

September 10, 2018

**VIA ELECTRONIC SERVICE**

Hon. Kathleen H. Burgess  
Secretary of the Commission  
New York State Public Service Commission  
Three Empire State Plaza  
Agency Building Three – 14<sup>th</sup> Floor  
Albany, New York 12223-1350

**Re: Case 18-E-0130 - In the Matter of Energy Storage Deployment Program**

Dear Secretary Burgess:

Please find the Comments of Sunrun Inc. in response to the Public Service Commission's July 17, 2018 Notice Soliciting Comments and Announcing Technical Conferences. Please contact me at (617) 997-8850 or [evand@sunrun.com](mailto:evand@sunrun.com) with any questions.

Respectfully submitted,

/s/ Evan Dube

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## **COMMENTS OF SUNRUN INC. ON NEW YORK STATE ENERGY STORAGE ROADMAP AND STAFF RECOMMENDATIONS**

Sunrun Inc. (“Sunrun”) respectfully submits the following comments in response to the Public Service Commission’s (“Commission”) Notice Soliciting Comments and Announcing Technical Conferences issued July 17, 2018 regarding the New York State Energy Storage Roadmap and Department of Public Service (“DPS”) / New York State Energy Research and Development Authority (“NYSERDA”) Staff Recommendations (“Roadmap”) filed in this proceeding on June 21, 2018.

### **I. INTRODUCTION**

Sunrun is the largest residential solar, storage, and energy services company in the country, with more than 200,000 customers in 23 states, the District of Columbia and Puerto Rico. We pioneered the “solar-as-a-service” model 10 years ago to make solar energy more accessible. Sunrun believes there is a better, less expensive, and cleaner way for families to power their homes, and with Sunrun’s residential rooftop solar, storage and energy services, homeowners are saving money while dramatically reducing the amount of carbon dioxide and other pollutants released into the atmosphere. As a leader in residential distributed energy resource (“DER”) deployment, Sunrun has great interest in energy storage incentive programs, multiple-use storage applications for grid services, non-wires alternatives (“NWAs”) programs, and rate design. Sunrun is committed to ensuring that all customers have a viable choice in how they procure and consume electricity, and views the programs contemplated in the Roadmap as crucial to ensuring customers have these choices.

Specifically, residential storage is a vital technology in expanding consumer choices in procuring and consuming electricity, and is an important component to achieving the state’s storage, clean energy, and emissions-reduction goals. Recent Greentech Media and Bloomberg articles reported that the demand for and consumer awareness of residential storage is growing as system prices decline.<sup>1</sup> This increasing demand resulted in a new milestone for residential storage: in Q2 2018,

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<sup>1</sup> See Munsell, Mike, *Led by Surging Residential Sector, Q2 US Energy Deployments Grow 200% Year-Over-Year*, Greentech Media (Sept. 5, 2018) available at [https://www.greentechmedia.com/articles/read/led-by-surging-residential-sector-q2-us-energy-storage-deployments-grow-200#gs.u\\_CZdwc](https://www.greentechmedia.com/articles/read/led-by-surging-residential-sector-q2-us-energy-storage-deployments-grow-200#gs.u_CZdwc); see also Eckhouse, Brian, *Residential Energy Storage Surging, No Longer Just a ‘Cool Toy*, Bloomberg (Sept. 5, 2018) available at <https://www.bloomberg.com/news/articles/2018-09-05/residential-energy-storage-surging-no-longer-just-a-cool-toy>.

for the first time ever, more residential storage was installed than non-residential and utility-scale storage. This outcome is attributed to the fact that residential customers are increasingly interested in self-consumption and are choosing energy storage as a resiliency measure. However, to achieve the energy storage deployment and clean energy goals envisioned by New York, market acceleration incentives coupled with additional market participation pathways are needed.<sup>2</sup>

Energy storage provides customers with a cleaner alternative to traditional backup generation and the opportunity to shift load under time-varying and other forward-looking rate structures. Energy storage is also an optimal choice for residential customers seeking clean, reliable energy choices, because energy storage has limited siting issues. Once processes for permitting and interconnection are established in a given jurisdiction, energy storage is a relatively simple technology for developers to deploy. Additionally, because residential energy storage is distributed, of the different energy storage sectors, the residential sector has the greatest diversity in technologies, system configurations, and installers of any market segment. This attribute of residential energy storage requires and spurs more innovation in the energy storage sector and will continue to do so as the market grows.

Sunrun commends Governor Cuomo and his administration, the DPS Staff, and the NYSERDA Staff for their work to develop the Roadmap and associated recommendations. Several of the programs and regulations described in the Roadmap and Staff recommendations will help New York to meet its clean energy, grid security and resiliency, and emissions reduction goals. We offer the following comments and suggestions to improve and expand upon the proposed programs and regulations with a focus on the residential storage sector for the benefit of New York ratepayers and in support of continued efforts to expand energy storage opportunities.

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<sup>2</sup> New York State Energy Storage Roadmap and Department of Public Service / New York State Energy Research and Development Authority Staff Recommendations at Roadmap (June 21, 2018) at 17 (finding “actions such as locking in certain value streams to increase revenue certainty and lower financing risk and implementing a market acceleration incentive can lead to projects becoming economic” and “[the customer sited use case] results illustrate the need for increased revenue certainty and lower upfront costs for storage to become attractive”); id. at 18 (finding “stress testing demonstrates that project economics are sensitive to revenue certainty and financing assumptions”; id. at 32 (finding “as with the customer-sited cases, revenue certainty is necessary for project viability and securing lower-cost financing for distribution system storage projects”) [hereinafter “Roadmap”].

## II. ROADMAP COMMENTS AND RECOMMENDATIONS

To enable the development of a strong and sustainable residential energy storage market in New York, an upfront incentive should be available to residential customers to lower the upfront costs of storage. This incentive should be coupled with the creation of market participation avenues structured to allow storage resources to provide and earn compensation for multiple services, including demand response (“DR”) programs and Non-Wires Alternative (“NWA”) projects as additional program options to compensate customers for grid services provided. These new programs must be available to residential customers without requiring participating customers to switch to unfavorable or punitive rates and be in addition to an upfront incentive. Providing a market acceleration incentive coupled with clear market participation pathways for storage resources to earn separate revenue streams for providing multiple, distinct services are key recommendations of the Roadmap and essential for project viability and growing the nascent storage market. We offer the following observations and recommendations based on the Roadmap’s proposals to make the successful transition to a strong residential energy storage market in New York.

### A. 4.4 Market Acceleration Incentive

The Roadmap recommends the adoption of a Market Acceleration bridge incentive (“Bridge Incentive”) to improve energy storage project bankability to enable a scalable and self-sustaining energy storage market in New York.<sup>3</sup> Sunrun supports this recommendation, as such an incentive will be an integral part of growing a residential energy storage market to meet New York’s energy storages goals. The upfront installed costs and cost of capital continue to be an impediment to customers adding battery storage to their solar systems. The Bridge Incentive will help to reduce this barrier and facilitate the development of a robust storage market that improves residential customers’ access to clean backup generation options, contribute to the state’s clean energy goals, and create additional opportunities for system aggregation to provide significant grid benefits as the storage market matures and batteries are deployed to scale across the state. As the Roadmap notes, a “bridging mechanism to a scalable and self-sustaining market can result in significant beneficial impacts and cost savings to the New York State market for

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<sup>3</sup> *Id.* at 48-49.

energy storage over the longer-term and in the context of the broader transformation of the electric sector.”<sup>4</sup>

For residential solar + storage, Sunrun supports the Roadmap’s recommendation to create an adder in the NYSEERDA NY SUN Program.<sup>5</sup> The NY SUN program has been crucial to the successful growth of the solar market in New York, incentivizing half of the solar capacity installed in the state through 2017 and is an appropriate avenue through which to support the growth of the storage market.<sup>6</sup> Staff indicated at the technical workshops that \$40M will likely be available in the fall of 2018 for the NY SUN adder. Sunrun recommends this funding be provided directly to storage program participants through an upfront \$/kW incentive as an adder to the solar incentive to be paid in conjunction with the rest of the NY Sun MW Block Program.

An upfront incentive will provide the bridge needed to lower upfront costs to make storage more economic and attractive to customers -- needs specifically identified within the Roadmap for customer-sited systems.<sup>7</sup> Structuring the NY Sun incentive to allow residential solar + storage systems to qualify will improve administrative efficiencies for application and payment processes. This will facilitate a transparent and understandable process for residential customers; regardless of whether the customer is a less sophisticated energy user seeking clean back up generation options to prepare for prolonged outages, such as those experienced during last winter’s numerous nor’easters, or a more sophisticated customer seeking an accessible on-ramp to participating as a “prosumer” in New York’s energy markets.

To provide the market acceleration benefits intended, Sunrun recommends structuring the Bridge Incentive program according to the following principles.

- **Avoid non-value add operational and performance requirements.** For example, reasonable cycling and data provisioning requirements to ensure participants demonstrate increased solar self-consumption, decreased peak demand, or dispatch or resiliency benefits can provide program administrators with fleet performance data that is useful to

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<sup>4</sup> *Id.* at 49.

<sup>5</sup> *Id.*

<sup>6</sup> NY-Sun Annual Performance Report Through December 31, 2017 at S-1 (Mar. 2018) *available at* <https://www.nyserda.ny.gov/-/media/Files/Programs/NYSun/2017-Annual-Report.pdf>.

<sup>7</sup> Roadmap at 17.

inform future market programs and can ensure the program is effectively promoting the intended beneficial uses of storage. As a Bridge Incentive is, by definition, designed to bridge the gap between system cost and market opportunities, the cycling requirements should not be overly prescriptive or onerous, or such requirements will create additional hurdles to long-term market development, and even impede actual deployment. New York can look to Massachusetts's Solar Massachusetts Renewable Target (SMART) as an example of a program with feasible operational and performance requirements for residential incentive programs.<sup>8</sup> The Bridge Incentive program requirements should be developed with stakeholder input to ensure the operational and performance requirements are reasonable and useful.

- **Allow and encourage participating customers to access other revenue streams for their storage systems.** The Roadmap includes recommendations that would allow for storage resources to provide multiple services, including the provision of bulk dispatchable services while also providing local service, where those services do not conflict.<sup>9</sup> Creating market access pathways for storage to provide multiple services is a fundamental element of the market animation principles necessary for the storage value proposition. Sunrun encourages the Commission and the NYISO to adopt clear market rules for storage systems to participate in the bulk and distribution markets to provide multiple services and receive fair compensation for these services. The Bridge Incentive is a critical first step to facilitating the deployment of storage resources to enable market participation by these resources. Incentive eligibility should be designed to encourage the participation in these market by projects receiving incentive funding to more rapidly scale resource availability.
- **Take into account that additional revenue streams for the provision of wholesale market services may not be realized in the near-term.** Sunrun supports the Roadmap's objective to maximize NYISO market-based revenues; however, it is unclear what revenues will be available from the NYISO for residential solar + storage aggregations. The NYISO is currently reviewing how market rules can be modified to facilitate BTM

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<sup>8</sup> Massachusetts Department of Energy Resources, Solar Massachusetts Renewable Target (SMART) available at <https://www.mass.gov/solar-massachusetts-renewable-target-smart>.

<sup>9</sup> Roadmap at 69.

resource participation, but there is uncertainty about the ability of BTM assets to receive approval to participate in the NYISO markets. It is important that the Bridge Incentive program requirements recognize the lack of certainty as to how and when the NYISO will enable multiple use application services and associated revenue streams for BTM projects. To help mitigate this uncertainty and to incentivize storage deployment while stable and predictable market opportunities for storage resources are developed, the Bridge Incentive program should take into account that the NYISO market participation pathways and revenue earning opportunities are uncertain.

Furthermore, the establishment of wholesale market participation mechanisms or models is by necessity an iterative, evolutionary process. Models must be validated from multiple perspectives, such as how well they produce the intended system benefit outcomes, and their viability in terms of generating investor confidence. Unfortunately, this can create a chicken-and-egg type challenge because validating and improving a market participation model requires on the ground experience, but such experience is difficult to achieve under an untested model that investors may still perceive as risky and uncertain. In other words, there must be resources with which to test and evolve a model, but those resources will only be deployed if the risks and uncertainties inherent in any early generation market participation model are sufficiently mitigated. As such, the Bridge Incentive is critical to stimulate deployment in these early stages of market development.

- **Make the Bridge Incentive available across the state.** Deploying solar + storage assets more broadly will improve the efficiency, operation, and resiliency of the electric grid. Storage has the ability to provide multiple services with a single asset and deliver incremental value to the grid and ratepayers broadly. Widespread availability of the Bridge Incentive will support higher levels of early adoption and increase deployment to better inform best practices for interconnection, siting, and permitting, help reduce soft costs, and shorten the time required for utilities, aggregators, grid operators, and other market participants to learn to leverage the grid interoperability and management benefits that storage provides.

While economics of solar + storage and electricity prices vary across the state, residential demand for emergency backup power is localized to the risks of grid outages that residential customers perceive. We anticipate that residential customers will choose to adopt storage in varied locations—whether this is to address the risk of catastrophic hurricanes, winter blizzards or simply the prospect of outages given aging infrastructure in rural areas. We hope all New Yorkers can engage with this technology if they so desire, and we note that many NWA opportunities in upstate areas would not be addressable with storage if such deployment only occurs in the downstate areas.

- **Ensure that projects are funded and operational in a timely fashion.** To ensure timely and efficient use of incentive funds, the program should provide clear rules regarding the timeframe within which a project must receive permission to operate after it receives an incentive reservation to maintain eligibility to receive the incentive. Sunrun recommends that for residential solar + storage projects, NYSERDA maintain the existing timeframe requirements for solar PV incentives, providing that incentive reservations are valid for one year, with the option to request a 90 day extension, provided that the applicant demonstrates that commercially reasonable efforts to install and complete the project were taken within the initial window. If a contractor fails to install the project within the allotted time, the funding allocated to that project should be returned to the incentive program and made available to other applicants. Providing a clear timeframe for reservation expiration based on installation will provide an efficient and administratively simple mechanism to screen projects that are not viable and ensure that funding is efficiently deployed to maximize the program’s ability to deliver the benefits envisioned in the Roadmap.

#### **B. 4.2.2 IOU Business Model**

Sunrun supports the Roadmap’s recommendation to maintain existing limitations on utility ownership of energy storage and the Commission’s commitment to fostering a competitive storage market through third party owned solutions.<sup>10</sup> The use of competitive markets and risk based capital as opposed to utility ownership and ratepayer funding as the source for asset

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<sup>10</sup> *Id.* at 41.



development is a fundamental tenet of REV<sup>11</sup> and should be maintained. The Roadmap provides insightful recommendations to foster a mature and sustainable competitive storage market and identifies targeted areas in which incentive programs coupled with market development measures can be implemented to promote the development of this important market in New York. Sunrun urges the Commission Staff to continue to work with the NYISO to develop market rules that will allow third-party-owned storage to participate in wholesale capacity markets, rather than limiting participation to utility-owned systems, in order to foster the competitive DER markets central to REV.

**C. 4.3.1 IOU Procurement Through NWAs**

Non-Wires Alternative (“NWA”) solicitations can be effective mechanisms for avoiding specific grid infrastructure investments and providing utilities opportunities to reduce costs for customers while advancing clean energy goals. Residential solar + storage aggregations can help achieve these objectives. Utilizing aggregations can allow customers to take advantage of the additional values of energy storage and additional energy storage services that provide value to the grid and ratepayers. Aggregators can play an essential role in bringing customers into the program, ensuring customers benefit from the solution; and can help customers realize additional value streams to the benefit of participating customers and ratepayers at large; thereby allowing customers, non-customer ratepayers, developers, and aggregators to share in the benefits of increased solar and storage deployment.

Additionally, utilizing small-scale energy storage (and solar + storage) provides utilities with flexibility when projected load growth is uncertain, because such systems can be added incrementally as needed. Smaller systems also experience faster permitting, construction, and interconnection timelines, and thus can be deployed more quickly than larger projects; such as those associated with new transmission and distribution construction, which can also face local opposition. Providing customers with an opportunity to participate in a program to defer and avoid major infrastructure investments is likely to be a more appealing option to many communities.

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<sup>11</sup> Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting Regulatory Policy Framework and Implementation Plan at 67 (Feb. 26, 2015) (REV Track One Order); Roadmap at 41.

New York is experiencing a growing number of NWA solicitations, with mixed success. Sunrun has evaluated NWA offerings in New York and has found that successful offerings adhere to three main principles:

- Clearly articulate the specific needs of the project;
- Be structured to effectively deploy storage capacity; and
- Consider real-world market contexts to enable successful deployment matched to grid needs.

We encourage the Commission, the utilities, DPS, and NYSERDA to consider these principles, described in more detail below, in the design and implementation of NWA solicitations.

#### *Clear articulation of project needs*

When a utility identifies a potential NWA location, describing the need clearly is essential to receiving promising proposals for solutions. While BTM solar + storage aggregations can be leveraged to provide a suite of grid services, DER solutions for NWAs are tailored to meet specifically identified and pending grid condition or upgrade needs that would otherwise be met with investments in traditional distribution infrastructure. A clear articulation of NWA project needs allows respondents to design a portfolio of solutions that can be optimized for deployment at the NWA location to enable effective solutions for that specific grid need.

To enable DER providers to submit satisfactory NWA proposals, utilities must make the following data available to RFP respondents (under non-disclosure agreements, as necessary):

1. Quantitative and qualitative guidance on underlying infrastructure needs, including cost estimates for traditional solutions to focus proposals on the approaches that can deliver the most effective solutions.
2. Data that can be utilized in providers' models, including 8760-type load data, GIS-based map data, and accurate local grid descriptions sufficient to engineer targeted solutions.
3. End-use data, including GIS-based mapping of end customers associated with relevant grid features, the number of customers by customer class, and historic aggregate usage data by customer class (8760 basis).

Furthermore, NWA RFPs must allow sufficient time to compile proposals and implement solutions. Utilities should provide DER providers at least 12 months to complete system installations for solutions that require more than 100 kW of DER deployment, and at least 24

months for solutions that require more than 1 MW, in order to allow for effective program design, launch, and deployment.

#### Structuring to deploy storage capacity

Energy storage can provide “anchor” firm capacity for NWA projects with residential load. Sunrun recommends that utilities design NWA solicitations around a “stack” of likely NWA technology solutions, with residential storage (and solar + storage) anchoring the foundation. Sunrun recommends storage as the foundation or “anchor” for NWA projects because of the services the technology provides, how it is delivered to customers, and that most residential customers are not currently engaged in load-shifting, and thus a high potential for a significant number of customers to provide this value. Moreover, storage (and solar + storage) deployment requires one-on-one, in-depth engagement with customers to educate them about the technology, value, and process for deployment, which can form the foundation for additional customer actions. For example, once a customer has decided to adopt a 10-year solar and/or storage solution, adding a connected thermostat, conducting online energy audits, or adopting other solutions offered by NYSERDA or the utilities is a simple add-on to the process.

Additionally, Sunrun recommends utilities develop NWA solutions around partnerships across DER providers that can deploy a stack of solutions. These partnerships can be structured in different ways, but are most effective when storage is included as an anchor element and the partnership is clearly defined and visible to customers.

#### Considering real-world market context

While DER providers take responsibility for deploying solutions for an NWA, engaging the market to solve grid needs requires the consideration of market factors in the design of NWAs or they will not lead to success. Success in residential storage and NWA projects requires homeowners to trust and adopt new technologies that will last 10 or more years. To ensure that storage solutions are effectively leveraged to defer traditional infrastructure upgrade investments as part of an NWA project, a high density of customers must adopt storage solutions in a relatively short period of time. Sunrun recommends that utility NWA projects be offered within the context of storage programs available to customers across the state using compelling

narratives about the potential for enhancing security, resiliency, and clean energy deployment. This simplifies marketing and leverages marketing investments that can be made across broader areas for the benefit of the NWA.

Successful deployment of NWA projects also requires collaboration between the utility and DER providers. Effective co-marketing between the utility and DER provider can help build customer trust in adopting DERs. Other utilities have recognized the importance of co-marketing programs that are collaborations between utilities and third-party providers.<sup>12</sup> Such an approach enables DER providers and the utility to engage local institutions, community organizations, and individuals based on the appeal of these values and to help customers understand why they and the community as a whole benefits from individual customer adoption of storage.

#### **D. 4.1.5 Dynamic Load Management (DLM) Program Improvement**

The Roadmap identifies the ability of distribution-level storage to provide benefits to the bulk electric system, the local distribution grid, and customers.<sup>13</sup> These benefits include grid efficiency, flexibility, and stability, the provision of local capacity to defer costly transmission and distribution system upgrades, serve peak load, and the ability to facilitate the integration of renewables and support voltage and power quality at the distribution level.<sup>14</sup> As discussed above, while NWAs can provide certain location specific benefits, such as deferring certain system upgrade costs, NWAs are limited to location specific needs and are not a sufficient market opportunity to support wide scale deployment of storage and solar + storage resources. Additional market opportunities, including the ability to participate in dynamic load management programs, therefore are needed for energy storage projects to ensure that sufficient revenue earning opportunities are available to support storage project economics and animate the storage market.<sup>15</sup>

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<sup>12</sup> See, e.g., Hawaiian Electric Companies, Demand Response Demonstration Phase Final Report at 4 (Aug. 31, 2018) (“*Fostering customer acceptance and concerns*: During outreach to customers, many customers were skeptical of the opportunities offered by the Demonstration Vendors which resulted in numerous calls to the utilities. As a result, co-branding with the utilities was added to the GSPA to help reassure customers of the legitimacy of the DR opportunities presented to them.”) available at <https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A18I04A85008I00010>.

<sup>13</sup> Roadmap at 71.

<sup>14</sup> *Id.* at 25.

<sup>15</sup> See, e.g., *id.* at 17 (finding “actions such as locking in certain value streams to increase revenue certainty and lower financing risk and implementing a market acceleration incentive can lead to projects becoming economic”

Realizing the myriad benefits that storage can provide requires access to multiple revenue streams and revenue certainty from these value streams coupled with implementing a Bridge Incentive to support project viability and securing lower-cost financing for storage projects.<sup>16</sup> Tariff-based demand response programs for residential customers, such as the BTM Energy Storage with Solar Program proposed by PSEG LI,<sup>17</sup> can provide access multiple revenue streams and the revenue certainty needed for storage customers, developers, and aggregators to efficiently and expediently integrate cost-effective storage solutions to meet short-term and long-term grid needs, at both the circuit and system levels.<sup>18</sup> Sunrun encourages the adoption of a tariff-based demand response procurement approach similar to that proposed by PSEG LI, with certain modifications discussed below, for BTM solar + storage throughout New York whereby a utility offers residential customers \$/kW/year incentives for demonstrated load reduction, through an aggregator of their choice. Expanding access to the DLM program to residential customers, and net metering customers in particular,<sup>19</sup> would provide a clear revenue earning opportunity for storage resources and allow utilities to leverage the capabilities that aggregated residential storage and storage + solar can provide to deliver benefits to all ratepayers. Sunrun recommends that the program be designed and implemented to include a residential component that explicitly provides for residential DER customer, including net metering customer, participation.

A tariff-based approach for demand response programs is an administratively efficient mechanism to forecast grid service needs and provide upfront price signals to customers and aggregators, allowing utilities to procure BTM solar + storage solutions on an expedited basis. This approach creates transparency in the value streams available to customers and increases the

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and “[the customer sited use case] results illustrate the need for increased revenue certainty and lower upfront costs for storage to become attractive”); *id.* at 18 (finding “stress testing demonstrates that project economics are sensitive to revenue certainty and financing assumptions”; *id.* at 32 (finding “as with the customer-sited cases, revenue certainty is necessary for project viability and securing lower-cost financing for distribution system storage projects”).

<sup>16</sup> *See, e.g., id.*

<sup>17</sup> PSEG LI Utility 2.0 Long Range Plan 2018 Annual Update at 99.

<sup>18</sup> *See id.* at 75, 99-100.

<sup>19</sup> *See e.g.,* Consolidated Edison Company of New York, Inc., Schedule for Electricity Service Rider T - Commercial Demand Response Programs (noting that the program is open to residential customers) and explicitly stating that NEM generation can serve as load reduction; *see id.*, Section B.2 *Definitions* (defining “Electric Generating Equipment” as “(a) electric generating equipment at the premises of a Customer served under Standby Service, Rider R, or SC 11 and used to provide Load Relief under this Rider; or (b) emergency electric generating equipment that is interconnected and operated in compliance with General Rule 8.2 and used to provide Load Relief under this Rider.”).

revenue certainty necessary to enable the critical mass of customer participation needed to facilitate rapid market development and effectively integrate BTM storage and solar + storage-based grid solutions. Widespread customer engagement is a cornerstone to leveraging the technical and operational capabilities storage resources can provide and tariff based compensation mechanisms offer an efficient means to deploy these resources to residential customers to deliver benefits to ratepayers at large and provide cost-effective grid solutions.

Sunrun recommends that the Commission adopt a tariff-based demand response program for residential customers through which BTM solar + storage resources can receive compensation for grid services through third-party aggregators that manage program participation on behalf of customers. Allowing aggregators to enroll customers fosters competition and innovation, enables homeowners to realize the program incentives without having to become sophisticated energy managers, and can help customers realize additional value streams. This approach will allow the greatest diversity of technology and service agreement offerings with the least risk to ratepayers.

While Sunrun generally supports program design proposed by PSEG LI, we recommend the Commission adopt a similar program but with the following changes:

#### System Control Provisions

PSEG LI's proposed BTM Energy Storage with Solar program provides that the utility will remotely control customers' energy storage systems to reduce load during called events. Utility control would be redundant and undercut the benefits of utilizing third-party aggregators, who have built software platforms to monitor and dispatch their customers' energy storage systems in response to utility signals. Aggregators that participate in the Joint Utilities' ("JUs") current demand response programs, including the Commercial Demand Response Program and Curtailable Electric Service Rider, are responsible for responding to utility signals and managing participating customers' loads.<sup>20</sup> To improve upon PSEG LI's proposed program, remain consistent with current demand response programs offered by the JUs, and to reduce program costs, Sunrun recommends a statewide demand response program for residential energy storage similar to PSEG LI's program that leverages aggregators' existing dispatch capabilities. Under

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<sup>20</sup> See, e.g., Consolidated Edison Company of New York, Inc. Schedule for Electricity Service, Rider O - Curtailable Electric Service and Rider T - Commercial Demand Response available at <https://www2.dps.ny.gov/ETS/jobs/display/download/6279714.pdf>.

this program, aggregators would respond to dispatch signals from the utility (whether through an API, email, or phone call) in accordance with a specific grid service tariff, and would receive compensation from the utility based on that tariff. Aggregators would similarly provide the necessary evaluation, measurement, and verification data to the utility pursuant to the tariff rules for the grid services provided.

### Locational Limitations

Sunrun recommends that a tariff-based demand response program be offered by all utilities across the state, and that the program be available across each utility's entire service territory; such that it is not limited to areas experiencing system constraints. There is enormous value in enabling energy storage aggregation programs across the state that will improve the efficiency, operation and resiliency of the electric grid. As recognized by the Roadmap, storage has the ability to provide multiple services with a single asset, and statewide programs similar to PSEG LI's will provide incremental value to the grid and ratepayers broadly.

Widespread adoption of a program like this will also simplify the customer engagement efforts of utilities and third-party aggregators. The time and resources required to create and execute a customer engagement plan should be more broadly leveraged beyond the small subset of customers in designated areas. Such an expansion could be accomplished without adding significant administrative costs. Universal eligibility would reduce the need for targeted direct mail campaigns and would allow adoption to occur via word-of-mouth and peer-to-peer diffusion. One of the most significant drivers of solar adoption to date has been peer influence, which often takes the form of individuals learning about the benefits of solar and storage from those in their social networks.<sup>21</sup> This beneficial, viral effect would be stifled by a program confined to certain areas, in which one resident could be eligible for the program while his or her neighbor on a different substation circuit would not be eligible.

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<sup>21</sup> See Mooney, Chris, *Why do people put solar on their roofs? Because other people put solar on their roofs*, The Washington Post (Oct. 23, 2014) available at <http://www.washingtonpost.com/blogs/wonkblog/wp/2014/10/23/study-solar-energy-isnt-just-for-rich-liberals-any-more/>; Cargill, Pamela, *Drivers of Residential Solar Adoption: Environmental Preference or Peer Pressure?*, *PV Solar Report* (Jan. 27, 2014) available at <http://pvsolarreport.com/drivers-of-residential-solar-adoption-environmental-or-peer/>.

Larger programs available to all customers will increase awareness of the benefits of energy storage across the state, which in turn will lead to increased storage deployment at a faster pace, spur innovation, accelerate cost declines, and significantly advance progress toward New York’s energy storage deployment goals.

As the upfront cost of capital continues to deter customers adding battery storage to their solar systems, reducing this barrier through a Bridge Incentive would provide access to clean backup generation, contribute to the state’s clean energy goals, and stimulate the critical mass of storage resources necessary for system aggregations to provide important grid benefits. A tariff-based residential demand response program as recommended above must be combined with the NY SUN Bridge Incentive and customers must be able to participate in both programs to spur the robust residential storage market that New York envisions.

**E. 4.1.1 Delivery Service Rate Design**

Rate design is fundamental to driving the deployment of solar-plus-storage and leveraging the various grid benefits solar-plus-storage can provide. Poorly conceived rate design that does not appropriately take into account customer impacts or state energy policy goals will stifle solar adoption and, in turn, stifle the development of a robust storage market in New York, thereby hindering the state’s ability to reach its storage target and clean energy goals.

Sunrun notes that the Roadmap proposal to require utilities to adopt rate options similar to Con Edison’s Rider Q would not impact residential customers at this time, given that it would only be available as an opt-in rate for demand-metered customers. However, it is important to point out that tariffs incorporating demand charges are not appropriate rate design options for residential customers, and that the impacts of Rider Q were not modeled for residential customers.<sup>22</sup>

Sunrun has long maintained that it is inappropriate and unfairly punitive to apply demand charges to residential customers, who typically lack the knowledge, data and/or ability to avoid their damaging impacts. This sentiment was echoed by PSEG LI in its Utility 2.0 Plan. Specifically, as part of its consideration of alternative rate options and structures, PSEG LI surveyed “best-in-class utilities” for best practices regarding demand charges. Its research found

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<sup>22</sup> Roadmap at 27.



that applying demand charges to residential customers was problematic “due to the lack of awareness as to how their energy habits impact demand, the intangible aspects of multiple devices drawing electricity concurrently,” and “the short amount of time concurrent demand can happen, yet [is] applied to the entire billing period.”<sup>23</sup>

The survey also produced findings that Sunrun has regularly described in regulatory proceedings across the country, including:

- Customer-friendly TOU rate options that shift usage off peak are preferable to demand charges.
- Demand response incentive programs are preferable to customer penalty programs.
- Demand ratchets should be avoided or eliminated due to low customer satisfaction.
- Recognize that demand is difficult for customers to understand.
- Demand charges should be designed to ensure that customers that limit demand save money.<sup>24</sup>

PSEG LI’s findings are consistent with guidance provided by other industry experts, including the Regulatory Assistance Project, which asserts that demand charges are particularly inappropriate to use for residential customers because of the diversity in residential electricity usage patterns, and that time-of-use rate options pricing “is more effective, more cost-based, more equitable, and more understandable” compared to demand charges.<sup>25</sup>

Rate design options for residential customers must be considered separately from those designed for non-residential customers, given the vast differences in electricity usage patterns and energy management capabilities. However, Sunrun supports the Staff’s proposals to offer new rate design options for both residential and non-residential storage customers on an opt-in basis and with bill-impact protection rules to protect customers while these new rate options are still in pilot phase.

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<sup>23</sup> PSEG LI Utility 2.0 Long Range Plan 2018 Annual Update at 41.

<sup>24</sup> *Id.*

<sup>25</sup> Regulatory Assistance Project, Use Great Caution in Design of Residential Demand Charges at 15-18 (Feb. 2016) *available at* <https://www.raponline.org/wp-content/uploads/2016/05/lazar-demandcharges-ngejournal-2015-dec.pdf>.

## F. 4.6 “Clean Peak” Actions

Sunrun supports the Roadmap’s contemplation of clean peak actions and the development of a Clean Peak Program through a stakeholder process. BTM solar + storage should be contemplated within the stakeholder processes surrounding potential Clean Peak Actions, because it has enormous potential to help New York meet Clean Peak goals in a cost-effective manner. A Clean Peak Credit program similar to that recently approved by the Massachusetts Legislature that would capture the benefits of solutions such as residential solar + storage would be an effective approach for New York to consider.<sup>26</sup> New York’s Clean Peak Program should embrace the following principles:

- A Clean Peak Credit that is separate from other credits or incentives should be provided to clean assets that provide peak reduction benefits.
- The Program should be a long-term, durable program that is distinct from other programs, such as the Bridge Incentive.
- The Clean Peak Credit should be stackable and not conflict with other programs or rates available to BTM assets.
- Because of the NYISO market restrictions identified for BTM solar + storage, a Clean Peak Program should have a carveout for customer-sited/BTM assets, including residential systems. Furthermore, BTM systems such as residential solar + storage systems provide more value to the grid compared to large-scale clean peak resources because they avoid line losses and reduce local system peak demand. Therefore, promoting BTM systems through the Clean Peak Program will reduce the cost of meeting clean peak goals.
- In developing the methodology for analyzing peaker operational and emissions profiles, stakeholders should consider emissions baselines to be the aggregate percent of peak hours annually, rather than the percent on a single peak day. Doing so will increase the value of daily load shifting and address yearly capacity and monthly peaks.
- As recognized by the proposed contract term in PSEG LI’s proposed BTM Energy Storage with Solar program, a contract term of at least 10-years is necessary for credits offered through the Clean Peak Program in order to provide the long-term certainty investors require.<sup>27</sup>
- The Clean Peak Program should be calibrated to maximize carbon and other emission reductions during peak periods.

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<sup>26</sup> An Act To Advance Clean Energy, The 190th General Court of the Commonwealth of Massachusetts (Aug. 9, 2018) *available at* <https://malegislature.gov/Laws/SessionLaws/Acts/2018/Chapter227>.

<sup>27</sup> PSEG LI Utility 2.0 Long Range Plan 2018 Annual Update at 75, 99-100.

### III. CONCLUSION

Sunrun appreciates the opportunity to submit these comments and recommendations for the Commission's consideration.

Respectfully submitted,

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