

February 1, 2018

Puerto Rico Energy Commission
Seaborne Building, 268 Ave. Muñoz Rivera,
Plaza Level Suite 202, Hato Rey, PR 00918

Via Electronic Filing

comentarios@energia.pr.gov

RE: REGULATION ON MICROGRID DEVELOPMENT

Dear Clerk María del Mar Cintrón Alvarado:

Please find enclosed for filing in the above-captioned proceeding the Comments of Sunrun, Inc.
Thank you for your attention to this matter.

Best regards,

/s/ Chris Rauscher

Chris Rauscher
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San Francisco, CA 94105
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GOVERNMENT OF PUERTO RICO ENERGY COMMISSION

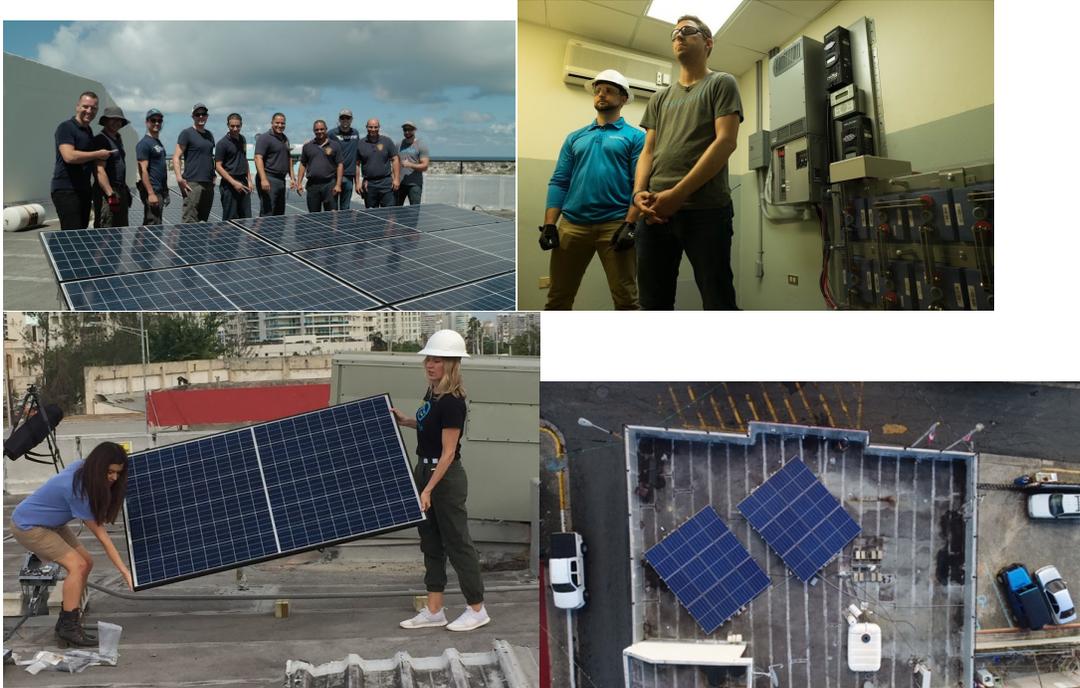
CASE NUMBER: CEPR-MI-2018-0001

**COMMENTS OF SUNRUN INC. IN RESPONSE TO NOTICE OF PROPOSED RULEMAKING
BY THE PUERTO RICO ENERGY COMMISSION REGARDING REGULATION ON
MICROGRID DEVELOPMENT**

Sunrun Inc. (“Sunrun”) respectfully submits these comments in response to the Puerto Rico Energy Commission’s Notice of Proposed Rulemaking on Microgrid Development.

Sunrun is the United States’s largest dedicated residential solar, storage, and energy services company with well over 160,000 customers in 22 states and the District of Columbia. We pioneered the “solar-as-a-service” model more than ten years ago and are committed to ensuring that all utility customers have a viable choice in how they procure and consume electricity. Sunrun offers an advanced solar plus storage service (“BrightBox”) to give customers additional control over onsite consumption of electricity and to provide broad grid services to benefit all ratepayers. Sunrun has an interest in ensuring that rooftop solar and behind-the-meter energy storage is deployed efficiently and economically and that market participation and interconnection requirements are fair, clear, and transparent.

After hurricanes Irma and Maria, Sunrun leadership was saddened by the hardship that Puerto Ricans were facing without electricity. In October of 2017, in partnership with the non-profit Empowered by Light and leading Puerto Rico construction firm Aireko, we began installing donated solar plus storage systems on fire departments. This work continues into 2018. Sunrun’s solar plus storage systems provide storm-resilient, 24/7 power for critical emergency response services at the fire stations. Our systems provide clean, distributed power immediately, have multi-decade useful lives, and provide resiliency against future storms - regardless of broader grid conditions. Our CEO, Lynn Jurich, helped install a system on the San Juan metro station in November 2017.



Sunrun remains a committed partner to the rebuilding efforts and would suggest that a more distributed, renewable grid will provide the most resilient and efficient framework for the future of Puerto Rico. Sunrun's distributed energy solutions can be integrated with the grid to provide broad grid services as laid out in the attached slides.

In the mainland United States and Hawaii, Sunrun offers various financing options to provide the highest level of customer experience. Sunrun's most popular products are power purchase agreements or leases that allow homeowners to install solar (including solar systems with battery storage attached) with low or no upfront cost, and affordable, stable, monthly payments for 20 years. During this 20 year period, Sunrun provides peace-of-mind benefits, including monitoring performance, production guarantees, battery replacements, insuring the solar system, and warranting the quality of the installation. Sunrun has a robust dedicated customer support team and is proud of its high customer satisfaction scores.

In general, Sunrun commends the Commission for its draft rules. Microgrids will provide a resilient energy solution in Puerto Rico, particularly in areas where poles and wires rebuilding may be infeasible or where a high level of resilience is required. Sunrun stands ready to provide residential systems integrated into microgrid projects. We offer the following comments and recommendations in support of the adoption of rules that promote energy market innovation and ensure that non-utility market participants are afforded a fair playing field upon which to provide energy market services.

Since the industry definition of microgrid has not been standardized - and could, in fact, include single residential solar plus storage systems - Sunrun thanks the Commission for excluding "individual self-supply systems" from requirements in the proposed rules. However, provision 2.01(D) states that, "(s)elf-supply microgrids may not sell energy and/or other grid services outside of their self-supply system to entities other than PREPA." Sunrun would note that this provision could preclude innovative arrangements that could reduce system costs. In addition, under proposed new ownership structures, PREPA may not be the off-taker of energy or grid services. Sunrun would recommend that this portion of provision 2.01(D) be removed.

Sunrun thanks the Commission for developing rules that would promote innovate yet price-competitive systems. As proposed in section 6.05, if a ratepayer does not have a choice of whether to receive their electricity from a microgrid provider, then investigation of rate regulation may be warranted. Yet, Sunrun would note that a blanket rate cap may not be appropriate given that certain projects may offer premium services such as one hundred percent renewable generation or an increased level of power quality.

As a general principle, Sunrun advocates that where a ratepayer has the ability to choose a competitive option, such as third-party owned solar and storage, no price regulation is warranted. Price regulation is a substitute for market competition.

The express allowance of smart rates, such as time-of-use, is welcomed. Sunrun would recommend that this provision be broadened so as to not to preclude more innovative rate structures, such as a smart home rate that could encourage bundled services for home energy management and electric vehicle charging.

Whether microgrid regulations, interconnection rules, net energy metering, or participation in wholesale markets, private sector companies like Sunrun look to regulators and policymakers to provide clear, transparent, and stable regulatory environments. A robust regulatory body is key to providing the certainty that private sector companies rely upon. As the Government of Puerto Rico, working with the Oversight Board and the Federal Court, look toward restructuring options for the Puerto Rico Electric Power Authority (PREPA), clear and robust regulatory oversight and process will be even more critical to ensure that private sector companies conduct business in Puerto Rico. Regulatory uncertainty is the greatest barrier to market participation.

Sunrun stands as a partner, ready to provide residential solutions for grid rebuilding. We thank the Commission for these draft microgrid rules and for consideration of our comments.

Best regards,

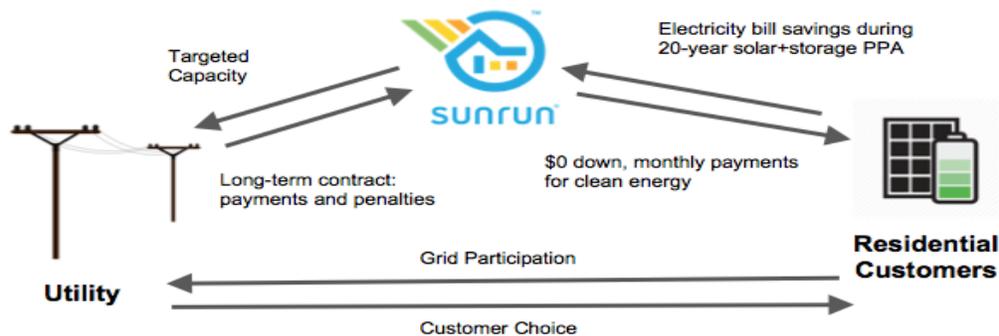
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Attachment

Sunrun Brightbox and Grid Services

How does Sunrun Brightbox provide grid services?

Sunrun provides the flexibility and value of a resource local to the distribution grid and dispatchable via utility signal, without the cost and complexity of directly managing customer-sited assets.



What types of distribution grid services can Sunrun Brightbox provide?

- **Demand Response** participation with the ability to perform a variety of actions without de-rating.
- **Localized Distribution Support** programmed for specialized load shifting, variable by month/day/hour, to support targeted load shift or voltage support.
- **Increased Renewables Hosting Capacity** to reduce risk of backfeed and enable higher renewables and EV penetration.
- **Reliable Response to Price Signals** from rate design, including specialized tariffs for customers who adopt storage/EVs
- **Real-time Data Sharing** on asset performance, customer loads, and local grid attributes monitored via Brightbox revenue-grade metering

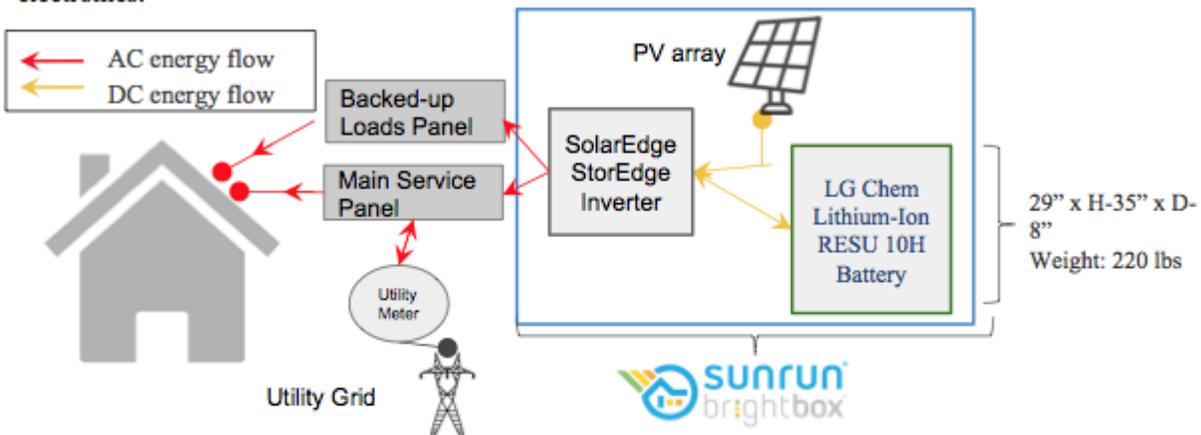
For grid services related questions please contact our Director of Grid Services at nathan.wyeth@sunrun.com



Sunrun Brightbox and Interconnection

What is the technology behind Sunrun's energy storage solution?

Sunrun installs and manages high performance lithium-ion battery systems. We source from top tier vendors such as LG Chem for 400 volt DC-coupled batteries and SolarEdge for inverter power electronics.



- The battery module contains multiple lithium ion battery cells arranged and connected to a regulated DC/DC converter.
- Output of the battery supplies high voltage ~400Vdc power to the DC side of a hybrid solar + storage inverter (i.e. solar energy charges the battery, not AC grid energy)

What is the purpose of the battery pack?

Battery technology allows homeowners to choose when to supply stored energy to their home or to the grid. Some programming applications include:

- **Self-Consumption** of stored excess solar energy to home.
- **TOU peak charge avoidance** by discharging stored excess solar energy during On-Peak periods to home or utility grid.
- **Home backup** supplies power to critical loads in the home during a grid power outage.

How does Brightbox work with NEM and interconnection?

The DC-coupled battery technology used by Sunrun will not charge from the utility's grid. The programming limits the system to only charge from the solar panels for NEM integrity and renewable incentive purposes. The overcurrent protection and NEC considerations for grid tied solar inverters remains consistent with this form of storage.

For solar + storage interconnection related questions please contact our Interconnection Specialist at kristie.siebert@sunrun.com

