

October 27, 2017

**BY HAND DELIVERY AND ELECTRONIC MAIL**

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

**RE: Docket 4743 - In Re: Petition of Tesla, Inc. and Sunrun, Inc.  
For Declaratory Judgment or an Advisory Ruling on R.I. Gen. Laws § 39-26.4  
Response to Division Data Request – Set 2**

Dear Ms. Massaro:

I have enclosed ten (10) copies of National Grid's<sup>1</sup> response to the Rhode Island Division of Public Utilities and Carriers' second set of data requests in the above-referenced docket.

Thank you for your attention to this filing. If you have any questions, please contact me at 781-907-2121.

Sincerely,



Raquel J. Webster

Enclosures

cc: Docket 4743 Service List  
Jon Hagopian, Esq.  
Steve Scialabba, Division

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<sup>1</sup> The Narragansett Electric Company d/b/a National Grid.

Certificate of Service

I hereby certify that a copy of the cover letter and any materials accompanying this certificate was electronically transmitted to the individuals listed below.

The paper copies of this filing are being hand delivered to the Rhode Island Public Utilities Commission and to the Rhode Island Division of Public Utilities and Carriers.



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Joanne M. Scanlon

October 27, 2017  
Date

**Tesla, Inc. & Sunrun, Inc – Petition for Declaratory Judgment –  
Docket No. 4743**

**List updated 10/7/17**

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Division 1-1

Request:

Regarding the sample wiring diagram provided in response to DIV 1-2,

- a) Is the watthour meter bidirectional? Does it record interval data? Please explain.
- b) Please show where the battery storage system would be connected if the petition is approved.
- c) Please identify which components are owned by NGRID? For example, is all equipment on the customer side of the service point except the billing meter owned by the host customer?
- d) Please identify which components NGRID has independent access to? For example, does NGRID have access to the generator disconnect with host customer assistance and/or approval?
- e) Could NGRID use this system as shown to independently verify that the battery storage system is never charged from its distribution system? Please explain why or why not.
- f) If not, what would need to be added to the diagram to allow NGRID to independently verify that the battery storage system is never charged from its distribution system?

Response:

- a) National Grid's residential-style net meters in Rhode Island are a combination of electro-mechanical and digital bi-directional devices equipped with Automatic Meter Reading (AMR) communications capabilities. These meters are used on customer premises with up to 25kW of distributed generation (DG), and do not record interval data. Premises with DG applications for over 25kW receive a remote read meter with interval data recording capability, as outlined in the Company's Standards for Connecting Distributed Generation, RIPUC No. 2163 (DG Tariff).
- b) The diagram below shows how a proposed 25 kW (or less) solar facility plus battery storage system could be interconnected to the Company's electric grid.<sup>1</sup> Notably, this configuration does not in and of itself satisfy other operational requirements that the Company may impose, such as restricting the battery component from charging off the Company's electric grid. Other interconnection and operational requirements, including

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<sup>1</sup> This is a sample diagram representative of the Petitioner's proposal only and is not intended to limit the manner in which the Company may require paired solar plus battery storage systems to be configured to interconnect to its electric system.

Division 2-1, page 2

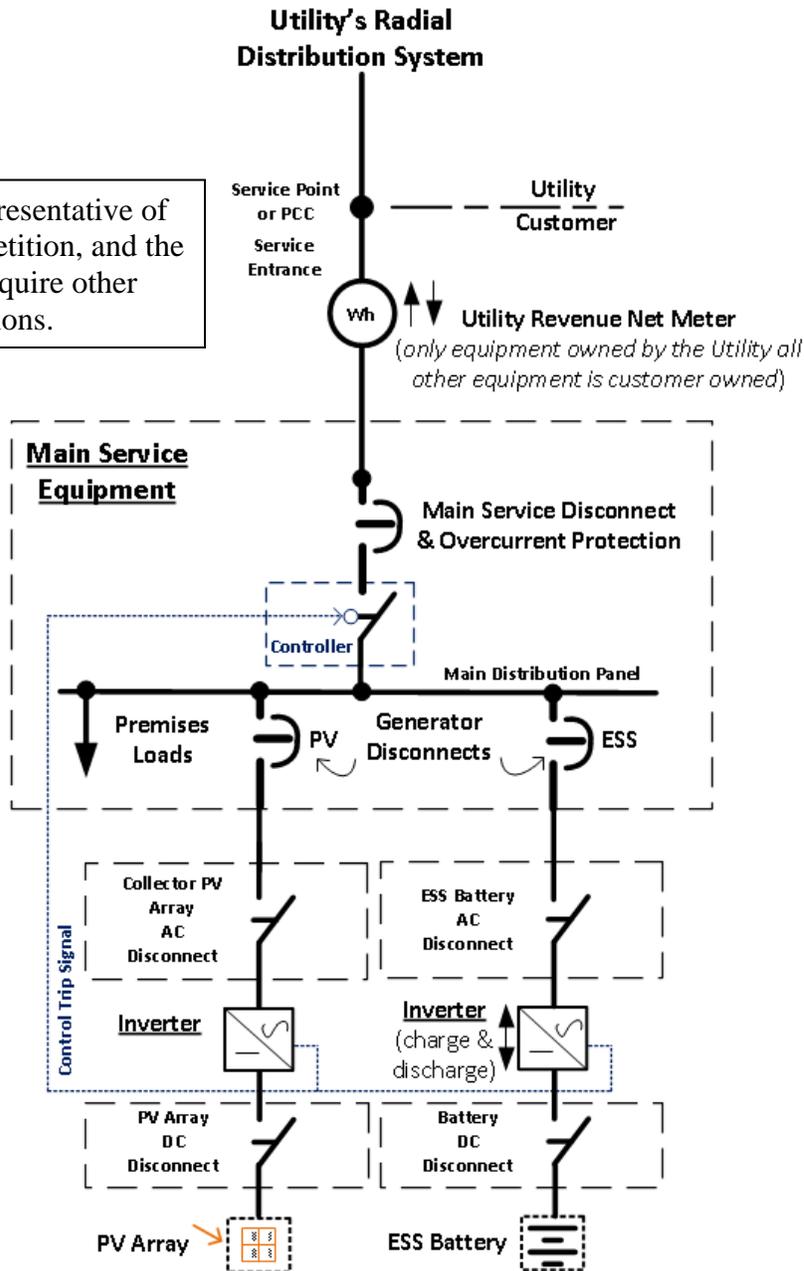
those that may be the result of the PUC's approval of Tesla Inc. and Sunrun, Inc's Petition in this docket (Petition), will be required. These requirements, in addition to the interconnection tariff requirements, could include, without limitation, the following conditions relative to the controller component of the DG facility:

1. Controller shall be suitable for service ratings according to the National Electrical Code (NEC) Article 110 and nationally recognized testing laboratory (NRTL) certified equipment listing.
2. The controller's operation is similar to a standby generator automatic transfer switch, which shall meet National Grid's requirements in Section 12 of ESB 750 ([http://www9.nationalgridus.com/non\\_html/shared\\_constr\\_esb750.pdf](http://www9.nationalgridus.com/non_html/shared_constr_esb750.pdf)).
3. Satisfactory witness testing will be required.
4. The controller and control scheme shall be reliable and shall trip the battery storage upon controller equipment failure.
5. The settings on the Controller shall be maintained in a manner that prevents the battery storage component of the facility from charging off of the Company's electric system. The battery shall only be permitted to charge from the customer's solar facility. The Company shall have the right at any time, at the customer's expense, to require proof that the customer and facility are complying with this condition, and, in addition, shall be granted access to this component at the Company's request.

Division 2-1, page 3

**AC Coupled Battery Storage with Solar PV Systems 25kW and Less**  
**National Grid RI Operating Jurisdiction**

This diagram is representative of the proposal in the Petition, and the Company may require other configurations.



Division 2-1, page 4

- c) The components owned by the Company are located on the utility side of the service point as well as the utility revenue billing meter located on the customer side of the service point.
- d) The customer-owned components to which the Company would have independent access are the generator disconnects. In some cases, this access may require host customer assistance and/or approval. *See* DG Tariff, Section 6.4.
- e) The Company cannot use the system as shown in b) above to independently verify that the battery storage system is never charged from the Company's electric system. If the PUC approves the Petition, then, at a minimum, additional operating requirements will need to be imposed (which would still be customer, not Company, controlled), and the customer should be required to provide the Company with an affidavit (signed by the interconnecting customer, host customer, and installer) that the battery will charge only from the solar facility and is unable to charge from the Company's electric power grid. Any additional interconnection or operational requirements can be included as part of the Interconnection Service Agreement (ISA).<sup>2</sup>
- f) The Company has not identified components that could be added to the diagram to allow the Company to independently verify that the battery storage system is never charged from its electric system given the Company's current interconnection, billing and metering processes and capabilities. There may, however, be opportunities for the customer, at its cost, to contract with a third-party (Independent Third-Party) to independently verify and report compliance with the charging restriction by monitoring the outflow of the solar and battery components continuously. An Independent Third-Party may be able to install interval meters at two locations (the solar and the battery) and constantly measure both points with data being sent to be monitored and analyzed by the Independent Third Party. As long as the photovoltaic (PV) output is continuously equal to or more than the battery input at the same time, the customer would be considered to be in compliance with the charging requirements. If, however, the solar output is not more than the battery input at any

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<sup>2</sup> The agreement for simplified applications would need to be modified to include an attachment that states that the applicable restrictions for net metering eligibility and any additional operating requirements. For non-simplified projects (the ones that will execute the pro-forma ISA, the Company will use Attachment 4 (Special Operating Requirements, if any) to incorporate these requirements.

The Narragansett Electric Company  
d/b/a National Grid  
RIPUC Docket No. 4743  
In Re: Petition of Tesla, Inc. and Sunrun, Inc.  
For Declaratory Judgment or an Advisory Ruling on  
R.I. Gen. Laws § 39-26.4, The Net Metering Act  
Response to Division's Second Set of Data Requests  
Issued on October 18, 2017

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Division 2-1, page 5

given time, then the customer would not be in compliance with the charging restrictions and the Independent Third-Party would be required to notify the Company. The Company would then investigate the issue, and if not resolved quickly, could result in termination of the customer's Interconnection Service Agreement and/or suspension of net metering service. Importantly, the Company does not have these capabilities. Moreover, although the Company sees this as a potential (albeit untested and not proven) way of verifying compliance, there are unknowns, such as Independent Third-Party legal requirements, capabilities and the costs of such proposal (including the additional meters and continuous monitoring). Any costs related to verifying compliance should be borne solely by the customer. Ongoing compliance by the customer also includes maintenance of the battery storage and controller systems according to the Company's approval of the installation, at the customer's expense.