



Sunrun Inc.
595 Market Street, 29th Floor
San Francisco, CA 94105

December 7, 2018

Luly E. Massaro
Commission Clerk
Public Utilities Commission
89 Jefferson Boulevard
Warwick, RI 02888

Re: Docket Nos. 4888 and 4889 - Public Comments of Sunrun Inc. Regarding 2019 Annual Energy Efficiency Plan and 2019 System Reliability Procurement Report

To the Rhode Island Public Utilities Commission:

Sunrun Inc. (“Sunrun”) submits the following comments in response to the Annual Energy Efficiency Plan for 2019 - Settlement of the Parties and the 2019 System Reliability Procurement Report, both filed on October 15, 2018.

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. Sunrun has operated in Rhode Island since 2017. We pioneered the “solar-as-a-service” model 11 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, dramatically reducing their greenhouse gas footprint, and becoming energy management partners capable of delivering grid benefits and lowering system costs for all Rhode Island ratepayers.

Sunrun deploys home battery storage paired with solar, a smart inverter, and certain load management capabilities. Sunrun typically utilizes a DC-coupled architecture for 100% solar charging of the battery, with connectivity via WiFi or cellular for remote asset monitoring and dispatch. Sunrun customers are rapidly adopting battery storage paired with solar to secure backup power and savings on their monthly electric utility bill. The Sunrun system also optimizes battery storage and solar production for customers based on customer preferences and market opportunities for the system to provide grid services.

Sunrun’s management capabilities across a fleet of 200,000+ distributed assets, both solar and solar+storage, enable aggregation of individual sites for optimized dispatch for both customer and grid value, including peak load reduction, as proposed in the Annual Energy Efficiency Plan for 2019 (EE Plan) and the 2019 System Reliability Procurement Report (SRP Report). As the EE Plan notes, energy savings resulting from its innovative programs can help achieve Rhode Island’s emissions-reduction goals and are projected to save Rhode Island customers more than \$500 million over the lifetime of the electric efficiency and demand response measures.¹ Sunrun sees great promise in the ability of energy storage to contribute to these goals and provide benefits to ratepayers.

We commend National Grid, the Rhode Island Division of Public Utilities and Carriers, the Rhode Island Office of Energy Resources, the Energy Efficiency Resources Management Council, Acadia Center, and the Green Energy Consumers Alliance for the forward thinking EE Plan, and particularly for the inclusion of behind-the-meter (BTM) assets in the Energy Storage Initiative and Residential Connected Solutions program, and non-wires alternatives solutions in the SRP Report. We offer the following comments and suggestions for enhancing these programs to ensure that residential energy storage assets are effectively leveraged as a part of Rhode Island’s energy efficiency portfolio.

II. Discussion Regarding Residential Connected Solutions and Energy Storage Initiative

National Grid’s Residential Connected Solutions and Energy Storage Initiative propose innovative energy efficiency programs. As currently proposed, though, neither of these programs provide a clear path for residential energy storage assets to participate in the proposed demand response offerings. The objectives of these programs would be significantly advanced by clarifying that residential energy storage assets are eligible to participate in the Residential Connected Solutions program and/or that the Energy Storage Initiative will be expanded to include residential customers. Numerous states, including New England states and others in the northeast, have recognized the significant potential that residential energy storage systems offer as a demand response resource and have begun exploring how to integrate these resources into their energy efficiency portfolios, including through bring-your-own-device (“BYOD”) and bring-your-own-battery (“BYOB”) models. Sunrun encourages the Commission to require National Grid to incorporate residential battery storage into its Residential Connected Solutions program and/or expand the Energy Storage Initiative to allow residential customer participation. As described further herein, for both of these programs, Sunrun recommends that residential energy storage asset participation should be facilitated through a BYOD or BYOB model where

¹ Annual Energy Efficiency Plan for 2019 - Settlement of the Parties. October 15, 2018. p. 2. Available at: [http://www.ripuc.org/eventsactions/docket/4888-NGrid-EEPP2019\(10-15-18\).pdf](http://www.ripuc.org/eventsactions/docket/4888-NGrid-EEPP2019(10-15-18).pdf).

third-party non-utility aggregators manage the energy storage assets in response to peak demand and other dispatch events managed by National Grid.

A. Residential Connected Solutions

The Residential Connected Solutions program proposes a BYOD model similar in certain respects to BYOD models being explored in other states, but is missing significant opportunity by not explicitly stating that residential energy storage will be an eligible technology for the program at the outset. As proposed, the Residential Connected Solutions BYOD would allow customers to enroll an eligible device and receive “financial incentives to participate in demand reduction during summer peak events”²; but it appears that the eligible technologies would be limited to “communicating thermostats (typically Wi-Fi) controlling central air units” at the outset. While the EE Plan notes that “additional eligible connected /communicating devices may include batteries, lighting, water heaters, pool pumps, electric vehicles, and other devices,”³ it states that the “[i]ncorporation of additional devices will depend on device saturation, manufacturer concentration, and the costs associated with integrating and enabling load control on each type of device.”⁴ It is not clear how these factors will be evaluated, or when; however, as proposed, the program is overly restrictive by limiting initial participation to thermostats.

To ensure the highest level of participation of these “additional” eligible technologies, Sunrun recommends that clear program participation rules, price signals, program duration, and other program design parameters be developed to provide developers the information necessary to gauge customer interest, program value and ultimately determine whether and how to participate. Customer participation will depend on a number of factors, particularly ease of participation and whether the program offers sufficient value to justify participation. By contrast, the current lack of clarity on how and whether customers’ batteries and other eligible technologies would be able to participate and the value proposition for participating leaves important questions unanswered, and therefore will not incentivize the deployment of the very assets that the program states it seeks to leverage. This is especially true for battery storage devices, and likely extends to electric vehicles and other capital-intensive devices that are not everyday household appliances. A better approach to integrating these specialized and high-performance capability assets is to develop the program participation, compensation, duration and other design parameters up-front to provide the market clear signals necessary to incentivize deployment and participation. Indeed, other states are already exploring how to leverage the demand response capabilities of residential customer battery storage assets through BYOD programs, and National Grid could significantly advance its Residential Connected Solutions program by adopting this model.

² Annual Energy Efficiency Plan for 2019 - Settlement of the Parties. October 15, 2018. p. 34-35.

³ *Id.*, p. 34.

⁴ *Id.*

B. Energy Storage Initiative

The Energy Storage Initiative is also a demand response program, but unlike the Residential Connected Solutions program, this initiative specifically seeks to leverage energy storage devices. While the EE Plan states that National Grid “is interested in exploring ways to encourage the development and deployment of energy storage systems within the state for use in load shifting demand response applications,” participation in this initiative is currently limited to commercial and industrial customers.⁵ Sunrun commends National Grid’s recognition of the unique abilities of energy storage and its proposal for a “storage enabled [demand response] initiative to incentivize behind-the-meter [energy storage systems] through a Pay-for-Performance incentive structure.”⁶ Sunrun supports Pay-for-Performance incentive structures and has recommended adopting this approach in other states through a bring-your-own battery (“BYOB”) model (which is similar to a BYOD, but specific to battery-only programs) to provide market opportunities for behind the meter (“BTM”) storage development. The Energy Storage Initiative provides another avenue to integrate residential energy storage into National Grid’s demand response initiatives. Expanding this program to allow residential customer batteries to participate would incentivize BTM storage deployment and further advance the program goals of this initiative.

As such, Sunrun encourages the Commission to direct National Grid to either 1) expand the Residential Connected Solutions Program to include battery storage as an eligible BYOD technology at the outset of program implementation or 2) expand the Energy Storage Initiative to allow participation of residential customer batteries through a BYOB-based model. For both of these recommendations, Sunrun urges the Commission to require further program details surrounding customer and aggregator participation, compensation formulas and rules, performance requirements and other program design parameters necessary to provide the certainty and revenue stability developers and customers require to ensure robust asset deployment and customer participation. Recommended BYOB program design elements are discussed below for consideration by the Commission and stakeholders.

III. Recommended BYOB Program Design

Sunrun offers the following observations and recommendations for developing a robust and sustainable BYOB program that utilizes third-party aggregators to deliver demand response benefits from residential customer batteries as part of the Residential Connected Solutions and/or the Energy Storage Initiative.

⁵ *Id.*, pp. 84-87.

⁶ *Id.*, pp. 86.

Leading utilities and state agencies across the country, but particularly in the Northeast, are pursuing BTM energy storage demand response programs designed to reduce system peak demand. These include Green Mountain Power in Vermont,⁷ PSEG Long Island in New York,⁸ Liberty Utilities in New Hampshire,⁹ and National Grid (and other utilities) in Massachusetts¹⁰ and Rhode Island, as well as Xcel Energy in Colorado.¹¹ These programs are either relatively new or pending launch, but Sunrun has collaborated with several utilities to work toward a model that facilitates broad customer participation, program effectiveness and reduced implementation costs. These efforts have resulted in a BYOB model that allows individual residential customers to participate in demand response-based programs by coordinating the dispatch of participating customers' storage assets through third-party aggregators in response to utility call or dispatch events.¹²

Utility programs that leverage customer batteries as a distribution resource keep customers integrated with the grid, maximize the use of customer sited solar generation and energy storage for grid value, and manage load in a predictable way. While solar and batteries are installed by customers for numerous reasons, including to reduce their reliance on the grid, good BYOB program design allows the utility to integrate customer-sited technology into system planning and operations in a predictable manner. BYOB programs enable all utility customers to receive value from customer-sited batteries, without the risk and cost of a utility-owned battery program. BYOB programs should be the first step in jumpstarting a low-risk, pay-for-performance distributed energy storage market.

⁷ Green Mountain Power, Bring Your Own Device. Available at: <https://greenmountainpower.com/bring-your-own-device/>.

⁸ PSEG Long Island, Utility 2.0 Long Range Plan - 2018 Annual Update, Matter 15-01299, June 29, 2018. Available at: <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B84C8654F-2282-47E1-9586-58E01871D8D8%7D>.

⁹ New Hampshire Public Utilities Commission Docket DE 17-189, Liberty Utilities, Settlement Agreement, November 15, 2018. Available at: http://www.puc.state.nh.us/Regulatory/Docketbk/2017/17-189/LETTERS-MEMOS-TARIFFS/17-189_2018-11-19_ENGI_SETTLEMENT.PDF.

¹⁰ Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan, 2019-2021. October 31, 2018. Available at: <https://eeaonline.eea.state.ma.us/EEA/FileService/FileService.Api/file/FileRoom/9998895>.

¹¹ Xcel Energy, Public Service Company of Colorado's Verified Application for Approval of its Electric and Natural Gas DSM Plan for Calendar Years 2019 and 2020, Proceeding 18A-0606EG, August 31, 2018. Available at: https://www.dora.state.co.us/pls/efi/EFI.Show_Filing?p_fil=G_747897&p_session_id=.

¹² See, e.g., Comments of Sunrun on PSEG Long Island, Utility 2.0 Long Range Plan - 2018 Annual Update, Matter 15-01299, August 30, 2018, Available at <http://documents.dps.ny.gov/public/MatterManagement/MatterFilingItem.aspx?FilingSeq=213094&MatterSeq=45709>; New Hampshire Public Utilities Commission, DE 17-189, Direct Testimony of Justin Barnes (May 2, 2018) available at http://www.puc.state.nh.us/Regulatory/Docketbk/2017/17-189/TESTIMONY/17-189_2018-05-03_SUNRUN_REVISION_DTESTIMONY_BARNES.PDF.

Key benefits of well-designed BYOB programs (or BYOD programs that include battery storage participation) include:

- Animating the residential battery market without disrupting retail rate design.
- Shifting risk and accountability for non-performance from utilities to the private market.
- Increasing ease of deployment and implementation.
- Leveraging private financing of BYOB value streams and thus spreading energy efficiency funds further.
- Enabling battery access to a broader spectrum of customer income segments.
- Allowing for innovative business models and systems, including distributed solar paired with energy storage.

The EE Plan’s forward-looking proposal to integrate active demand management through energy storage assets and implementing a residential BYOB element into the Energy Storage Initiative and/or Residential Connected Solutions program would further cement Rhode Island as a leader in energy efficiency. Sunrun offers the following recommendations for a BYOD/BYOB program framework to integrate residential storage assets into National Grid’s energy efficiency portfolio.

Sunrun offers for the Commission, National Grid and other stakeholders’ consideration the BYOD program framework developed by expert consultant Justin Barnes, Director of Research at EQ Research LLC, in a proceeding pending before the New Hampshire Public Utilities Commission.¹³ The recommended program design attached to these comments as Attachment A is based in part on an existing program deployed by Green Mountain Power in Vermont and includes modifications aimed at increasing customer participation by leveraging the capabilities of third-party aggregators for that utility’s innovative program.¹⁴ Adopting this recommended approach would put Rhode Island on the cutting edge of battery storage deployment and significantly advance the EE Plan’s ability to achieve greenhouse gas emission reductions and deliver energy savings benefits to Rhode Island customers.

¹³ New Hampshire Public Utilities Commission, DE 17-189, Direct Testimony of Justin Barnes (May 2, 2018) available at http://www.puc.state.nh.us/Regulatory/Docketbk/2017/17-189/TESTIMONY/17-189_2018-05-03_SUNRUN_REVISION_DTESTIMONY_BARNES.PDF (in New Hampshire, the program is referred to as a “bring your own battery” model, here, we refer to both the broader “bring-your-own-device” model and the “bring your own battery” model).

¹⁴ See, e.g., Brooks, David, Using Customer Batteries as a Power Source Saved Vt. Utility \$500K, Concord Monitor (July 23, 2018) available at <https://granitegeek.concordmonitor.com/2018/07/23/using-customer-batteries-as-a-power-source-saved-vt-utility-500k/>; Vermont Public Utility Commission, Docket 18A-3622, GMP – BYOD Innovative Pilot - Update at 1 (Oct. 19, 2018) (stating that to date there is one customer participating in the program).

Sunrun recommends that the BYOD program for the the Residential Connected Solutions, or a similarly designed BYOB for the Energy Storage Initiative, include the following elements to successfully achieve program goals:

1. Ensure that customers can realize value for the 10+ year asset lifetime.
2. Allow resources to stack value with other revenue streams.
3. Payments should provide certainty and allow for the recovery of management costs.
4. Utilize battery aggregators to drive deployment and enrollment.
5. Enable aggregators to optimize load reduction with clear performance and evaluation requirements so utilities can focus on grid operation.
6. Enable customer participation across utility territories, incenting resources for localized needs with additional value.
7. Create financing flexibility to lower upfront costs to customers and drive battery adoption.

1) *Ensure that customers can realize value for the 10+ year asset lifetime.*

Energy storage batteries are typically warranted for 10-year time periods, and future batteries may have longer lifetimes. Therefore, when a customer installs a battery, a program that offers only 5 years or less of performance payments creates uncertainty around future value.

Additionally, battery technology is still fairly expensive and reliable revenue flows are needed to lower end user cost.¹⁵ This can be accomplished within current program timelines by providing that batteries installed and enrolled during program timeframes can earn value for the greatest number of subsequent years. Ideally a customer would be able to sign up for program participation for the life of their battery system, or at least for the warranted life of the battery, which is currently ten years.

2) *Allow resources to stack value with other revenue streams.*

The Residential Connected Solutions Program and Energy Storage Initiative Program should be designed to allow customers to participate without excluding customer participation in other state or regional performance and incentive programs. Because of its flexible and rapid response characteristics, energy storage has the ability to provide multiple services with a single asset without double payment. Therefore, allowing customers with energy storage to receive payments for providing different services encourages the greatest amount of beneficial energy storage

¹⁵ See, e.g., Massachusetts DOER and MassCEC, State of Charge: Massachusetts Energy Storage Initiative at 79, 115 available at <http://www.mass.gov/eea/docs/doer/state-of-charge-report.pdf> (describing the value propositions of energy storage and the need to close the “revenue gap” for energy storage project owners who are currently unable to monetize all of an energy storage system’s benefits).

deployment and use possible. This also reduces costs and allows greater access to batteries across the income spectrum.

The program rules should explicitly provide that compensation earned from participation in the Residential Connected Solutions Program or Energy Storage Initiative Program is in addition to incentives received under any other potential incentive programs for energy storage. Similarly, the Program should be designed to ensure that these systems are not precluded from participating in other pay for performance programs where they add incremental value -- i.e., the system is providing a service that is not compensated by its participation in another program. Participation in a BYOD or BYOB model under the Residential Connected Solutions Program or Energy Storage Initiative Program should ensure that program participants are eligible to receive other applicable incentives and participate in other pay for performance programs where the system provides incremental value.

- 3) *Payments should provide for investment certainty and allow for the recovery of aggregator management costs.*

The performance payment itself must be at a level sufficient to create customer interest and robust program participation. It is important to note that battery aggregation and dispatch (including monitoring, ensuring connectivity, optimization and potentially equipment maintenance) requires costs that are generally borne by an aggregator. Therefore, it is important to create a payment structure that enables aggregators to recover the aggregation deployment and management costs. Sunrun has found that some programs that rely on performance-based payments may not provide sufficient payment to encourage the adoption of capital-intensive resources such as energy storage. Alternatively, some form of upfront payment or rebate has proven very effective and engendering program success. Therefore, Sunrun recommends consideration of different compensation mechanisms to drive robust deployment and program participation.

If a performance-payment-only construct is adopted, Sunrun recommends setting performance payments at a fixed monthly or annual rate to improve predictability and financeability of projects to maximize deployment. An optimal structure is for compensation to be paid to aggregators who then pass revenue through to customers. Another structure would be to split a management fee and a customer credit, although this is suboptimal due to the limitations it creates for business models. A third option that would provide direct payment to customers, who would then pay aggregators on an ongoing basis, is also suboptimal as it would likely create significant barriers to enrollment and retention in the program for residential customers. If a performance-payment-only structure is adopted, Sunrun recommends the first approach to streamline utility, aggregator and customer interactions.

4) Utilize battery aggregators to drive deployment and enrollment.

A successful BYOB program (or a broader BYOD that includes battery storage) will result in increased battery adoption and the subsequent enrollment of a high percentage of adopting customers. Because of the high cost of energy storage adoption, the potential for lost value from a battery for both the utility and a customer is up to \$10,000 in lifetime cost and value if a battery is deployed but never enrolled, loses connectivity, or unenrolled due to customer dissatisfaction. However, the vast majority of customers do not have time or the tools to navigate the process of enrollment and participation. Similarly, Sunrun has found that utilities do not have the same level of communication channels with participating customers to connect the adoption and enrollment as those customers' solar and energy storage providers. As such, third-party, non-utility aggregators play a key role in the success of the program by engaging customers for higher levels of program enrollment.

Moreover, hardware original equipment manufacturers (“OEMs”) and software providers do not generally have the customer relationships and touchpoints to provide customer education, ensure customer satisfaction, and guarantee resolution of device connectivity issues. As such, there are a number of marketing and customer engagement steps between manufacturing and enrollment in a utility BYOB program, which developers and aggregators who are already directly interfacing with customers through sales and ongoing system management are best positioned to address, such as:

- Educating customers about their technology and potential value in participating in a BYOB program.
- Providing financing for the customer to adopt storage and/or solar+storage.
- Managing installation, commissioning, and interconnection.
- Enrolling customers in a BYOB program at the point of sale/installation.
- Managing batteries on an ongoing basis according to customer preferences.
- Ensuring ongoing asset connectivity and responsiveness to BYOB program dispatches.

Therefore, utilities should plan to work with aggregators to achieve program scale and long-term success. To address the issues listed above, aggregators have:

- Established relationships with suppliers and customers and trained sales forces to locate, educate, and sell the systems.
- Efficient operations to manage installation, commission, and interconnection.
- Software platforms to operate the aggregation according to BYOB performance requirements as well as customer preferences.

In order to leverage the advantageous position of aggregators to help meet utility program goals, Sunrun notes that it is extremely important to enable aggregators to efficiently engage customers. This requires that utilities work with aggregators to clearly articulate customer eligibility so that aggregators are able to identify ineligible customers on the utility bill so that the appropriate expectations can be set at point of sale with customers. For example, if geography is constrained to an area more limited than the entire utility territory eligible customers should be easily identifiable before an aggregator begins the sales process. This can be a customer list for eligible circuits or eligibility by geography (e.g. zip code, city, etc.).

Another important aspect to creating an efficient process for residential deployment is ease of enrollment. Enrollment in the program should not require more than signing a single form, and can ideally be brought into an online portal over time. Sunrun has found that a barrier to easy enrollment in other retail programs has been the need for third-party approvals for enrollment. As such, Sunrun also recommends that the Plan incorporate limitations on third-party approvals, such as enrollment forms, collateral, documents, mailers, and all other necessary program materials should be limited. If utility and other third parties are involved in program administration, approvals should rest with utility or a single third-party entity to approve language and documents necessary to locate and market to customers.

5) *Enable aggregators to optimize load reduction with clear performance and evaluation requirements so utilities can focus on grid operation*

Currently, energy storage customers most frequently engage with battery providers and aggregators to provide onsite backup power. However, because backup power is only needed for a limited number of hours a year, if at all, aggregators play a vital role in optimizing customer batteries to meet customer needs and provide value to utilities, and all ratepayers. As such, aggregators play a vital role in helping customers optimize battery operations to meet the customer's personal needs and the utility's needs. Aggregators can deliver this optimization, in advance or real-time via simple methods such as phone or text.

Importantly, the performance requirements and evaluation requirements of a BYOB program need to be easy to implement in order to truly take advantage of aggregators' ability to optimize resources to meet utility needs. Performance requirements should be clearly and simply articulated such that they can be easily transmitted to customers, many of whom will be learning about the operations of solar and energy storage systems for the first time. If performance characteristics are open to change annually the process for making and finalizing changes should be clearly established so that changes to documents and necessary training can be completed ahead of the next enrollment season.

Additionally, measurement and verification (“M&V”) requirements should take into account the differences between hardware for residential behind the meter systems, and C&I or Utility Scale renewable or energy storage projects with which many utilities will be more familiar. Data, telemetry, communications, and coordinated responses will be governed by separate technology specifications and software and telecommunications restrictions. M&V requirements should be uniquely tailored to the technology being deployed and the intended performance of a behind the meter residential fleet.

Lastly, Sunrun requests that any state, utility, or other data communications requirements at the onset of a program or annual updates should be clearly articulated to aggregators and any changes to these requirements should be delivered in advance of any document or requirement changes.

- 6) *Enable customer participation across utility territories and incentivize resources that meet additional localized needs with additional value.*

Sunrun has found that BYOD/BYOB programs that span across a utility’s service territory program allows for more cost effective deployment of residential storage because it leverages existing local marketing and customer education organizations for the BYOB program. On the other hand, if a program is limited to an area that is extremely localized, the program will be constrained by high customer acquisition costs.

Sunrun has also found that incorporating elevated local value that is specific to certain constrained areas into a BYOB program would enhance customer enrollment and participation. Because some resources may be sited in areas where they deliver elevated value due to their location on the distribution grid a BYOB program designed to send a price signal of localized system-value can drive increased adoption aligned with circuit-level needs in addition to facilitating the broader, system-wide adoption.

As such, Sunrun recommends designing BYOD/BYOB programs so that a certain “system-level” payment is available for program enrollees across the state, but to include a mechanism to raise that value in areas with local reliability or other needs. This way, localized needs can be addressed *as part* of the BYOB program. Sunrun has also found that a BYOB program is an ideal structure on which to layer localized value such as for local congestion or NWAs. This is exemplified in the PSEG-LI proposed BYOB program, which procures resources in identified Locational System Reduction Value (“LSRV”) areas,¹⁶ and is in line with recommendations

¹⁶ PSEG Long Island, Utility 2.0 Long Range Plan - 2018 Annual Update, Matter 14-01299, June 29, 2018, pp. 99-105. Available at: <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B84C8654F-2282-47E1-9586-58E01871D8D8%7D>.

included in the Division of Public Utilities & Carriers, Office of Energy Resources and Commission’s Rhode Island Power Sector Transformation Phase One Report.¹⁷ Likewise, California is pursuing the development of streamlined procurement models relative to competitive solicitations (e.g., tariff-based structures), for distributed energy resources (“DERs”) that provide localized grid benefits. This effort is based on a recognition that not all providers would be able to pursue competitive solicitations, and that exclusive use of a competitive solicitation process limits opportunities to utilize DERs to defer shorter term or smaller magnitude grid needs.¹⁸

There is enormous value to be realized by enabling a statewide residential energy storage program through a BYOB customer- and aggregator-based participation model. Sunrun urges the Public Utilities Commission (“Commission”) to encourage National Grid to design the Residential Connected Solutions Program and Energy Storage Initiative Program to ensure that residential storage systems are leveraged to provide the load management and system relief, reduce system costs, and facilitate higher levels of renewable energy integration -- all of which further Rhode Island’s energy and climate goals. Ensuring that the Residential Connected Solutions Program and Energy Storage Initiative Program stimulate broad deployment of storage assets will improve the efficiency, operation, and resiliency of the electric grid, increase consumer awareness, and improve the ability of the National Grid to achieve the reduction benefits envisioned in the Plan.

7) *Create financing flexibility to lower upfront cost to customers and drive battery adoption.*

Long-term value streams associated with a battery participating in a BYOB program can be a driver for increased adoption. As battery costs decline and their grid value is unlocked, the value a customer earns from a BYOB program can pay for an increasing share of battery costs. However, the long-term payback does not drive substantially increased storage adoption in the short term.

Battery providers and aggregators like Sunrun are already financing the cost of solar paired with energy storage for customers with a long-term power purchase agreement or loan. Aggregators are in a position to finance the long-term BYOB value to bring down the upfront cost of battery adoption, to allow access to the benefits of batteries further down the income spectrum. To achieve this, BYOB design should accommodate features such as:

¹⁷ Rhode Island Power Sector Transformation Phase One Report to Governor Gina M. Raimondo, pp. 53-55. November 2017. http://www.ripuc.org/utilityinfo/electric/PST%20Report_Nov_8.pdf.

¹⁸ California Public Utilities Commission. Docket No. R.14-10-003. Amended Scoping Memo of Assigned Commissioner and Joint Ruling With Administrative Law Judge. February 12, 2018. Available at: <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M209/K611/209611862.PDF>.

- Customer option to assign part or all of BYOB value stream to aggregator in return for a “BYOB upfront rebate.”
- Aggregator delivering contracted capacity as portion of BYOB program, with opportunity to backfill customer churn by enrolling new customers.
- Specified timeframe for program duration and related parameters to enable financing.

We note that private developers operating in Rhode Island provide consumers with multiple financing and leasing options and many customers may prefer to use the financing options offered by private developers, or combine these financing options with programs such as the HEAT Loan. We strongly encourage National Grid to allow customers to participate in the Residential Connected Solutions Program or Energy Storage Initiative Program regardless of the type or source of financing utilized by the participant, thus allowing the use of private capital in addition to ratepayer-funded financing to advance statewide energy efficiency goals.

III. Discussion Regarding Non-Wires Alternatives Proposals

Sunrun supports the plans in the SRP Report to reissue the RFP for a potential Non-Wires Alternative (“NWA”) opportunity in Tiverton and Little Compton, and to solicit NWA solutions as part of the South County East NWA. 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 and other DER solutions 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 participating in a BYOB program as described above 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.

NWA solicitations are becoming more common across the country, with mixed success. Sunrun has evaluated NWA offerings in other jurisdictions and has found that successful offerings adhere to three main principles:

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

We encourage the Commission and National Grid to consider these principles, described in more detail below, in design and implementation of the South County East NWA projects and Tiverton-Little Compton NWA project, and in future NWA solicitations.

1. *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, National Grid must make the following data available to RFP respondents (through the Rhode Island System Data Portal or 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. National Grid 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.

2. Structuring to deploy storage capacity

Energy storage can provide “anchor” firm capacity for NWA projects with residential load. Sunrun recommends that National Grid 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 because 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 National Grid or state agencies is a simple add-on to the process.

Additionally, Sunrun recommends National Grid 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.

3. 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 National Grid 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.¹⁹ 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.

Sunrun also commends National Grid's commitment to discuss with Parties an "Open RFP" element within the Rhode Island System Data Portal and encourages National Grid to involve stakeholders, including solar and storage developers, in such discussions in order to ensure that the Open RFPs are designed such that developers have the opportunity and ability to develop successful solutions.

4. *NWA Benefit-Cost Analyses do not adequately assess DER installed for customer backup*

As currently constructed, BCAs capture the costs and values that various resources can provide to the grid. However, BCAs do not consider the value that resources that are installed by customers for backup power provide to those customers. This is important because customer-sited resources are often not solely reliant on NWA revenue resulting from the BCA to be deployed. In fact, from the perspective of a customer-sited resource developer such as Sunrun, NWA payments will simply reduce costs to customers who are interested in procuring onsite resources for backup power and increase the ability of the developer to deploy these resources. This distinguishes customer sited BTM resources from resources that bid into NWA solicitations that are dependent on the NWA payments for financing and deployment.

Sunrun does not *necessarily* believe that the BCA methodology needs to estimate and value customer backup as a value component of the BCA. However, it stands to reason that resources that are already installed onto the system and are available to meet NWA needs should be assessed differently than resources that do rely on NWA revenues as the prime source of their economic viability. After all, if the resources are already installed and available, they can clearly provide the same value as a FTM resource at a lower cost. Because customer-sited resources are assessed in the same way as FTM resources, the BCA inevitably underestimates their value.

¹⁹ 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>.

Therefore, Sunrun believes that during the NWA solicitation process, National Grid should give thought to how it can properly assess the value of resources that are already on the grid and available to meet National Grid's performance requirements.

IV. Conclusion

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

Respectfully submitted,

/s/ Evan Dube

Evan Dube

Senior Director, Public Policy

Sunrun, Inc.

595 Market Street, Floor 29

San Francisco, CA 94105

Phone: (617) 997-8850

Email: evand@sunrun.com

cc: Service List of Dockets 4888 and 4889