



September 1, 2017

Macky McCleary
Administrator
Division of Public Utilities and Carriers
89 Jefferson Boulevard
Warwick, RI 02888

Carol J. Grant
Commissioner
Office of Energy Resources
One Capitol Hill
Providence, RI 02908

RE: Comments from Sunrun Inc. In Response To Initial Proposals For Distribution System Planning Improvements And Request For Stakeholder Comment

Administrator McCleary and Commissioner Grant:

Sunrun, Inc. (“Sunrun”) submits the following comments in response to the Division of Public Utilities and Carriers (“Division”) and the Office of Energy Resources (“Office”) Initial Proposals for Distribution System Planning Improvements and Request for Stakeholder Comment issued on August 15, 2017.

Sunrun is a leader in residential solar, storage, and energy management. We pioneered the “solar-as-a-service” model 10 years ago, and today Sunrun is the largest dedicated residential solar company in the United States. Sunrun believes there is a better, less expensive, 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 air pollution and carbon dioxide released into the atmosphere. As a leader in residential distributed energy resource (“DER”) deployment, Sunrun has a high interest in the evolution of the electric grid, utility business models, and rate design.

Sunrun commends the Division and the Office for its ongoing efforts in the Power Sector Transformation Initiative and appreciates the opportunity to offer these comments to assist the Division and the Office achieve the goals Governor Raimondo established to create a more nimble electric grid to strategically integrate clean energy resources and enable customers to take advantage of new clean energy technologies. Sunrun provides the following in response the questions posed in the Request for Stakeholder Comment.

1. Rhode Island System Data Portal

What key information, data, or tools would stakeholders like to see on a RI System Data Portal?

Providing stakeholders access to information and data, and the tools to effectively utilize that information, is fundamental to ensuring effective stakeholder engagement in the

planning process. Robust stakeholder involvement will assist in the identification of economic applications of DER technologies, facilitate transparent and non-discriminatory access to DER solutions, and enhance customer choice in energy supply. The RI System Data Portal should provide data in key categories including distribution system data, system planning data, grid operations data, customer data, DER data, and grid modernization data.

Specific data and information that should be available through the Portal includes the inputs and the assumptions used in the planning process, the resulting output information, hosting capacity analysis, requested and completed interconnection studies, short- and long-term planning, as well as near-term operational planning. DER market development data and customer load data should also be included. Information about the physical attributes of the distribution system, including network topology, power quality, distribution line and transformer capacities, and other distribution system characteristics should be included. Customer load data should include information about historic, real time, and forecasted peak load data, individual and aggregated demand data by circuit, node, and transformer to support efficient integration of DER.

Sunrun identifies the following data that should be available to users through the RI System Data Portal. This data should be made available in a consistent format that is easily accessible, downloadable data file, and where possible provided in maps available online.

- Generation production characteristics, including for intermittent resources
- Existing and forecasted distribution characteristics at substation and feeder-level — coincident & non coincident peaks/ capacity levels/ outage data/ projected investment need
- Distribution line and transformer capacity
- Network topology
- Protective devices
- VVO and voltage support data
- Reliability and resiliency statistics
- Observed violations statistics
- Existing supply redundancy level
- Planned projects including:
 - Capacity projects
 - Voltage/power quality projects
 - Reliability/resiliency/security projects
- Hosting capacity maps, including:
 - Circuit models and data
 - Circuit-level loading data

- Circuit node loading
- Voltage and thermal rating of the equipment.
- DER data
 - Hosting capacity maps, including circuit models, circuit node loading, and voltage and thermal rating of the equipment.
 - Existing DER capacity, including both operational and in-development projects, storage penetration, electric vehicle and charging station populations, and DG population characteristics, incorporated into hosting analysis
 - DER load growth forecasts
 - Interconnection status and queues
 - Net metering and Renewable Energy Growth program queues
 - Energy efficiency and demand response data
- Customer data
 - Customer complaints, in order to assess investment plan needs
 - Customer type breakdown

Individual customers should also have access to specific data, which they can choose to share with DER providers:

- Consumption and usage data, including load profiles and peak usage
- Historic bill information
- Rate options and incentive programs available to the customer
- Peak-time events and other rate signals

Making the data identified above available to stakeholders, regulators, and DER providers will allow data users to assess the utility's investment plans and identify areas to target DERs, including areas where DERs can be deployed to offset capital intensive utility investments. Additionally, this data will allow users to assess when DER and load growth will exceed capacity, and compare that timing against planned projects and investments. The data will also allow users to evaluate thermal loading limits, estimate load curves, and understand loading along different circuits. Individual customer data will allow customers to make informed decisions about their usage and potential DER investments, and to work with DER providers to identify technological and programmatic solutions.

The Power Sector Transformation team current vision is a modular portal that could be developed in an iterative fashion over time. What initial content or features should be prioritized for a portal?

Sunrun proposes that development of the RI System Data Portal be approached through a stakeholder working group process. The working groups should identify priorities for

content and functionality based on ease of implementation, availability of data, and need or usefulness. National Grid indicated in its 2018-2020 Energy Efficiency and System Reliability Procurement Plan that it will submit a proposal for the cost of developing and maintaining the RI System Data Portal in its upcoming rate case.¹ The costs of developing and maintaining the Portal will depend on its functions and the types of data included; therefore, working groups should be formed to guide the development of the Portal as soon as possible.

2. Data Access and Governance Policy

In its Supplemental DSIP Filing in New York, National Grid provides a list of datasets in publicly available filings. Should any additional datasets be provided initially by the utility?

Sunrun finds that the categories of datasets provided by the Joint Utilities' Supplemental DSIP on November 1, 2016 are generally adequate, but should include the specific data types identified above. The level of detail provided by the New York Joint Utilities in the Supplemental DSIP was insufficient for use by regulators, DER providers, and other stakeholders in the distribution system planning process, and modeling and forecasting methodologies should be more sophisticated and robust. Specifically, load forecasting processes and data provided related to hosting capacity analyses in New York were insufficient. The experience in New York demonstrates the need for a transparent and inclusive stakeholder process for developing the RI System Data Portal to ensure that the datasets developed are comprehensive and useful to stakeholders.

How should a dataset be determined to be "value-added" and subject to payment by a user to access the data. Is this determined by the utility? By regulators? Other?

Users and customers should not be subject to payment to utilize data provided through the RI System Data Portal. Data sharing is a critical component of a market-based distribution system planning process. The data to be provided through the RI System Data Portal is crucial to utilities, regulators, stakeholders, and DER providers in meeting the state's goals for reducing energy costs, reducing carbon emissions, and increasing system efficiency and resiliency. Requiring payment for access to data that will enable Rhode Island to meet these goals would serve as a barrier, stifling innovation and preventing new providers from entering the market. Furthermore, the data is fundamentally owned by the state's ratepayers, and requiring users to pay the utility for data developed with the intent of serving ratepayers is counterproductive.

¹ National Grid. 2018-2020 Energy Efficiency and System Reliability Procurement Plan. p. 81. [http://www.ripuc.org/eventsactions/docket/4684-NGrid-3-YearPlan\(8-30-17\).pdf](http://www.ripuc.org/eventsactions/docket/4684-NGrid-3-YearPlan(8-30-17).pdf)

Aggregation standards can be used to preserve customer privacy. Aggregated data is data that has been summed or combined across a group of multiple accounts in order to preserve individual customer privacy. In New York, the utilities proposed a 15/15 privacy standard for aggregated data, which would require data to be drawn from a minimum of 15 accounts and limits the load of any single account to 15% of the total load for the dataset. What is appropriate for Rhode Island?

New York utilities proposed a 4/50 privacy standard for aggregated whole building data.² Sunrun recommends this as a maximum standard (4 accounts, with no one account representing more than 50% of the aggregated whole building load). This standard is in line with National Grid's standards in New York and Massachusetts and other utilities around the country.³ The size and characteristics of the Rhode Island grid may make more flexible standards (either by customer number or percentage of aggregated load) appropriate for Rhode Island and Sunrun recommends these considerations be taken into account when establishing the privacy standard for aggregated whole building data.

3. Hosting Capacity and Heat Maps

What are the uses and objectives for hosting capacity analyses that are most important to Rhode Island stakeholders (e.g., indicative information for feeder capacity for DER, fasttrack interconnection approvals, annual distribution system studies)? What are the granularity, frequency, and accuracy requirements for each use and appropriate industry method?

A key objective of hosting capacity analysis is to determine the ability of individual distribution circuits and nodes on an individual circuit to accommodate additional DER without requiring significant upgrades to maintain system reliability. Two applications (or "use cases") of hosting capacity analysis are the interconnection process and the distribution system planning process, both which are represented in the examples referenced in this question, and both of which are important. For the interconnection process, hosting capacity analysis assists market participants to determine appropriate locations for siting DER based on interconnection options and system upgrade needs and assists utilities in the interconnection review process. For distribution planning we must

² See Docket No. 14-M-0101, Joint Utilities Benchmarking of Aggregated Customer Data Privacy and Proposed Privacy Standard for Building Energy Management (June 7, 2017) available at

<http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7bD298636C-C085-4538-A39C-C498247652CD%7d>.

³ See US DOE, Guide to Data Access and Utility Customer Confidentiality (January 2016) available at

https://betterbuildingsinitiative.energy.gov/sites/default/files/attachments/Guide%20to%20Data%20Access%20and%20Customer%20Confidentiality_0.pdf.

use hosting capacity results as a tool to enable low cost efforts such as enabling voltage regulation and protection coordination for higher levels of DERs. Additionally, hosting capacity analysis informs system level planning, operations decisions, and other planning forecast models. In practice this amounts to pro-actively identifying areas where future constraints are likely to arise under different DER growth scenarios. This information can then be used to plan future grid upgrades that allow the integration of greater amounts of DER capacity in a cost-effective manner.

A high degree of granularity and accuracy in hosting capacity analysis is essential for interconnection decisions in particular because of the grid safety and reliability implications and the financial implications for project developers. In order for the analysis to be most useful for project developers, the hosting capacity analysis must be granular enough to capture limitations placed by interconnection screens. For instance, where an interconnection screen limits DER interconnections based on a percentage of line section peak load, the hosting capacity analysis must be referenced in some way within the portal and be used as part of the utility interconnection process to streamline interconnection. The same holds true for other interconnection screens. If hosting capacity analysis is undertaken only down to the level of an entire feeder, it will omit information on conditions that exist at the nodal level that may also be critically important for distribution planning or interconnection.

Accuracy is a spectrum rather than any specific value, which is subject to the numerous sub-components and assumptions embodied in the larger analysis (e.g., the granularity of load profiles used to represent system conditions). In recognition of the suite of methodological issues that would need to be resolved, the California Public Utilities Commission (“CPUC”) convened a Working Group made up of utilities and other stakeholders to attempt to reach a consensus on the numerous sub-elements of the overall methodology. In particular, with respect to accuracy as a high level principle or concept, the choice of the modeling method is highly important. The CPUC Working Group examined, among many other modeling issues, two methodologies for modeling hosting capacity – the iterative method and the streamlined method. The streamlined method applies a set of algorithms and equations to evaluate power system criteria at points along the distribution system in a static manner. The iterative method performs a series of successive power flow simulations while varying the amount of DERs at different defined points in the system. The iterative method, though more analytically resource intensive, is more accurate because it is able to capture dynamic effects on more complex circuits, and in California parallels the modeling that a utility would employ in a detailed interconnection study.

A pending Proposed Decision would adopt the iterative approach as the appropriate method for hosting capacity modeling in California.⁴ Sunrun recommends the California Working Group report for review and consideration as part of Rhode Island’s investigation into these issues.⁵

How should the utility ensure consistent integration of heat map implementation across all DER and infrastructure planning processes?

Sunrun supports National Grid’s proposal to host the heat map on the RI System Data Portal.⁶ Once the utility has developed heat maps and a process for keeping the maps updated, the maps should be utilized throughout the distribution system planning process. Sunrun suggests that pinning down the most productive points of intervention in utility planning processes that would benefit from more detailed information on current processes and how they are coordinated with one another. A “roadmap” of this type would allow stakeholders to offer more specific recommendations on where and when the use of the heat map or updated information would be most valuable.

Sunrun also recommends that the heat map resource be developed and presented in such a way that outside stakeholders have visibility into the assumptions underlying the analysis, including those areas that are not thought to present NWA opportunities. Transparency is critical for ensuring that competition between wires and non-wires solutions can exist in a meaningful way and is not hindered by “black box” decision-making. This outcome depends on allowing for stakeholder engagement at early stages and throughout planning processes.

How often can/should heat and hosting capacity maps be updated now and in the future?

National Grid and regulators should work toward a system that allows heat maps and hosting capacity maps and data to be updated at least monthly, and eventually, updates to the map can be automated. To the extent that utility GIS systems are updated more frequently than monthly, updates to the maps should proceed in parallel with GIS system updates. Certain data sets will take time to develop initially, but given the rapidly-changing

⁴ See CPUC Docket No. R.14-08-013, *Proposed Decision on Track 1 Demonstration Projects A (Integration Capacity Analysis) and B (Locational Net Benefits Analysis)* (August 25, 2017) available at

<http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M194/K540/194540363.PDF>

⁵ See The California IDER and IDA Working Groups, for additional information and for access to the Final Report and recommendations of the Working Group, available at <http://drpwg.org/sample-page/drp/>

⁶ National Grid. 2018-2020 Energy Efficiency and System Reliability Procurement Plan. p. 81. [http://www.ripuc.org/eventsactions/docket/4684-NGrid-3-YearPlan\(8-30-17\).pdf](http://www.ripuc.org/eventsactions/docket/4684-NGrid-3-YearPlan(8-30-17).pdf)

nature of the grid, less frequent updates will not be useful to DER providers, regulators, or the utility.

4. Forecasts

Would making forecasting assumptions and methodologies available through ISR/SRP filings meet the needs of stakeholders to provide meaningful input into forecasting while balancing the Company's internal needs to meet their timelines and general obligations for distribution planning?

Transparency of forecasting assumptions and methodologies is critical to achieving Rhode Island's electricity goals, as these assumptions, methodologies, and resulting forecasts dictate rates and rate design, DER programs, NWA opportunities, and infrastructure planning. Sunrun supports the publication of detailed information about National Grid's forecasting assumptions and methodologies through the ISR/SRP filings, but also recommends that this information be included in the RI System Data Portal and considered in all other applicable dockets. Sunrun recommends that drafts of forecasts be made available to stakeholders with sufficient time to provide input prior to finalization. It is increasingly important for utilities to adequately forecast DER impacts and adjust their models accordingly as an integrated DSP process is implemented and as DER penetration increases. Providing forecasting assumptions and methodologies to stakeholders and allowing for stakeholder input will improve forecasting accuracy and help stakeholders and consumers better understand how investments in DER contribute to developing and operating a more cost-effective grid.

5. Alignment of DSP, Capital Project, and Non-Wires Alternatives (NWA) Planning

How can DSP fully integrate partial NWA opportunities in a way that allows DER providers to provide incremental value to the system where opportunities exist?

NWA's support load relief and a range of other distribution system needs. DSP must incorporate evaluations that identifying opportunities for NWAs to provide grid solutions. In general, the DSP process should focus on full NWA solutions rather than partial solutions. As the DSP process becomes more transparent, as data availability and analytics improve, and as utilities invest in the system controls and functionalities to better integrate DERs at both the system planning and operations levels, NWAs can be utilized more often and more effectively to avoid infrastructure investments.

The Heat Map included in the RI System Data Portal may prove to be useful in identifying areas where NWAs can be utilized to manage load or defer infrastructure investments, however, just how effective this tool is in avoiding infrastructure investments and integrating NWA opportunities depends on how often the underlying data is updated, what



underlying data is publicly available, how the opportunities are publicized, and how DER providers are compensated for providing NWA solutions. As described above, Sunrun recommends that the Heat Map resource be developed and presented in such a way that outside stakeholders have visibility into the assumptions underlying the analysis, including those areas that are not thought to present NWA opportunities. Furthermore, National Grid and the Commission must be proactive in pursuing NWA solutions; the Heat Map cannot serve as the only tool for informing the public of potential NWA opportunities.

In order to fully integrate NWA opportunities into the utilities planning procedures, the DSP process must be iterative, transparent, and open to stakeholders to ensure there are opportunities for regulators, DER providers, and other stakeholders to identify NWA opportunities. The DSP process must identify potential areas of load growth or capacity concerns so that the utility and the Commission can proactively explore NWAs, including encouraging DER investments or changes in electricity usage either through targeted rate design programs or incentive programs. For all identified capital investment needs that are not satisfied through DER programs, the DSP should include open NWA RFP opportunities to allow for innovative solutions and access to opportunities by third parties. Opportunities for NWA solutions, including special rate designs, incentive programs, and RFPs, must be publicized and marketed to customers effectively.

The utility can also better facilitate DER providers to provide value through NWA projects by including location-specific considerations a part of all existing programs, like the Renewable Energy Growth program, providing regular solicitations for high value NWA opportunities.

How and when should DER providers and/or other stakeholders be engaged through the distribution planning process?

DER providers and stakeholders should have opportunities to engage in the DSP process at all critical junctures and dockets (including, but not limited to ISR, SRP, and load forecasting) including opportunities to provide input on proposals to inform National Grid's final formal filings. Sunrun also recommends working groups for the purpose of initial development of the RI System Data Portal, as well as for updates and improvements to the Portal over time.

We appreciate the opportunity to provide these comments.

Best,

Gracie Walovich, Manager of Public Policy