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Chairman
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Subject: Comments to LUMA’s Transition Period Plan

Introduction


Sunnova appreciates the opportunity to have participated in the Virtual Technical Workshop held on the 4th of November. Sunnova submits the following information and comments on the Proposed Transition Period Plan (“TPP”) for Energy Efficiency (EE) & Demand Response (DR) to the Energy Bureau (“Energy Bureau”) of the Puerto Rico Public Service Regulatory Board, LUMA, and other stakeholders engaged in the program scoping. This plan presents the Energy Bureau and LUMA with the opportunity to leverage renewable energy resources and transform the electricity grid through effective utilization of distributed generation.

As the largest distributed energy solutions provider on the island with an aggregated available capacity that would meet LUMA’s grid modernization needs today, Sunnova Energy Corporation (Sunnova) is excited to engage and help create solutions for Puerto Rico and all ratepayers.

Company Overview

The Sunnova family of companies are a leading solar and energy storage service provider, serving more than 246,600 customers across 40 U.S. states and territories with over 38,000 of those customers in Puerto Rico. Our goal is to be the leading provider of clean, affordable, and reliable energy for consumers. We were founded to deliver customers a better energy service at a better price; and, through our solar and solar plus energy storage service offerings, we are implementing the change from the traditional energy landscape for the 21st century customer and modern power grid.


246.6K
CUSTOMERS
as of 9/30/2022


30%
ATTACHMENT RATE⁽¹⁾
in Q3 2022
14.5%
PENETRATION RATE
as of 9/30/2022


1,033
DEALERS,
SUB-DEALERS & NEW
HOMES INSTALLERS
as of 9/30/2022



Figure 1. Overview of Sunnova's Corporate Key Metrics

Sunnova has been the leading residential solar and storage provider supporting Puerto Rico's grid transformation since 2013. We estimate that Sunnova maintains an 85% market share within Puerto Rico and credit the company's focus on customer satisfaction and ongoing service and support for our growth. In response to the catastrophic events following Hurricane Maria, Sunnova has strengthened its commitment to providing power in the territory. Sunnova expects continued demand for our solutions and our company remains committed to finding ways for LUMA and the Puerto Rico Energy Bureau to transform the energy landscape and transition to a clean, resilient, distributed, and cost-effective power grid. Since 2018, Sunnova has moved to a 100% attachment rate for battery storage within Puerto Rico and we also offer retrofit storage for existing solar customers on the island.

More recently, Sunnova's reliable distributed energy systems provided more than 2GWh of power to our customers when the grid was down due to Hurricane Fiona. Sunnova customers averaged 5.3 days of solar + storage battery backup with many residents remaining dependent on their Sunnova system for more than 10 days. While the outage event was impactful for many on the island, Sunnova has a demonstrated track record of success in delivering solutions for our Puerto Rican customers.

Our company is highly qualified and capable of providing aggregated residential energy services for LUMA. Our track record of success within other competitive procurements, such as the largest competitive auction award for distributed energy resources in ISO-NE, are a testament to our abilities to execute on our visions and commitments. We have built multiple partnerships with other distributed energy players that allow us to scale our efforts and achieve meaningful value for power grids when aggregated into a virtual power plant.

Not only is Sunnova capable of building out the aggregated adaptive homes that we envision, our financial strength and ability to raise capital to execute on our vision is leading the industry. Distributed residential solar power is a capital-intensive business that relies heavily on the availability of debt and equity financing sources to fund solar energy system purchase, design, engineering, and other capital expenditures. From our inception through December 31, 2021, we have raised more than \$9 billion in total capital commitments from equity, debt, and tax equity investors.

The technical expertise of Sunnova's operations, trusted suppliers, and local installer partners is the standard for the industry. Our company places a top priority on standing behind the integrity of our assets over the many decades we expect them to be operating. As such, service is an integral part of our agreements and includes operations and maintenance, monitoring, repairs and replacements, equipment upgrades, on-site power optimization for the customer (for both supply and demand), the ability to efficiently switch power sources among the solar panel, grid, and energy storage system, as appropriate, and diagnostics. Sunnova ensures that every component that we install is reliable, backed by a bankable manufacturing partner, and best in class for our industry.

Finally, having provided trusted residential energy services within Puerto Rico for nearly a decade, Sunnova has fully complied with all regulatory and permitting requirements and been an engaged advocate with LUMA, PREPA, the Puerto Rico Energy Bureau, and other legislative



and regulatory activities on the island. Sunnova welcomes open discussions with LUMA on how best to create a demand response program that can quickly and efficiently address the ongoing energy crisis in Puerto Rico. Our solutions can be tailored to fit the unique needs of the Puerto Rican grid and our shared customers.

Response to Transition Period Plan

Streamlined Approach to Meet Immediate Needs

There exists an immediate need to modernize the electricity grid due to decades of neglect and climate related disasters which is highlighted within the TPP. LUMA's engagement to address and resolve these immediate issues is a strong signal to the community of the commitment that is being made. Identifying the opportunity that exists to not only repair but to transform the grid to be more resilient and reliable requires collaboration and input from the island's businesses and residents. Within any grid modernization effort, no one technology or solution exists that will solve all issues. The TPP recognizes this and proposes multifaceted solutions, including Energy Efficiency, Rebate Programs, and Demand Response. LUMA points to within the TPP, the goals of increasing economic activity and growing local businesses which can be successful through utilizing a network of local dealers and installers that are already embedded into their communities and capable of marketing and installing consumer investments. The Transformation Roadmap accurately depicts the necessary phases and programmatic approach that is needed to be successful. Based on the steep increase in budget during the growth phase, priorities should be focused on streamlining this phase where possible to allow for the most efficient and effective mechanism to grow adoption. Focusing on increased economic activity through market adoption while accounting for the immediate need to transform the grid requires a consolidated approach to look for a solution that is both economically and technologically beneficial to ratepayers.

Demand Response Integration

Sunnova and the demand response industry is aligned on the view that a well-functioning demand response program meets multiple objectives for participants and the grid. A well-designed program will lower costs for all ratepayers through dynamic optimization of supply and demand on the grid. Demand response programs require more than simply scheduling distributed energy resources on a time-based mechanism.

Sunnova believes that LUMA should dispatch clean energy when it is most needed across the local distribution networks and replace PREPA's need to continue to utilize fossil fuel peaker plants or procure new peaker plants on the island. This can be accomplished using simple dispatch methodologies that include phone call and email-based alerts and does not need to be a higher order of technical implementation to start.

For example, the Sunnova Adaptive Home is not only able to produce and store energy when PREPA requires additional delivered energy or to curtail midday renewables, it also



“adapts” by optimizing energy sources and consumption, in real time. This is a critical component for a demand response program. By monitoring current energy needs, solar production, stored energy levels, grid health, time of day, energy price signals, and other inputs, the Sunnova Adaptive Home can make intelligent adjustments to deliver the optimal energy experience.

Longer term, Sunnova recommends a fully connected and networked solution via cloud-based architecture.

Accelerating Program Schedule

LUMA should consider additional programs in the next phase but focus on the emergency grid needs in the near term for maximum impact to its performance and customer satisfaction metrics. Based on the immediate need that has been identified focusing on enabling expediency of the process should be the priority. Sunnova proposes additional requirements that would streamline this approach while recognizing that the TPP works to address this through their quick-launch programs. The TPP proposes DR as a potential Year 2 launch due to the barriers and need for education and outreach. DR is the most critical program to meet the current and future grid needs of Puerto Rico and the timeline should be accelerated for DR to Year 1 given that the barriers identified are lower than perceived by LUMA.

Leverage Partnership Capabilities

Implementation risk can be minimized through selecting counterparties that have the required hardware and software capabilities to accelerate the launch of the program such that minimal new equipment be needed. To meet the immediate needs of the programs selected vendors should have existing customer billing relationships to facilitate on-bill credits for DR performance and inclusion in the program, thus eliminating unnecessary program and administrative costs. This relationship provides the certainty of integrating third-party telemetry into billing systems and improves timing and scale of the program.

Specifically, LUMA should consider the capabilities available today across customer acquisition, existing deployed assets, installation and software integration, end-user enrollment, operations and maintenance agreements, existing software and control integrations, and customer billing capabilities.

Sunnova recommends that LUMA consider vendors that have a network of local dealers and installers to originate, design, and install solar energy and energy storage system. These partners should be made up of reputable local companies that have proven success in the renewable energy industry and have experience offering services on the island.

Sunnova has a network of more than 1,000 dealers and sub-dealers that bring to market residential solar, solar + storage and other services which can be implemented with little to no upfront cost to homeowners through leases, loans, and power purchase agreements. Our business model involves partnering with local businesses, our trusted dealer network in Puerto



Rico, with whom we work together to originate, design, and install solar energy and energy storage systems. Our local dealers have the support of our US-based team of professionals including dedicated technicians and VPP operators to maintain the fleet.

Based on Sunnova's experience in the market, selling systems directly to the customer "at the kitchen table" helps eliminate unnecessary steps an end user needs to perform to enroll in DER programs. Simplifying program structures and including program enrollment into the sales experience and contract structure, will help ensure a very high percentage of customer participation. To date, Sunnova has had a high degree of success in embedding Grid Services programs under this mechanism with counterparties across the nation.

Streamline Program Economics

Resistance to load shifting and low response to DR events can be addressed through combining the demand response programs into a single program aimed at making an immediate impact on LUMA performance, namely using demand side flexibility to reduce/eliminate forced load shed outage events due to lack of resource adequacy on the island. Customers can be provided certainty through structuring the incentive payment to provide fixed amounts to end users via a capacity payment based on availability (\$/kW-mo), while keeping an energy-based payment (\$/kWh) to incentivize maximum performance or, alternatively, to structure a minimum number of dispatch events. This would be paid on a \$/kWh performance basis to ensure end-users have certainty on value when signing up for the program. We highly recommend that LUMA engage with qualified parties that have experience educating customers on the value of these programs and maximizing customer participation and engagement.

Sunnova recommends combining battery DR and economic DR into a single emergency DR program that is priced the same regardless of sector/type of asset will result in an increase in expected enrollment. By combining into a single program this will maximize the amount of MWs that can be delivered and reduce the risk of stranding potential resources that can mitigate load shedding events.

Customer Engagement and Communications

To further counter the risk for low enrollment, it is suggested that selected vendors be experienced in nuanced end user communications regarding complex energy concepts like DR while having on island resources to support customer calls and service complaints. This deep experience on the island needs to include on island resources to support DR operations and maintain equipment in the field. Additionally, vendors having an existing customer base will allow for maximum impact given the short time period. This existing customer base is paramount for success when looking at other successful DR programs such as Connected Solutions that took over five years to get to scale and have similar intended impacts.

Residential Demand Response

Sunnova recommends that LUMA opens the program to vendors that can act as



Aggregators who will enroll and manage assets from both residential and commercial customers. Typically, “Bring Your Own Device” style programs best suited to encourage DER deployments at the early stages of solar and storage deployment. A streamlined programmatic approach for customers is best achieved by working through Aggregators, who customers will look to for marketing, customer service needs, distribution of incentives via on-bill mechanisms or other, and with help enrolling in the program.

Aggregators can take on the program administrative burden by consolidating enrollment documentation and M&V reporting metrics to LUMA. They will also act as the primary contact for customers that have questions regarding the program or those who wish to unenroll. Sunnova recommends a capacity and energy, or energy only performance-based approach in structuring the program design. In our experience, ensuring that customers have some level of fixed ongoing incentive that they can rely on, combined with the opportunity to earn more based on performance results in the strongest way to engage customers and ultimately deliver the much-needed MWs.

In addition to efficiencies of working directly with companies that have end-user relationships directly, LUMA should consider the technical integration time and costs associated with launching a BYOD program. Sunnova’s VPP capabilities are integrated directly into our deployed hardware and therefore can be controlled reliably. Within a BYOD program there exists the additional cost on onboarding vendors and potential for a less reliable demand response system as a result of varying original equipment manufacturer’s capabilities and communication protocols.

Sunnova recommends the payments be structured in a way that will reduce costs for PREPA and LUMA and achieve lower overall rates for all ratepayers. We also recommend LUMA collaborate with PREPA given the ongoing energy transformation and outstanding solicitations PREPA has for similar services. This program may be conflicting with other procurement activities that could result in customer confusion and ultimately lower overall success rate.

Sunnova appreciate the Energy Bureau’s leadership in this proceeding, and we are available if there are any further questions.

McCrea Dunton
Sr. Director
Energy and Grid Services