participating and non-participating retailers and implementation contractors • Conduct surveys with sample of retailers to obtain information on the effectiveness of program design, marketing and retailer acquisition, and program administration or delivery, and to assess retailer satisfaction
Key Performance Indicators	<ul style="list-style-type: none"> • Energy savings reported and verified • Demand savings reported and verified • Total participants reported and verified • Total measure quantities by measure type reported and verified
Suggested schedule	<ul style="list-style-type: none"> • Conduct impact and process evaluation bi-annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none"> • Respond to requests and provide information requested in a timely manner as available • Require implementation contractors to respond to requests and provide information requested in a timely manner as available

FUTURE PROGRAM EVOLUTION

Based on best practices in other jurisdictions for midstream program offerings, experience, and learnings from running the program as well as consultation with potential participating business equipment suppliers and distributors, LUMA will consider expanding to additional measures and store locations.

4.4 Commercial and Industrial Portfolio

The C&I Portfolio contains the following programs: Business Rebates, Economic Demand Response, and Emergency Demand Response.

4.4.1 Business Energy Efficiency Rebates

PROGRAM DESCRIPTION

Program Summary: The Business Rebate Program offers customers a financial incentive for purchasing and installing eligible measures. To participate, customers are required to submit a rebate application by email or web portal, depending on the application processing system capabilities of LUMA's implementation contractor. LUMA's implementation contractor will review and approve the application and will process an incentive check. Details about each project will be recorded in a detailed tracking database to ensure accurate reporting and verification.

Services Provided: A prescriptive financial incentive (\$/unit) will be offered for the installation of eligible measures. The specific details of final incentive levels, measure lists and other services provided will be finalized based on input from the implementation contractor selected to deliver the program.

Eligible Measures: Limited data is available in Puerto Rico on baseline building and equipment conditions, from which to design a list of improvement measures. It is anticipated that HVAC, lighting, water heating equipment will be the primary focus of the program, with the potential to add other measures like appliances, building envelope and variable frequency drives as budget allows. These will be reviewed and finalized before market launch and updated as needed to reflect changing market conditions and program learnings. Without the benefit of a Baseline Study, these savings estimates rely on inputs and assumptions from other jurisdictions and represent indicative estimates for planning purposes. Table 4-21 presents a preliminary list of eligible measures, with indicative estimates of savings per measure and incentive per measure.

Table 4-21. Business Rebate Program Measure List

End-Use	Measure	Savings per measure (kWh per unit [#])	Incentive per measure (\$ per unit)
HVAC	Rooftop AC	200-400	\$100-\$200 per ton
HVAC	Chillers	150-300	\$45 per ton
Lighting	Linear Fluorescent	30-50	\$3-\$8 per unit
Lighting	LED Troffer	100-200	\$10-\$20 per unit
Lighting	Omni directional	58	\$10 per unit
Lighting	Exit sign	345	\$7 per unit
Sensors	Occupancy Sensor	36	\$20 per sensor
Water Heating	Water Heating	2,150	\$675 per water heater
Envelope	Window Film	8.1	\$0.85 per sq ft
Pumps	Pool Pump Variable Frequency Drive (VFD)	6,343	\$225 per horsepower
Food Services	Refrigerator	490	\$100 per unit
Food Services	Combination Oven	13,804	\$500 per unit
Food Services	Convection Oven	1,933	\$275 per unit
Food Services	Fryer	1,876	\$250 per unit
Food Services	Ice Machine	1,243	\$100 per unit

Incentive Strategy: A prescriptive (fixed amount per measure) financial incentive will be available for each eligible measure, which will be updated on a regular basis based on changing market conditions and pricing of the eligible measures. The program will likely start with a limited selection of measures and introduce additional measures periodically. The rationale for this phased strategy is to avoid oversubscribing the program by adding too many measures at once, resulting in early program closure.

Incentive Rationale: A prescriptive incentive strategy was selected to simplify the customer application process. Incentives per measure were determined based on a review of Technical Reference Manuals from relevant jurisdictions as well as investigation of pricing, where readily available, for the measures in Puerto Rico. The main references were the NREL Puerto Rico Energy Efficiency Scenario Analysis tool, Puerto Rico: Emerging Opportunities for Energy Efficiency and Equitable Clean Energy Development report, Hawaii Energy TRM, State of Hawaii Market Potential Study, and the current Hawaii Energy rebate catalogue. Additional resources included the Illinois TRM, Texas TRM, and Florida Power and Light rebate catalogue. We chose a broad range of end uses to provide potential participants with choices for making facility improvements to improve energy efficiency.

PROGRAM THEORY AND OBJECTIVES

Commercial and industrial customers will be offered a range of eligible energy efficiency measures. A financial incentive of roughly 30%-50% of incremental cost will be available for each eligible measure to help defray the up-front cost of the measure. Program savings will be determined based on deemed savings per measure, eliminating the need for expensive, complicated on-site energy savings analysis which can present a barrier to adoption. By providing energy saving opportunities for a broad range of measures, the program will provide customers with opportunities to achieve energy and bill savings as well as opportunities to reduce greenhouse gas emissions and help Puerto Rico achieve its energy efficiency target. During the Transition Period, this program will help LUMA gain a better understanding of which measures will have the greatest uptake and savings for customers, as well as opportunities to improve the customer journey.

TARGET CUSTOMER POPULATION

The program is open to all customers in the commercial and industrial sectors.

BARRIER ANALYSIS

Table 4-22. Barrier Analysis for Business Rebate Program

	Barrier	Risk	How the Program will Address
Lack of understanding of EE opportunities	✓		The program will conduct direct marketing and outreach to potential C&I participants that will provide information regarding energy saving opportunities.
Lack of customer capital to purchase EE products	✓		The program provides incentives to reduce the up-front cost of high-efficiency equipment.

Lack of availability of eligible products	✓		LUMA will work with equipment suppliers to better understand stocking and availability of products locally. LUMA will update the list of eligible measures on a regular basis based on consultation with participants, potential participants and equipment suppliers and distributors in Puerto Rico.
Eligible product price uncertainty		✓	LUMA will determine incentives based on prices in the PR market. LUMA understands that in 2022 there are inflationary pressures which may continue into 2023 and beyond. LUMA will monitor inflationary pressures and price volatility and adjust incentive levels if appropriate.
Uncertainty of energy savings estimates	✓	✓	LUMA has selected measures that are most likely to be cost-effective. LUMA will continue to refine energy savings estimates using data collected from participating projects.
Lack of available contractors for facility assessments and measure installation	✓		As part of delivery of the program in year 1, LUMA will reach out to contractor networks and associations in Puerto Rico and identify opportunities to help grow the network of trained contractors. LUMA will identify training needs and will initiate work to fill those needs either through direct offering of training or through working with local educational institutions.

MARKETING STRATEGY

Marketing for the Business Rebate Program will be conducted by an Implementation Contractor, with oversight from LUMA. The marketing strategy will target commercial and industrial customers through a range of channels which may include:

- Engagement and promotion through LUMA's website and social media channels, by providing information such as program description, frequently asked questions and answers, and contact information.
- Downloadable rebate applications and online rebate application process (when available).
- Cross-promotion with other programs.
- Program information and presentations on the program at events targeted to potential program participants and trade allies such as contractors/building owner and manager associations that service the commercial and/or industrial sectors.
- Case studies to showcase opportunities and program successes.
- Attendance at trade events to promote the program.

BENEFITS: ESTIMATED ENERGY SAVINGS AND PROGRAM COSTS

Table 4-23. Estimated Savings, # Participants, and Costs for Business Rebate Program

Description	Yr. 1 Estimate	Yr. 2 Estimate	Total
Annual Electricity Savings (MWh)	9,370	23,402	32,772
Lifetime Electricity Savings (MWh)	101,164	252,645	353,809
Peak Demand Savings (MW)	2.5	6.3	8.8
Gross Lifetime GHG Savings (MT of CO₂)	77,904	194,557	272,461
Total Costs (\$)	\$2,250,000	\$5,625,000	\$7,875,000

*Assumed participation at 5% of the total number of commercial, industrial, and agricultural customers in 2023 and 2024. The savings calculations are based on the total number of units rebated for each program. Given the lack of baseline data, there is no

basis to assume number of units per customer and therefore we assumed a penetration rate based on total number of potential participating customers.

PROGRAM TIMEFRAME

The table below shows the key tasks and timetable for pre-launch activities that must be completed in preparation for program launch. Due to uncertainty about program funding, an exact program launch date cannot be determined, though the program will be ready for launch three to six months after program funding is secured. The timelines below provide illustrative timetables for the duration of activities required before program launch.

Table 4-24. Program Timeframe - Business Rebate Program

Pre-Launch Activities	Q0	Q1	Q2	Q3	Q4	Q5+
Key Dependency: Secure Funding						
Engage Implementation Contractor						
Finalize Program Design Details & Operational Requirements						
Create Program Materials and Application Process						
Program Launch & Implementation						

During the first quarter of FY2023, LUMA will issue an RFP for an implementation contractor. LUMA will work with the implementation contractor to finalize program design details (e.g., measure list, incentive levels, program requirements, etc.), create program materials and rebate application processes. These pre-launch implementation preparation activities typically take 3-6 months before the program is ready for launch. However, the exact date of program launch will depend on securing additional funding for incentives (see Section 8.0 for details on Funding and Cost Recovery).

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)

The table below describes the EM&V plan including procedures that will be implemented to determine whether the program achieved its objectives.

Table 4-25. EM&V for Business Rebate Program

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> • Achieve savings target • Provide measures for a range of commercial and industrial end uses with financial incentives • Provide potential participants with choice of measures and measure cost for making facility improvements to improve energy efficiency • Assess barriers and market readiness for scale-up
Evaluation objectives	<ul style="list-style-type: none"> • Document energy and demand savings • Provide verification and due diligence of project savings • Improve the design and implementation of existing and new/future programs through process evaluation

Key impact evaluation procedures	<ul style="list-style-type: none"> • Review approximately 5% of project applications through due diligence inspections of a sample of project documentation • Review tracking database and make recommendations for improvement • Conduct phone or online survey for verification of installation, persistence, and savings accuracy
Key process evaluation procedures	<ul style="list-style-type: none"> • Program documentation review, including program plans or filings, marketing materials, implementation contractor contract documents, and program website(s) • Conduct interviews with utility program staff and implementation contractors • Conduct surveys with sample of customers and trade allies/contractors to understand the effectiveness of program design, marketing and retailer acquisition, and program administration or delivery, and to assess customer satisfaction
Key Performance Indicators	<ul style="list-style-type: none"> • Energy savings reported and verified • Demand savings reported and verified • Total participants reported and verified • Total measure quantities by measure type reported and verified • Customer and trade ally/contractor satisfaction
Suggested schedule	<ul style="list-style-type: none"> • Conduct impact and process evaluation bi-annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none"> • Respond to requests and provide information requested in a timely manner as available • Require implementation contractors to respond to requests and provide information requested in a timely manner as available

FUTURE PROGRAM EVOLUTION

LUMA will review the list of eligible measures for potential addition and deletion of measures, and adjustments to the incentive levels. LUMA will also consider developing a C&I custom offering. LUMA will consult with potential participants regarding their interest, payback requirements, financing, and type of technical assistance they would need in developing projects and building internal business cases for capital investment in custom energy efficiency projects. Any program evolution will be informed by best practices in other jurisdictions as well as the experience and learnings from the delivery of the program in year 1, and customer and stakeholder feedback.

4.4.2 Emergency Demand Response Program

PROGRAM DESCRIPTION

Program Summary: Under this program, customers voluntarily reduce load and/or shift load to back up generators during DR events, triggered by reliability/emergency conditions on the grid. In the near term, the program will target the largest 100 customers with backup generators and will subsequently expand to a broader segment of C&I customers. The curtailment method and the type of end-uses curtailed during DR events depend on the facility type. Customers will be provided day-of notification of DR events and will be required to respond to events within a pre-defined time in response to emergency grid conditions.

Services Provided: Financial incentive for load reduction and/or load shifting during grid reliability/emergency conditions. The specific details of incentive levels and other services provided will be finalized based on input from the implementation contractor selected to deliver the program.

Eligible Measures: The curtailment method and the type of end-uses curtailed during DR events depend on the facility type; customers could shift load to backup generators if emissions regulations allow such operation. Customers could also shift load to any other storage device on site (e.g., thermal energy storage or batteries).

Incentive Strategy: The program will pay customers for the nominated capacity reduction during DR events and customers will be provided a capacity payment for the nominated amount (\$/kW-month), even if DR events are not called. When DR events are called, participants receive an additional energy compensation (\$/kWh) based on actual energy reduced during DR events. During later stages of the program, customers may be provided an incentive for Auto-DR enablement by installing controls that automate equipment dispatch, which could provide additional EE benefits (e.g., EMS, advanced lighting controls). The incentive will be provided as either a bill credit or separate incentive check to customers, depending on ease of implementation.

Incentive Rationale: Incentives will be determined based on avoided generation costs during peak periods and benchmarking with other jurisdictions.

PROGRAM THEORY AND OBJECTIVES

The program's objectives are to demonstrate Large C&I customers (customers in primary and transmission rates) willingness and capability to provide load reductions in response to grid emergency conditions and system peak demand periods, provide learning experience to LUMA on designing, launching, and implementing DR activities, and provide insights on requirements for scaling up to a DR program offer to Large C&I customers in the future.

Emergency DR events will be triggered by emergency conditions on the grid and therefore this program will help improve reliability and eventually reduce energy costs during high demand periods. The reduction in energy use during reliability/emergency grid conditions will help relieve stress on the grid during critical periods and avoid/lower the possibility of outages.

TARGET CUSTOMER POPULATION

In the near term, the program will target LUMA's largest 100 customers with back-up generators and will subsequently be offered to a larger segment of C&I customers during later stages.

BARRIER ANALYSIS

Table 4-26. Barrier Analysis for C&I Emergency Demand Response Program

Barrier/Risk	Barrier	Risk	How the Program will Address
Lower than expected enrollment		✓	Program will provide customer incentives and direct outreach to alleviate customer concerns and communicate program benefits.
Billing and settlement	✓	✓	There is uncertainty about how to perform billing and settlement for customer incentives within LUMA current billing system. LUMA billing system currently does not have the ability to perform these activities, which will need to be conducted through an external implementation contractor or aggregator.
Low response to DR events		✓	Program will closely monitor customer response to DR events using interval meter data or other performance tracking systems (that allows viewing of hourly load profiles of enrolled customers), and address how the DR event response rate could be increased through additional customer outreach methods and stronger messaging.
Limited controls to manage and shift load	✓		Implementation contractor will work closely with C&I participants to access necessary controls to manage and shift load.

MARKETING STRATEGY

The program marketing and customer outreach efforts will be customized based on business type, ability to shift/curtail load, presence of backup generator and/or energy storage systems, and other specific customer needs. Direct marketing and customer outreach and enrollment will involve working closely with customers to convey program benefits and assess customer needs and expectations from program participation.

The marketing strategy will also include engagement and promotion through LUMA's website and social media channels by providing information such as program description, frequently asked questions and answers, and contact information for more information on programs.

BENEFITS: ESTIMATED PEAK DEMAND SAVINGS AND PROGRAM COSTS

In both years, the program will target the largest 100 customers with backup generators or customers with cogeneration. Enrolled participants are assumed to shift their demand to the backup generator or to the cogeneration units during emergency events. Emergency events are assumed to be called for a total of 120 hours in a year. The estimated peak demand reduction is based on demand analysis and information on backup generation and cogeneration capacity for top 100 customers. Participants receive a \$5/kW-month capacity payment all year round and an additional 50 cents/kWh for energy shifted during emergency conditions. These incentive assumptions are based on similar program offer by the Hawaiian

Electric Company and will be refined through implementation contractor discussions with customers. The total program costs include the incentive costs plus the program administration costs.

Table 4-27. Estimated Savings, # Participants, and Costs for Emergency DR Program

Description	Yr. 1 Estimate	Yr. 2 Estimate
Total Peak Demand Savings (MW)	10.5	21.1
Estimated Participants (#)	3-5	7-10
Total Costs (\$)	\$2,108,317	\$4,216,634

IMPLEMENTATION STRATEGY

LUMA expects to administer this program in-house with implementation support from outside parties, as needed, for undertaking the following business functions:

- **Define Program Parameters and Initiate Load Control Events**
 - Define dispatch criteria (reliability/emergency)
 - Define program parameters (e.g., applicable months, event hours, event duration, annual limit on event hours, event frequency)
 - Initiate load control events
- **Marketing, Customer Recruitment & Outreach**
 - Undertaking marketing, customer education, and outreach with third-party implementation support, as needed, especially as the program scales up
- **Data Support and Performance Analysis**
 - Obtaining customer interval data and tracking program performance, with third-party implementation support, as needed
- **Billing and Settlement**
 - Billing and settlement of customer incentive will likely be conducted via third-party contractor during the Transition Period as LUMA's internal billing system will require additional time to integrate these features
- **Evaluation, Measurement and Verification (EM&V)**
 - Providing data and information for ex-post impact and process evaluation of the program by PREB's independent third-party evaluator
- **Customer Service and Satisfaction**
 - Assessing customer satisfaction at all major customer touchpoints

PROGRAM TIMEFRAME

The table below shows the key activities for program development and implementation over the duration of the TPP. The timelines below provide illustrative timetables for the duration of activities required before program launch.

Table 4-28. Estimated Program Timeframe for C&I Emergency Demand Response Program

Pre-Launch Activities	Q1	Q2	Q3	Q4	Q5+
Engage Implementation Contractor					
Finalize Program Design Details and Program Operational Requirements					
Finalize Event Dispatch Procedures					
Begin Customer Outreach and Enrollment					
Program Launch & Implementation					

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)**Table 4-29. EM&V for C&I Emergency Demand Response Program**

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> Improve grid reliability and provide bill savings opportunities to customers
Evaluation objectives	<ul style="list-style-type: none"> Document demand savings Provide verification and due diligence of project savings Improve the design and implementation of existing and new/future programs and programs through process evaluation
Impact evaluation	<ul style="list-style-type: none"> The impact evaluation will entail establishing a method for determining baseline demand (based on standard EM&V methods and protocols) and measuring load reduction/shifting during DR events vis-à-vis the customer baseline load, using interval meter data at customer sites. Impact evaluation will provide ex post and ex ante estimates of the following metrics: <ul style="list-style-type: none"> Average per event impacts (kW) Aggregate seasonal/annual impacts (kW)
Process evaluation	<ul style="list-style-type: none"> The process evaluation whether program objectives were fulfilled, assess customer satisfaction with the program and provide suggestions for future improvements. The evaluation process will include the following: <ul style="list-style-type: none"> Review program documentation, including program plans or filings, marketing materials, implementation contractor contract documents, and program website(s) Conduct customer satisfaction surveys and focus group discussions (if possible). Interviews with LUMA program manager and other program staff and implementation contractor.
Key Performance Indicators	<ul style="list-style-type: none"> Average event savings (reported and verified) Aggregate program savings (reported and verified) Total enrolled customers (reported and verified) DR event response rate Customer satisfaction

Suggested schedule	<ul style="list-style-type: none">• Conduct impact and process evaluation bi-annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none">• Respond to requests and provide information requested in a timely manner as available• Encourage implementation contractors to respond to requests and provide information requested in a timely manner as available

FUTURE PROGRAM EVOLUTION

- Scale up program to also target customers without backup generators.
- Secure firm capacity reduction commitment from customers with associated changes in incentive structure to \$/kW-month for committed amount.
- Provide Auto-DR enablement incentives for control technologies that could help automate responses to events, without manual interventions.
- Position as an IDSM offer with incentives on DR-enabling EE technologies.

4.4.3 Economic Demand Response Program

PROGRAM DESCRIPTION

Program Summary: This program includes voluntary load reduction and/or load shifting during DR events triggered by economic conditions (high energy prices). Customers are notified of DR events a day in advance and incentivized to reduce/shift load during critical event periods. Participants receive energy payment (\$/kWh) only based on actual energy reduced during DR events. The curtailment method and the type of end-uses curtailed during DR events depend on the facility type. Events will have an economic trigger during periods when the marginal electricity generation costs are high. Participants will be notified either on a day-ahead or day-of basis (likely two hours ahead of event).

Services Provided: Incentives for energy reduction/shifting during peak demand events. The specific details of incentive levels and other services provided will be finalized based on input from the implementation contractor selected to deliver the program.

Eligible Measures: The curtailment method and the type of end-uses curtailed during DR events depend on the facility type; customers could shift load to backup generators if emissions regulations allow such operation. Customers could also shift load to any other storage device on site (e.g., thermal energy storage or batteries).

Incentive Strategy: A prescriptive incentive (\$/kWh) will be offered for reducing energy use during peak demand periods relative to baseline energy use or for shifting load to backup generators. Customer sited interval meters used for baseline measurement, performance calculation, and settlement. The incentive will be provided as either a bill credit or separate incentive check to customers, depending on ease of implementation.

Incentive Rationale: Incentives will be determined based on avoided generation costs during periods with high energy prices (economic trigger).

PROGRAM THEORY AND OBJECTIVES

The program's objectives are to demonstrate Large C&I customers (customers in primary and transmission rates) willingness and capability to provide load reductions in response to economic events, provide learning experience to LUMA on designing, launching, and implementing DR activities, and provide insights on requirements for scaling up to a DR program offer to Large C&I customers in the future.

Economic DR events will be triggered by high energy prices and therefore this program will help lower energy costs during high demand periods. Participants will have an opportunity to reduce/shift their consumption during peak demand periods and earn incentives for doing so, and additionally contribute to Puerto Rico savings and GHG reduction targets. Participation is voluntary and there are no participation risks from a customer perspective.

TARGET CUSTOMER POPULATION

In the near term, the program will target LUMA's largest 100 customers with back-up generators and/or energy storage and will subsequently be offered to a broader segment of C&I customers during later stages.

BARRIER ANALYSIS

Table 4-30. Barrier Analysis for C&I Economic Demand Response Program

	Barrier	Risk	How the Program will Address
Lack of Interval meters/smart meters for EM&V and settlement	✓		The program is planned to be launched as smart meters (or equivalent) are deployed for participating customers. The timing of deployment of AMI will determine program launch timelines.
Billing and settlement	✓	✓	There is uncertainty about how to perform billing and settlement for customer incentives within LUMA's current billing system. LUMA billing system currently does not have the ability to perform these activities, which will need to be conducted through an external implementation contractor or aggregator.
Lower than expected enrollment		✓	Program will provide customer incentives and direct outreach to alleviate customer concerns and communicate program benefits.
Low response to DR events		✓	Program will closely monitor customer response to DR events using interval meter data or other performance tracking systems (that allows viewing of hourly load profiles of enrolled customers), and address how the DR event response rate could be increased through additional customer outreach methods and stronger messaging.
Limited controls to manage and shift load	✓		Implementation contractors will work closely with C&I participants to access necessary controls to manage and shift load.

MARKETING STRATEGY

The program marketing and customer outreach efforts will be customized based on business type, ability to shift/curtail load, presence of backup generator and/or energy storage systems, and other specific customer needs. Direct marketing and customer outreach and enrollment will involve working closely with customers to convey program benefits and assess customer needs and expectations from program participation.

The marketing strategy will also include engagement and promotion through LUMA's website and social media channels by providing information such as program description, frequently asked questions and answers, and contact information for more information on programs.

BENEFITS: ESTIMATED PEAK DEMAND SAVINGS AND PROGRAM COSTS

This program targets top 100 C&I customers with highest energy usage. The savings estimates assumed that 5% of these customers are enrolled in the program in Year 1 and 10% of these customers are enrolled in Year 2. Customers provide on an average 15% of peak demand reduction during DR events through either curtailment and/or load shifting to backup generators or cogeneration units. Participants are compensated on a \$/kWh basis and the incentive level is based on the marginal generation costs during the peak period. The total costs include customer incentives plus the program administration costs. Table 3.3-11 shows the peak demand savings, planned participants and total costs in year 1 and 2 of the program.

Table 4-31. Estimated Savings, # Participants, and Costs for Economic DR Program

Description	Yr. 1 Estimate	Yr. 2 Estimate
Total Peak Demand Savings (MW)	2.2	4.4
Planned Participants	5	10
Total Costs (\$)	\$245,472	\$336,415

IMPLEMENTATION STRATEGY

LUMA expects to administer this program in-house with implementation support from outside parties, as needed, for undertaking the following business functions:

- **Define Program Parameters and Initiate Load Control Events**
 - Define dispatch criteria
 - Define program parameters (e.g., applicable months, event hours, event duration, annual limit on event hours, event frequency)
 - Initiate load control events
- **Marketing, Customer Recruitment & Outreach**
 - Undertaking marketing, customer education, and outreach with third-party implementation support, as needed, especially as the program scales up
- **Data Support and Performance Analysis**
 - Obtaining customer interval data and tracking program performance, with third-party implementation support, as needed
- **Billing and Settlement**
 - Billing and settlement of customer incentive will likely be conducted via third-party contractor during the Transition Period as LUMA's internal billing system will require additional time to integrate these features
- **Evaluation, Measurement and Verification (EM&V)**
 - Providing data and information for ex-post impact and process evaluation of the program by PREB's independent third-party evaluator
- **Customer Service and Satisfaction**
 - Assessing customer satisfaction at all major customer touchpoints

PROGRAM TIMEFRAME

The table below shows the key tasks and timetable the program development and implementation over the duration of the TPP. The timelines below provide illustrative timetables for the duration of activities required before program launch.

Table 4-32. Program Timeframe - C&I Economic Demand Response Program

Pre-Launch Activities	Q1	Q2	Q3	Q4	Q5+
Engage Implementation Contractor					
Finalize Program Design Details and Program Operational Requirements					
Finalize Event Dispatch Procedures					
Begin Customer Outreach and Enrollment					
Program Launch & Implementation					

EVALUATION, MEASUREMENT, AND VERIFICATION (EM&V)

Table 4-33. EM&V for C&I Emergency Demand Response Program

EM&V Objectives and Procedures	How the Program will Address EM&V Objectives and Procedures
Program objectives	<ul style="list-style-type: none"> Lower energy usage during high price periods and provide bill savings opportunities to customers
Evaluation objectives	<ul style="list-style-type: none"> Document demand savings Provide verification and due diligence of project savings Improve the design and implementation of existing and new/future programs and programs through process evaluation
Impact evaluation	<ul style="list-style-type: none"> The impact evaluation will entail establishing a method for determining baseline demand (based on standard EM&V methods and protocols) and measuring load reduction/shifting during DR events vis-à-vis the customer baseline load, using interval meter data at customer sites. Impact evaluation will provide ex post and ex ante estimates of the following metrics: <ul style="list-style-type: none"> Average per event impacts (kW) Aggregate seasonal/annual impacts (kW)
Process evaluation	<ul style="list-style-type: none"> The process evaluation will assess whether program objectives were fulfilled, assess customer satisfaction with the program and provide suggestions for future improvements. The evaluation process will include the following: <ul style="list-style-type: none"> Review program documentation, including program plans or filings, marketing materials, implementation contractor contract documents, and program website(s) Conduct customer satisfaction surveys and focus group discussions (if possible). Interviews with LUMA program manager and other program staff and implementation contractor.

Key Performance Indicators	<ul style="list-style-type: none"> • Average event savings (reported and verified) • Aggregate program savings (reported and verified) • Total enrolled customers (reported and verified) • DR event response rate • Customer satisfaction
Suggested schedule	<ul style="list-style-type: none"> • Conduct impact and process evaluation bi-annually
Plan for working with PREB's EM&V contractor	<ul style="list-style-type: none"> • Respond to requests and provide information requested in a timely manner as available • Require implementation contractors to respond to requests and provide information requested in a timely manner as available

FUTURE PROGRAM EVOLUTION

- Scale up program to also target customers without backup generators.
- Provide Auto-DR enablement incentives for control technologies that could help automate responses to events, without manual interventions.
- Position as an IDSM offer with incentives on DR-enabling EE technologies.

4.5 LUMA Street Lighting Conversion Program

The following section provides an overview of LUMA's Street Lighting Conversion Program, which is currently underway.

PROGRAM DESCRIPTION

As a result of natural disasters including hurricanes and earthquakes, an estimated 70% of the ~ 500,000 streetlights in Puerto Rico are damaged and require repair, replacement, or upgrade. Of the 70% damaged streetlights, LUMA estimates that approximately 15% of the distribution streetlights are a physical safety hazard that require hazard mitigation. The "Community Streetlight Initiative" is a \$1.2 billion FEMA-funded program designed to repair or replace the streetlight infrastructure and upgrade to applicable codes and standards, such as light emitting diode (LED) technology and the use of stronger poles that can withstand 160 mph winds.

Field assessments first categorize assets according to their health, based on estimates of condition (likelihood of failure) and criticality (consequence of failure) and will assign an asset score from 0 (worst) to 4 (best). As per Puerto Rico Energy Public Policy Law No. 17 (April 11, 2019), all existing high-pressure sodium (HPS) lamps will be replaced with LEDs. All streetlights also require data entry into the GIS system (per local rules), properly grounded and potential underground feeding them repaired with a longer term need to evaluate and plan implementation of a smart streetlighting system.

PROGRAM OBJECTIVES

The program's main objectives are increasing efficiency, enhancing reliability, improving resiliency to withstand extreme weather events, and reducing operation and maintenance costs. This program improves public safety and customer experience by restoring streetlights to working order.

BENEFITS: ESTIMATED ENERGY SAVINGS AND PROGRAM COSTS

Table 4-34 below provides an initial estimate of energy savings and costs for the Street Lighting Program during the Transition Period.

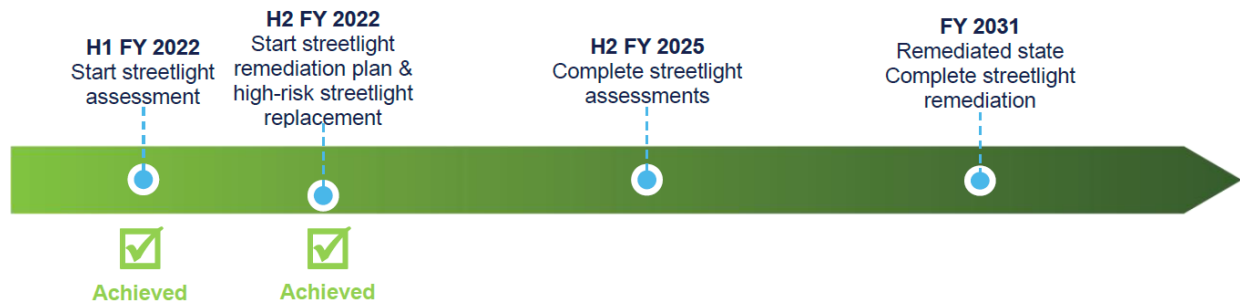
Table 4-34. Estimated Savings, # Participants, and Costs for the Street Lighting Program

Description	FY23 Estimate	FY24 Estimate	Total
Annual Electricity Savings (MWh)	41,000	83,000	124,000
Planned Unit Replacements (#)	89,767	89,767	179,534
Total Costs (\$)	\$105.0	\$70.0	\$175.0

Note, FY24 is estimated to achieve more energy savings with the same number of replacements as not all installations include lamp replacements (which are the source of energy savings). This program will make use of resources as part of LUMA's Community Streetlight Initiative.

PROGRAM IMPLEMENTATION TIMEFRAME

The figure below shows the program implementation timeline. The Program was officially launched in June 2022 and will continue until 2040.

Figure 4-4. Street Lighting Program Timeline

5.0 Program Management and Implementation Strategies

The objective of this section is to provide detailed description of how LUMA plans to manage and implement the Transition Period programs.

5.1 Overview of Management and Implementation Strategies

Mass-market energy efficiency incentive programs are complex to administer and have never been offered in Puerto Rico. Because of this complexity, large-scale EE programs are typically delivered through independent “Implementation Contractors” (IC) that are experts in the design and delivery of EE programs. Table 5-1 below describes potential implementation strategies for the Transition Programs and their relative pros and cons. The primary differences between each option are the extent to which they rely on implementation contractors.

Because of LUMA's limited internal resources, LUMA decided to move forward with a turnkey approach through a competitive process to select a vendor to deliver the TPP portfolio on behalf of LUMA, with LUMA retaining oversight of overall program administration.

Table 5-1. Implementation Strategies

Model	Description	Pros	Cons
100% Internal	<ul style="list-style-type: none"> All implementation activities undertaken by internal LUMA staff 	<ul style="list-style-type: none"> Makes use of existing resources LUMA has full control over delivery Could be the most cost-effective Could be the quickest to ramp-up 	<ul style="list-style-type: none"> Lack of sufficient internal resources Without sufficient resources it will take time to hire and train additional resources which will delay ramp-up and affect cost-effectiveness
Turnkey	<ul style="list-style-type: none"> Except for functions that only the utility can do, the remainder of implementation is contracted out. 	<ul style="list-style-type: none"> Lower risk Retaining a third party with adequate resources to achieve the targets Limited need for internal resources to manage the third-party A performance-based approach increases cost-effectiveness and achievement of targets 	<ul style="list-style-type: none"> Tendering and contracting process is time consuming and requires sufficient lead time Less control of program delivery by utility Higher cost than internal delivery
Partial Turnkey	<ul style="list-style-type: none"> Outsource for services that are better delivered through a third party. The remaining services would be delivered by internal LUMA staff. 	<ul style="list-style-type: none"> Combination of pros from internal and turnkey Provides flexibility for what is best done internally and what is best outsourced 	<ul style="list-style-type: none"> Combination of cons from internal and turnkey May be more complex if more than one tendering and contracting process for expertise

Embedded Consultant	<ul style="list-style-type: none"> • Staff augmentation through a third party to provide project management office services related to program delivery. • Building internal capacity through training of utility staff • Direct to specific need • More control than with turnkey or partial turnkey 	<ul style="list-style-type: none"> • More expensive than turnkey or partial turnkey • Decreased clarity of boundaries between consultant and utility
Trade Allies	Trade allies are cross-cutting. The need for and roles of trade allies depends on the program, all programs are expected to have trade allies. This is the network of partners in delivery that provide complementary services to customers which help customers to leverage incentives provided through LUMA programs, but these services are not part of LUMA's programs and therefore LUMA does not pay for these trade ally services, e.g., site audits, measure selection, and installation.	

****Strategies can be developed to mitigate cons**

Table 5-2 below shows LUMA's strategic approach for developing key features of the TPP based on the turnkey model, with a turnkey service provider and LUMA's oversight through a PMO.

Table 5-2. Strategic Development Approach

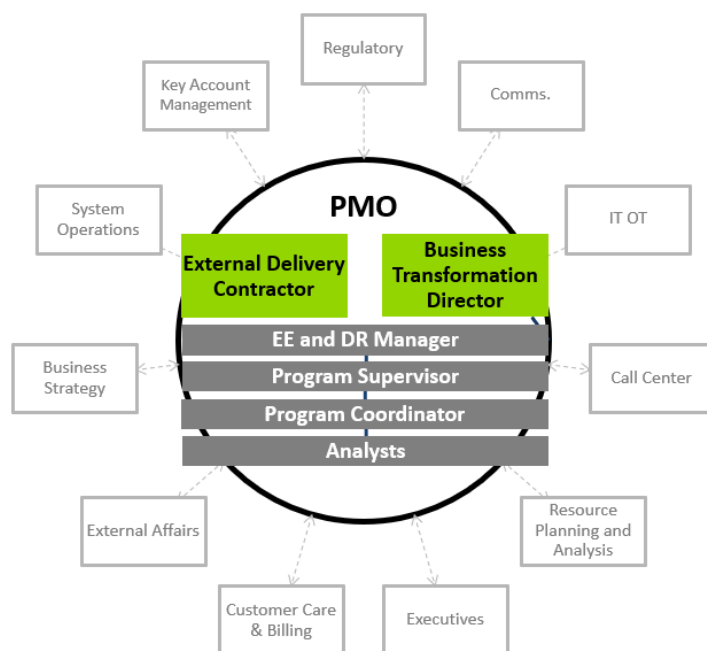
Item	Strategic Approach
Program Metrics	<ul style="list-style-type: none"> • Track monthly, yearly and total by program, segment, sector and portfolio and cumulative to date for all metrics required in Tables 1 through 5 inclusive in TPP Appendix A part 2, for EE-DR TPP
Communications	<p>Internal</p> <ul style="list-style-type: none"> • Weekly internal progress meetings by program to address emerging issues • Monthly internal progress meetings by program, and portfolio to identify course correction/enhancement opportunities within continuous improvement framework • Quarterly review of portfolio and need for/opportunity for additional programming, budget/funding <p>External</p> <ul style="list-style-type: none"> • Stakeholder advisory meetings to review progress on programs and portfolio and obtain feedback on improvements/enhancements • Ongoing program communications as described for each of the programs • Ad-hoc, external meetings to be scheduled, as needed
Budgeting and Financial Management	<ul style="list-style-type: none"> • Monthly and quarterly reviews of portfolio expenditures to date, forecast of expenditures over next month, quarter, and year, review of risks and risk mitigation strategy
Program Implementation	<ul style="list-style-type: none"> • LUMA has chosen a portfolio of EE and DR programs for year 1 which can be launched relatively quickly, while providing broad coverage of customers and electricity end-uses • Year 2 programs build on those of year 1, expanding measures, channels for delivery and enhancing program sophistication
Procurement	<ul style="list-style-type: none"> • LUMA plans to tender for turnkey delivery of its TPP portfolio consistent with its internal policies and processes for competitive procurement • LUMA will release its request for proposals as soon as possible for these turnkey services, with awarding, contract negotiations and going forward with the work conditional upon PREB approval of the associated TPP portfolio of programs

Program Tracking and Reporting	<ul style="list-style-type: none"> • Set up tracking system with Excel spreadsheets, with view to consider moving to more sophisticated database tracking for 3-year EE and DR plans • Prepare quarterly reports and year 1 annual report • Prepare final TPP report to be submitted to PREB
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**The level of turnkey support may vary for programs, and from year to year.*

Figure 5-1 illustrates the staffing of LUMA's PMO. The PMO is responsible for implementing the TPP. The diagram also shows informal linkages with other parts of LUMA that will be providing support services to the TPP implementation such as the LUMA call center and account managers.

Figure 5-1. Organizational Chart for LUMA TPP Management Team



LUMA intends to hire a turnkey contractor to implement the TPP programs. The contractor may bring a team of subconsultants, as needed, to address all the areas necessary for program delivery of the broad range of programs included in the TPP. However, the prime contractor will be directly responsible to LUMA through contractual means for the delivery of the turnkey services needed. The breakdown of services for each program are described in the following tables.

The implementation services are broken down by services related to EE programs and those for DR programs. LUMA will finalize the specific services for each program and the overall portfolio in the contracting stage with the selected vendor. Table 5-3 below details the implementation services for the energy efficiency programs. Most functions will be delivered by a specialized program Implementation Contractor, with oversight from LUMA personnel.

Table 5-3. Energy Efficiency Program Implementation Responsibilities

Business Function	Residential Rebates	Business Rebates	In-Store Discount Program
Program Administration	LUMA PMO		LUMA PMO
Application Review and Approval	Implementation Contractor		Implementation Contractor
Measure Installation	Local Service Providers		Local Service Providers
Incentive Processing/Payment	Implementation Contractor		Implementation Contractor
Marketing, Participant Recruitment	LUMA / Implementation Contractor		LUMA / Implementation Contractor
Local Contractor Outreach, Training and Management	Implementation Contractor		Implementation Contractor
Call Center and Customer Resolution	Implementation Contractor		Implementation Contractor
QAQC and Verification	Implementation Contractor		Implementation Contractor
Data Tracking and Reporting	Implementation Contractor		Implementation Contractor
Coordination With EE and DR Programs	LUMA PMO		LUMA PMO

Table 5-4 below details the implementation services breakdown for the DR programs in the first year of the TPP. In Year 1 most, if not all, of the services are expected to be carried out by LUMA. Any services to be provided by the turnkey provider in year 1 will be finalized at the contracting stage between LUMA and the selected turnkey provider.

Table 5-4. Demand Response Program Implementation Responsibilities

Business Functions	Emergency / Economic DR	Battery DR
Define Program Parameters and Initiate DR Events	LUMA is responsible for defining dispatch criteria and for calling DR events	
Marketing, Participant Recruitment, and Outreach	LUMA / Implementation Contractor	LUMA / Implementation Contractor
Technology Provision and Enablement	N/A, no Auto-DR component in year 1 of program; only manual curtailment/load shifting considered	Contract with third-party to provide software platform for control and dispatch of batteries (may be possible with VPP vendor).
Data Tracking and Reporting	Implementation Contractor	Implementation Contractor
Billing and Incentive Payments	Implementation Contractor	Implementation Contractor
QAQC and verification	Implementation Contractor	Implementation Contractor

Table 5-5 below details the implementation services breakdown for the Education and Outreach program.

Table 5-5. Education and Outreach Program Responsibilities

Business Function	Education and Outreach Program
Program Administration	LUMA PMO
Messaging Development	Implementation Contractor
Marketing, Customer Outreach	LUMA / Implementation Contractor

Technical Assistance for Community Projects	LUMA / Implementation Contractor
Development / Hosting of Web Tools	Implementation Contractor
Social Media/Online Presence Management	Turnkey contractor leverages internal LUMA's current messaging platforms, with LUMA oversight
QAQC and Verification	Implementation Contractor
Tracking and Reporting	Implementation Contractor
Coordination with other EE and DR programs	LUMA

5.1.1 Addressing Human Resource and Contractor Resource Constraints

Table 5-6 below details the plans to address both internal and contractor resource constraints to ensure that adequate personnel and contractors are available to implement the TPP successfully. These constraints include human resource constraints and other relevant resource constraints.

Table 5-6. Internal and Contractor Resource Constraints

Internal and Contractor Resource Constraints	Plans to Address
Limited technical expertise in EE and DR program delivery in Puerto Rico	<ul style="list-style-type: none"> Hire experienced turnkey contractor in EE and DR program delivery which can provide the requisite services for all the programs within the TPP portfolio, for LUMA internal PMO staff LUMA can partner with educational institutions to develop and implement training programs to provide needed skillsets to build up internal capabilities
Lack of internal staff to administer program	<ul style="list-style-type: none"> Develop strategies to attract and retain skilled staff to LUMA and Puerto Rico LUMA expects to hire four new FTEs, including one supervisor
Limited funding	<ul style="list-style-type: none"> As part of the monitoring and tracking process, LUMA will match program design and delivery to available budget LUMA will ensure that it reviews budget actuals with budget forecast with turnkey contractor on a regular basis to ensure expenditures stay within available budget
Lack of robust EE and DR tracking systems	<ul style="list-style-type: none"> Research, procure, and implement more advanced tracking methods Select turnkey contractor with robust technology for EE and DR tracking
Lack of existing AMI infrastructure	<ul style="list-style-type: none"> LUMA will investigate alternative technologies (e.g., battery telemetry) until AMI is available

5.1.2 Program Administration

LUMA's strategy for the management of Transition Period programs is to provide oversight and administration to a third-party implementation contractor(s), who will have primary responsibility for program delivery. Implementation Contractors are experts in the delivery of EE and DR programs and leverage existing processes, systems (rebate fulfillment, etc.) and program materials (websites, collateral, etc.) that would take LUMA years to develop internally.

IMPLEMENTATION CONTRACTOR OVERSIGHT

LUMA's approach to overseeing the performance of the turnkey contractor to achieve results, within budget and ensure customer satisfaction, is multifaceted. It begins with the turnkey implementation contract with a detailed statement of work including performance targets, schedule, and required tracking and reporting to LUMA. The contractor's statement of work will also detail the turnkey contractor's roles and responsibilities by program, key milestones, and payment structure. In addition, it will include the contractor's project management, QAQC, customer engagement – handling inquiries and customer complaints – and marketing approaches. The turnkey contractor will be required to provide a customer engagement and launch plan by program, as applicable, before going to market.

As described above, the turnkey contractor will meet with LUMA on a regular basis to report on progress, identify emerging issues and steps to addressing them and provide the necessary data to meet LUMA's requirements regarding its quarterly and annual reporting to PREB, as well as addressing any ad hoc needs as they emerge.

The turnkey contractor will participate fully in LUMA's continual improvement process for the delivery of the TPP. This may include the participation in process interviews, stakeholder workshops, program evaluation activities, and identification of lessons learned and recommendations for improvement, to be documented in quarterly and annual reports, as appropriate.

EARLY WARNING SYSTEMS

Recognizing that this is LUMA's first portfolio of EE and DR programs, flexibility is needed in program design and delivery to be able to respond to learnings and changes in markets within a continuous improvement approach. While LUMA has developed preliminary budget estimates for each program, it will be important to be able to move dollars between programs to respond to customer needs while ensuring broad access for eligible participants to all the programs.

Table 5-7 below details early warning systems for the TPP that LUMA will employ to indicate progress towards achieving program goals and whether they are likely to be met. Data tracking and reporting as part of the early warning system indicates progress towards achieving targets and allows LUMA to identify and resolve problems in a timely manner. Table 4.1-9 also has been ordered from earliest to later timeframes to identify issues at the earliest possible time, and to be able to respond to emerging issues in a timely way. LUMA will work closely with a Stakeholder Advisory group to generate feedback and insights for program improvement.

Table 5-7. Early Warning Systems

LUMA Processes & Systems	Implementation Contractor Requirements	Stakeholder Consultation
Weekly internal progress meetings by program to address emerging issues	Weekly progress meetings between LUMA and a turnkey contractor to address emerging issues	Ongoing program communications as described for each of the programs

Monthly internal progress meetings by program, and portfolio to identify course correction/enhancement opportunities within continuous improvement framework	Monthly progress meetings between LUMA and turnkey contractor by program, and portfolio to identify course correction/enhancement opportunities within continuous improvement framework	Ad-hoc, external meetings scheduled as needed with Stakeholder Advisory Group. Issues tracking and resolution reported to stakeholders, as appropriate
Quarterly review of portfolio and need for/opportunity for additional programming, budget/funding	Quarterly review and reporting of portfolio expenditures to date, forecast of expenditures over next month, quarter, and year, review of risks and risk mitigation strategy	Quarterly report submitted to PREB
Track monthly, yearly and total by program, segment, sector, and portfolio and cumulative to date for all metrics required in Tables 1 through 5 inclusive, PREB TPP Template Appendix A part 2	Turnkey contractor will provide annual report to LUMA	Annual report submitted to PREB. Six-month stakeholder progress meetings led by LUMA to review progress on programs, and obtain feedback on improvements and enhancements
Set up tracking system with Excel spreadsheets, with view to consider moving to more sophisticated database tracking for 3-year EE and DR plans	Implementation Contractor will ensure all program data is tracked in the specified format to allow for standardized reporting and evaluation	Ad-hoc, external meetings scheduled as needed

6.0 Reporting and Tracking Systems

The objective of this section is to provide detailed description data management, tracking and reporting systems that LUMA will implement during the Transition Period.

6.1 Reporting

6.1.1 Quarterly and Annual Reports for PREB

LUMA will prepare quarterly and annual reports regarding the TPP for PREB. Quarterly reports will be filed within 60 days of the end of each quarter. Annual reports will be filed no later than 90 days following the end of each Program Year. Each Program Year ends June 30th after a twelve-month period, so the first annual report will be filed in October, 2023, and the second annual report – the final TPP report - will be filed in October, 2024. Table 6-1 below depicts a preliminary filing date for each quarterly and annual report, the final filing dates will be determined with PREB based on program start date and other considerations.

Table 6-1. Schedule for Quarterly, Annual Reports and Stakeholder Meetings

Reporting Period	Report Type	Report Filing Date
Q4 2022*	Quarterly	March 2023
Q1 2023	Quarterly	May 2023
Q2 2023	Quarterly	August 2023
Q3 2023	Quarterly	November 2023
Year 1 Annual Report	Annual	October 2023
Q4 2023	Quarterly	February 2024
Q1 2024	Quarterly	May 2024
Q2 2024	Quarterly	August 2024
Year 2 Annual Report**	Annual	October 2024
Stakeholder Meeting	Bi-annually	March 2023
Stakeholder Meeting	Bi-annually	September 2023
Stakeholder Meeting	Bi-annually	March 2024

*The Q4 2022 report (filed Q1 2023) will be a report covering October-December 2022.

**The second annual report will be a “final” report with future plans beyond the transition period

Quarterly Reports Intended Contents

The quarterly reports are intended to serve as status updates throughout the year. They will include the following items, as data allows:

- Introduction
 - Report overview and purpose
- Description of implementation progress
 - Description of marketing and customer outreach and engagement executed and planned for future delivery
 - High level summary of program implementation experience to date
- Participants enrolled
 - The number of participants during the quarter for each program, as applicable

- DR resources enrolled/acquired during the quarter
 - Counted by program, and sector/segment
 - Participants and total MW enrolled via aggregator or directly, if applicable
- Performance
 - Preliminary estimates of energy (MWh) and peak demand savings (kW) achieved during the Quarter for each sector and subsegment (Table 1 from Appendix A part 2), and as it relates to annual targets.
 - Preliminary estimates of energy (MWh) and peak demand (kW) savings achieved during the Quarter for each program (Table 3 from Appendix A part 2), and as it relates to annual targets
 - For DR, enrolled customers and load, average impacts per event, aggregate seasonal/annual impacts (kW), impacts as % of enrolled load, and average event response (%)
 - For the Education and Outreach the number of events, posts and/or website traffic, depending on the final design of the program.
- Cost
 - Costs to-date for each program during the Quarter
 - Description of any budget updates
- Conclusions and recommendations
 - Identification of any specific areas that need modifications/improvements, recommendations for course correction, and quarterly adjustment based on tracking and experience

Annual Reports Intended Contents

The annual reports are intended to document annual performance and provide updates for the following year. These reports will include the following items as data allows:

- Introduction
 - Report overview and purpose
- Description of LUMA's activities and achievements in the Program Year
- Report of progress on the Transition Period Plan
- Participants enrolled
 - The total number of Program Year participants for each program, as applicable.
 - What resources have been enrolled/acquired
 - Counted by program, and sector/segment
 - For DR, participants and total MW enrolled via aggregator or directly, if applicable
 - For EE, additionally counted by measure, as applicable
- Performance⁷
 - Final energy (MWh) and peak demand (kW) savings achieved, and GHG savings achieved during the Program Year for each program. (Table 3 from Appendix A part 2)

⁷ There will be an independent third-party verification of performance for EE and DR programs

- Final energy (MWh) and peak demand savings (kW) achieved during the Program Year for each sector, including segments (low-income, small business, government/public). (Table 1 from Appendix A part 2)
- For DR, enrolled customers and load, average impacts per event, aggregate seasonal/annual impacts (kW), impacts as % of enrolled load, and average event response (%)
- For the Education and Outreach program, the number of events, posts and/or website traffic, depending on the final design of the program.
- Performance for the year as it relates to annual targets
- **Cost**
 - Updated program budget for each sector and segment during the Program Year, including program implementation budget, participant costs, and utility performance incentive. (Table 2 from Appendix A part 2)
 - Costs for each program during the Program Year (Table 4 from Appendix A part 2), also by segment, sector, and aggregated at the portfolio level
 - Costs and funding update by sector and segment, including total planned program budget, funds from external sources, allocation of funds from existing rates and other programmatic revenues, incremental ratepayer funds required from EE rider (Table 5 from Appendix A part 2)
- **Conclusions and recommendations**
 - Lessons learned and recommended changes for the following year (Year 1 report) or for the three-year plans (Year 2 report)

6.1.2 Data on Transition Period Programs

The data on the TPP programs available for PREB review and audit are as shown in Table 6-2 below.

Table 6-2. Data, Format, and Time Frame of Availability for TPP Data

Data	Format	Timeframe
Number of participants by sector, segment, and program	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports
Enrolled resources (DR) by sector, segment, and program. Also sorted by direct enrollment via DR aggregator or directly, if applicable	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports
Installed measures (EE) by sector, segment, and program	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports

Gross annual and lifetime energy (MWh) savings by sector, segment, and program	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports
Peak demand savings (MW) by sector, segment, and program	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports
Website traffic, post likes/interaction	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports
Costs and budget updates by program	Excel spreadsheet, table in quarterly and annual reports	To-date values provided in quarterly reports, annual values provided in annual reports

6.2 Project Management Tracking Systems

6.2.1 Overview of the Data Tracking System

A comprehensive and standardized excel spreadsheet will be developed to accurately track individual project details, aggregated by program and sector level, as applicable. Data will also be provided at the portfolio level, where appropriate. Each program may have additional specific data fields relative to its sector, segments, program design, energy and demand savings, and GHG savings. LUMA's PMO will be responsible for providing periodic data extracts to external parties.

6.2.2 Software and Data Exchange Format, and Database Structure

The format for software and data exchange is through the database structure of Excel spreadsheets. The data exchange will be overseen by LUMA and carried out in a systematic and organized way based on a regular schedule.

Table 6-3 below indicates examples of data fields captured. Data field examples for specific programs are elaborated further in this section.

Table 6-3. Data Field Examples

Energy Efficiency	Demand Response
<ul style="list-style-type: none"> Identifying information: sector, segment, program Enrolled participant numbers Deemed savings (kWh) from measure counts by type of measure, including number of items installed 	<ul style="list-style-type: none"> Identifying information: sector, segment, program Number of events called Eligible and enrolled participants and load Average and total incentive to customers Peak demand reduction during DR event, aggregate savings by season/year,

<ul style="list-style-type: none"> • Annual and lifetime electricity savings (MWh) • Peak demand savings (kW) if applicable • Incentive costs (\$) and non-incentive programmatic costs • Costs incurred by participant (\$) 	<ul style="list-style-type: none"> customer opt-outs, realized savings as % of enrolled load • Incentive costs (\$) and non-incentive programmatic costs
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6.2.3 Data Access by PREB and EM&V Contractor

LUMA will provide PREB's EM&V contractor with access to the data tracking spreadsheet extracts used throughout the program implementations as well as assumptions, processes, and information requested from the EM&V contractor as needed. LUMA will respond to data requests on a regular schedule and provide information requested in a timely manner as available. LUMA will require their turnkey contractor and the turnkey contractor's subconsultants to respond to requests and provide information in a timely manner as available. LUMA will provide the data as follows:

- A secure shared folder will be created for file transfer.
- Customer identifiable details will be treated with high sensitivity and security and scrubbed before uploading to PREB's website.

7.0 Quality Assurance and Evaluation, Measurement, and Verification

The objective of this section is to provide detailed description of how LUMA's quality assurance/quality control and verification process will be conducted and how this will integrate with EM&V contractor.

7.1 Quality Assurance/Quality Control

7.1.1 Overall Approach to Quality Assurance and Quality Control

LUMA will work with turnkey implementation contractor to develop and implement quality assurance and quality control (QAQC) procedures for EE and DR programs. The procedures will evaluate whether each project complies with program requirements for customer eligibility, measure installations, enrollment, and verification of savings. The turnkey implementation contractor will be responsible for leading quality assurance and quality control, with LUMA providing oversight. The overall process will reflect the industry's standard practices and adherence to the EE Regulation. Quality assurance and quality control activities that LUMA will undertake may include, but not be limited to:

Quality Assurance:

- Provide trainings to staff and turnkey implementation contractor, as needed
- Develop standard policies procedures
- Conduct spot checks of customer applications and incentives processing for eligibility, completeness, and accuracy
- Conduct follow-up surveys and develop quarterly reports to assess the quality of program delivery and incorporate learnings into a continual improvement process
- Ensure turnkey implementation contractor meets at least minimum standards for industry QAQC practices

Quality Control:

- Implement internal controls for data tracking and reporting and require similar controls for the turnkey implementation contractor
- Designate roles for program review and validation to ensure reporting and documentation methodologies are consistent

7.1.2 Procedures for Measure and Project Installation Verification, QAQC, and Savings Documentation

LUMA will ensure proper installation verification, general QAQC, and savings documentation. Table 7-1 provides a detailed outline of the specific procedures. LUMA will review these on an ongoing basis and revise as needed to foster a continuous improvement process.

Table 7-1. Procedures – Measure, Installation, QAQC, and Savings Documentation

Item	Energy Efficiency	Demand Response
Measure and project installation verification	<ul style="list-style-type: none"> • Review all program related collateral for effectiveness • Review approximately 5% of project applications on a yearly basis through due diligence, desk-top inspections of 	<ul style="list-style-type: none"> • Review all program related collateral for effectiveness • Provide verification and due diligence of aggregated program savings, average

	a sample of project documentation – no on-site visits • Verification of installation, and savings accuracy	event savings, and total enrolled customers and nominated load for DR
QAQC	• Provide training on the programs, develop checklist for standard questions and rebate application review to ensure the application was filled out properly, initial review by staff • Potential to develop automated check for completeness, correctness, eligible measures in year 2 or beyond • Supervisor will review, any duplicates for incentives will be removed, ensure incentive calculation is done correctly	• Provide training on the programs, develop checklist for standard questions and enrollment application review to ensure the application was filled out properly, initial review by staff • Potential to develop automated check for completeness, correctness in year 2 or beyond • Supervisor will review and verify reported average event savings, aggregated program savings, and total enrolled customers and nominated load for DR
Savings documentation	• Deemed savings per measure on eligible measure list will be used to calculate savings • Excel spreadsheet will include all the measures, number installed, savings per measure, and which program, sector, and segment those savings are attributed to (Tables 1 and 3 in Appendix A Part 2) • In the quarterly report, the savings will be presented by quarter and to-date relative to annual targets, and for the annual report the savings will be presented for the year and relative to annual targets	• Review program documentation review, including program plans or filings, marketing materials, implementation contractor contract documents, customer participation agreements and program website(s) • Excel spreadsheet will include savings per event, aggregate program savings, customer opt-outs, and which program, sector, and segment those savings are attributed to (Tables 1 and 3 in appendix A part 2).

7.1.3 Process for Collecting and Addressing Feedback

LUMA and the selected implementation contractor(s) will oversee the process for collecting and addressing feedback from customers, contractors, and trade allies. Feedback including queries, suggestions and complaints will be essential to assess the different types of energy saving behaviors and to improve program delivery and future program designs. The process for collecting and addressing feedback is described below:

Customers:

- Develop and implement customer complaint resolution process for programs, which will include tracking each complaint and how it was addressed
- Set up customer help desk to respond to questions or complaints relating to programs

- Conduct structured customer surveys to gather additional feedback

Contractor and Trade Allies:

- Conduct interviews with contractors and trade allies

External Stakeholders:

- LUMA will work closely with a Stakeholder Advisory group to generate feedback and insights for program improvement.
- Schedule formal stakeholder meetings every 6 months to gather and integrate feedback on program delivery through a continual improvement process.
- Ad-hoc meetings with Stakeholder Advisory Group will be conducted as needed.

7.2 Planned Evaluations and Use of Results

Each program will be reviewed by an independent evaluator selected by the Energy Bureau. LUMA will help support the evaluation process and incorporate findings to improve programs from following processes:

- Provide program data required for conducting impact and process evaluation
- Review the evaluation results from PREB's independent evaluator
- Consider incorporating the recommendations and lessons learned from independent evaluation for program delivery
- Address learnings from evaluations in the 3-year EE and DR plans

PREB will publish the final report for each verification activity no later than 120 days following LUMA's filling of the annual report. LUMA will review and incorporate findings from these reports as part of LUMA's continuous improvement process.

The EM&V budget for each program, which is part of the program administration budget, will be 3% of each program's total budget. Table 7-2 below details the budget for each of these evaluations.

Table 7-2. Estimated Budget for Planned Evaluation by PREB EM&V Contractor

Program	Y1 Program Budget	Y1 Planned Evaluation Budget	Y2 Program Budget	Y2 Planned Evaluation Budget
Residential Rebate	\$2,250,000	\$67,500	\$5,625,000	\$168,750
Business Rebate	\$2,250,000	\$67,500	\$5,625,000	\$168,750
In-Store Discount	-	-	\$1,125,000	\$33,750
Customer Education/Awareness	\$2,000,000	\$60,000	\$2,000,000	\$60,000
Emergency DR	\$2,108,317	\$63,250	\$4,216,634	\$126,499
Economic DR	\$245,472	\$15,000	\$336,415	\$15,000
Battery DR	-		\$610,034	\$18,301
Total	\$8,853,789	\$273,250	\$19,538,083	\$591,050

7.3 Strategy for Coordinating with the EM&V Contractor

LUMA will provide PREB's EM&V contractor with access to the data tracking spreadsheets used throughout the program implementation period as well as assumptions, processes, and information

requested from the EM&V contractor as needed. A secure shared folder will be created through LUMA's file sharing system and access will be granted to approved parties. Customer identifiable details will be treated with high sensitivity and security.

LUMA will respond to requests and provide information requested in a timely manner, as available. In addition, LUMA will require its implementation contractors to respond to requests and provide information in a timely manner, as available.

8.0 Funding Sources and Cost Recovery Mechanism

The objective of this section is to provide a description of estimated program costs, proposed funding sources and cost recovery mechanism.

8.1.1 Summary of Program Costs

On January 21, 2022, the Energy Bureau issued a Resolution on Case No. NEPR-MI-2021-0005, through which it published the final Regulation for Energy Efficiency. Section 2.02 of the EE Regulation recommends energy savings targets of 0.1% of annual sales forecast in year 1 and 0.25% of annual sales forecast in year 2 of the transition period. This equates to a target of 16,557 MWh in year 1 and a target of 41,301 MWh in year 2, though these are not mandatory targets during the Transition Period. As shown in Table 8-1 below, LUMA estimates an EE budget of approximately \$10M would be required in Program Year 1 to achieve these savings targets. However, there is a high degree of uncertainty about the cost of achieving energy reductions in Puerto Rico, therefore these figures represent best estimates with current information.

Table 8-1. Funding Sources and Cost Recovery for EE and DR Programs

Program	A) Total Planned Program Budget (\$M)	B) Allocation of funds from existing rates (\$M)	C) Incremental funds required from EE rider (\$M)
Residential Program	\$2,250,000	\$472,500	\$1,777,500
C&I Program	\$4,603,789	\$1,098,496	\$3,505,293
Education & Outreach Program	\$1,500,000	\$1,500,000	\$0
Cross-Cutting Planning, Admin & Startup Costs	\$1,500,000	\$1,500,000	\$0
Total Portfolio of Programs	\$9,853,789	\$4,570,996	\$5,282,793

LUMA has included approximately \$4.6 million within its FY23 Annual Budget filing (column B), for program planning, administration and startup costs. This also includes the full cost of implementing the Education & Outreach program, which does not currently have an incentive component and therefore can be budgeted at small scale within the existing rate order. The remaining costs (column C) are incremental ratepayer funds required from the EE Rider, which is discussed in the following section.

8.1.2 Program Cost Recovery

A reliable and long-term source of funding is essential for successful planning and delivery of energy efficiency (EE) programs to meet Act 17 objectives. LUMA has investigated other forms of funding such as federal funding, which provide grant funding for individual EE *projects*, though they do not provide funding directly to utilities for distribution through EE incentive *programs*. Utility-sponsored energy efficiency programs require a stable annual source of funding, typically established by the regulator to be recovered through utility rates.

As discussed in the Energy Bureau's 2019 Determination on the Permanent Rates Rider Factors,⁸ the Energy Bureau will need to create an Energy Efficiency fund in order to implement the required EE/DR programs. As EE programs are not covered within the base rate, the Energy Bureau has previously established the EE Rider to recover the cost of energy efficiency programs from all customers on a per kilowatt-hour basis.⁹ The Energy Bureau will need to establish an initial Energy Efficiency fund of \$5.3M to be collected from customers through the EE Rider during FY 2023.

The EE rider factor is calculated by dividing the total estimated amount to be recovered (\$5.3M) by the total estimated FY2023 kWh sales (16,557,146,139 kWh). Therefore, the EE rider factor estimated during FY2023 is \$0.00032/kWh, as shown in Table 8-2 below. This figure represents an illustrative example of the EE rider, however additional analysis would be required to determine a final rider amount and terms and conditions.

Table 8-2. EE Rider Estimation

Item	Amount	Reference
Incremental Funds Required from EE Rider (\$)	5,282,793	LUMA estimate
Estimated Retail Sales for FY 2023 (kWh)	16,557,146,139	Load Forecast FY 2023.xlsx
Energy Efficiency Adjustment for FY 2023 (\$/kWh)	0.00032	L1/L16

To understand the financial impact on the average residential customer, a 4-case scenario analysis has been developed as illustrated in the table below. The estimates present the hypothetical monthly and annual bill impact under four kWh consumption scenarios. As observed below the financial impact of an EE rider of \$0.00032 represents an annual bill increase of roughly \$1-4 per year.

Table 8-3. Estimated Monthly Customer Impacts

Average Monthly Consumption (kWh)	Cost Increment (\$/kWh)	Monthly increase (\$/month)	Annual Impact (\$/yr.)
300	\$0.00032	\$0.10	\$1.15
500		\$0.16	\$1.91
800		\$0.26	\$3.06
1000		\$0.32	\$3.83

While the EE Rider's impact per customer is negligible, customers are very sensitive to any increase in energy costs, where the electricity rates are more than double the U.S. mainland average. The decision about the timing of introduction of an EE Rider requires careful consideration and is the Energy Bureau's decision to make. LUMA does not recommend introducing an EE Rider during present economic conditions.

⁸ <https://energia.pr.gov/wp-content/uploads/sites/7/2019/09/Resolution-and-Order-Permanet-Rates-Rider-Factors-CEPR-AP-2015-0001.pdf>

⁹ Regulation 8720, New Regulation on Rate Filing Requirements for the Puerto Rico Electric Power Authority's First Rate Case, March 28, 2016, Section 2.12(D).

9.0 Plan Compliance Information and Other Key Issues

The objective of this section is to highlight specific areas in Transition Period Plan that PREB can review for compliance determination.

9.1 Key Compliance and/or EE Policy Issues

9.1.1 How the TPP will Contribute to Puerto Rico's long-term Energy Efficiency Savings Goals

The TPP portfolio is a starting point in working towards the island's clean energy policies and priorities to reduce greenhouse gas emissions, bring awareness of energy saving actions, provide energy efficiency and demand savings and help customers manage energy use. LUMA will collaborate with the PREB, stakeholders, and customers to accomplish the objectives of the TPP.

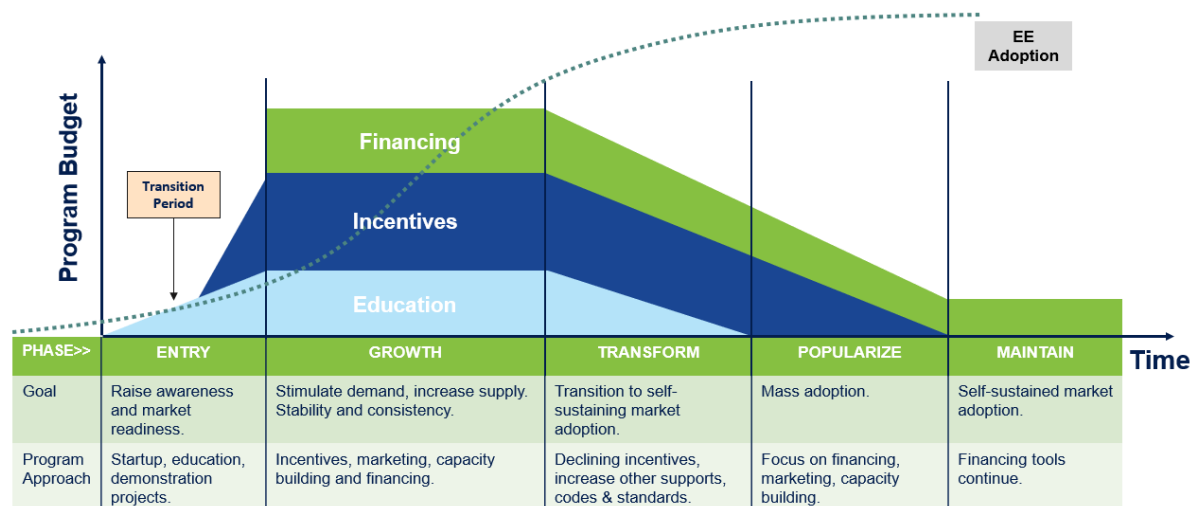
In selecting the programs for the TPP, LUMA was mindful of the overarching goal of 30% improvement in energy efficiency by 2040, from the Puerto Rico Energy Public Policy Act.¹⁰ The TPP is designed as a starting point to begin contributing toward achieving these targets by beginning the process of developing stable, comprehensive programs that will accelerate customer adoption of energy efficiency technologies. The TPP is primarily a startup phase in EE and DR to ensure that the more comprehensive and expansive 3-year EE-DR Plan can make a larger contribution to meeting these targets.

The TPP outlines a portfolio of EE and DR programs that contribute directly to achieving Puerto Rico's energy efficiency savings goal of 30% by 2040 and greenhouse gas reductions by 2024. Energy savings measures include measures such as solar water heaters, ENERGY STAR LED lightings, window films, occupancy sensors, and other building equipment. The list of measures offers long-term energy savings for residential, commercial, and industrial customers. LUMA will work with stakeholders and customers to understand the effectiveness of each measure. LUMA will make changes as necessary, to enhance customer participation and energy savings, through a continuous improvement process. The TPP programs will help raise awareness of EE/DR, build market readiness and obtaining learnings that can be applied to the development of a more comprehensive and effective 3-year EE-DR plan.

9.1.2 Approach to Market Transformation, Building Capacity of Energy Efficiency (EE) Services industry, and Using EE to Provide Grid Services, Demand Flexibility and Resilience

The term "Market Transformation" is used in the EE industry to refer to program strategies that pursue permanent structural changes in the market such that program interventions like incentives, financing and education are no longer required to overcome barriers to adoption. Figure 9.1 depicts LUMA's vision for the long-term transformation of the EE products and services market in Puerto Rico.

¹⁰ *Puerto Rico Energy Public Policy Act*, Act No. 17-2019 (S. B. 1121), 5th Regular Session, 18th Legislative Assembly of Puerto Rico

Figure 9.1. Energy Efficiency Market Transformation Roadmap

LUMA Transition Period programs represent the starting point on this long-term market transformation roadmap. The focus of Program Year 1 (the “Entry” phase) will be to raise awareness and market-readiness through the Education & Outreach Program, while developing the program delivery infrastructure required to deliver effective programs. In the “Growth” phase, LUMA will use incentive programs, financing, and capacity-building programs to stimulate demand, increase the availability of trained contractors and accelerate customer investment in EE projects.

LUMA plans to engage an expert program implementation contractor, who will recruit and train local expertise as part of its delivery team. The EE programs will rely on local contractors, equipment suppliers, and engineers to identify and install eligible measures for energy efficiency upgrades in residential, commercial, and industrial buildings in Puerto Rico. The goal is that over time these programs will help contractors learn to profitably incorporate EE products into their business and influence permanent changes in building practices and inventory stocking practices by suppliers and retailers.

9.1.3 Describe how the individual Transition Period Programs will leverage and utilize other financial resources, including funds from other public and private sector energy efficiency programs.

LUMA has investigated other forms of funding such as federal funding, which provide grant funding for individual EE *projects*, though they do not provide funding directly to utilities for distribution through EE incentive *programs*. LUMA has included approximately \$4.6 million within its FY23 Annual Budget filing for program planning, administration and startup costs. This also includes the full cost of implementing the Education & Outreach program. One of the services anticipated for the Education & Outreach program is to provide technical assistance for community project proponents in pursuing funds from public grant programs. LUMA will continue to look for opportunities to apply for additional grant funding from other public and private sector programs.

9.1.4 How the TPP Will Address Consumer Education on EE, DR, and Solar and Solar Photovoltaic Systems.

The TPP includes initiatives designed to address consumer education on energy efficiency conservation and demand response measures. The Education and Outreach Program will raise awareness of cost-

effective energy conservation techniques and encourage customer investment. Each EE and DR program will have an education and outreach component as part of the marketing strategy which will encourage EE, DR, and solar actions. The Behind-the-Meter battery program will leverage customer investments in solar systems for resiliency purposes to also improve grid reliability and reduce fuel costs.

9.1.5 How the TPP EE Programs will be Coordinated with DR Programs

LUMA developed the TPP as a joint EE-DR Plan, with coordination built into the design and delivery of the programs. Energy efficiency programs (EE) will be launched in coordination with the demand response (DR) programs. Overall coordination will be overseen by LUMA, while LUMA's implementation contractor will constantly look for new opportunities to integrate EE and DR measures and program delivery strategies, through conversation with local service providers and lessons learned from project implementation.

9.1.6 How LUMA will Provide the Public with Information about the Results from the TPP

LUMA will file quarterly and annual reports based on the schedule stated in Section 6.1 to provide public information about results from the Transition Period programs. The progress reports report will be discussed with stakeholders to review progress on programs, programs and portfolio and obtain feedback on improvements. LUMA will incorporate the feedback obtained into its continuous improvement process and make improvements, as necessary, to increase the success of program delivery including the customer experience, participation and savings achieved.