



December 16, 2021

Holly R. Anderson, Clerk
Vermont Public Utility Commission
112 State Street
Montpelier, Vermont 05620-2701

Re: **Case No. 21-3883-RULE, Proposed Creation of Vermont Public Utility Commission Rule Concerning Energy Storage**

Dear Ms. Anderson,

Pursuant to the Public Utility Commission (“Commission”) Procedural Order Amending Schedule entered October 21, 2021, Sunrun submits these initial comments regarding the Proposed Creation of PUC Rule Concerning Energy Storage (“Proposed Rule”). The following comments are intended to be applicable to residential energy storage systems.

Topic 2. Aggregations and interplay between owners, operators, and utilities

a. Visibility to utilities. Are there specific requirements related to two-way communications with distribution utilities that the Commission should impose on aggregators as a condition of receiving a § 231 CPG?

Given the evolving technological capabilities of energy storage devices and distribution utilities, the adoption of storage-eligible tariffs and related programs, and ISO-NE requirements due to Federal Energy Regulatory Commission Order No. 2222, we urge the Commission to use caution when establishing specific requirements as a condition of receiving a Certificate of Public Good. Additionally, the communication capabilities that may be reasonable or necessary is dependent on the size of the energy storage systems that are being aggregated, and other factors. What may be reasonable for a larger energy storage system could be unavailable or cost-prohibitive for smaller energy storage systems.

Aggregations of energy storage resources will also be subject to communication, metering, and telemetry requirements based on the retail program or wholesale market they are participating in. Adhering to the program or market requirements on this matter should be sufficient for receiving a CPG. Overlapping regulations or requirements should be avoided whenever possible to ensure that energy storage development is not artificially constrained.

b. Override. *Are there circumstances under which local distribution utilities may need to override operator control to charge or discharge aggregated systems to maintain system stability and reliability? If so, is that currently technically feasible?*

Direct utility override capability to charge or discharge aggregated energy storage systems would be problematic for the financing and operation of these resources, specifically for residential systems. Allowing utilities the ability to interrupt an operating plan would be a significant barrier to wholesale market participation due to the uncertainty it would inject into the performance of the system. This could result in non-performance during must-run events and the associated lost revenue and fines against the storage owner and/or aggregator. Additionally, forced charging from the electric grid would negatively affect federal investment tax credit eligibility for storage paired with solar and for behind-the-meter storage, and lead to higher utility costs for the host customer. There would also be the possibility for the utility, who may be unfamiliar with the project, to operate in a way that could void warranties or damage system equipment.

From a residential aggregation perspective, these systems would be independently interconnected at various points on the electric grid where each will have been studied by the utility to ensure system reliability and safety even during full charge or discharge scenarios. In most, if not all, cases the storage will be paired with solar which will possibly have a higher discharge capability than the battery. As such, it should be unnecessary for a utility to have access to override the operations of these systems.

c. Notice of changes to an aggregation. *Aggregations are likely to change over time. For example, small resources may leave or join aggregations rather frequently. What requirements for notice should be included in § 231 CPGs when changes occur to aggregations?*

It is possible that aggregations could have changes to their composition over time, though likely not frequently due to the length of the useful life of the technology, long-term contracts and financial arrangements, and the logistical difficulty of changing aggregations. If the exact makeup of an aggregation changes but it continues to operate as envisioned in the CPG, it is unclear whether a requirement for notice would provide any value or actionable information. Presumably, the program or market in which the aggregation is participating will have reporting requirements when energy storage systems are added or removed from an aggregation.

For parties to provide more comprehensive feedback on this question, Sunrun respectfully submits that it would be helpful if the Commission were to clarify what the envisioned aggregator CPG process would look like. For instance, if changes to an aggregation were to require notice, this assumes that the resources in an aggregation are already known at the time of an application for a CPG. However, for an aggregator - particularly an aggregator of residential systems - to develop the fleet of resources with the intention of operating as an aggregation, it would be necessary to receive the CPG prior to selling and installing the systems. Developing an aggregation with the possibility that the CPG would not be issued would be a significant risk. Further clarification of this and related matters would be helpful for Sunrun to provide additional feedback to the Commission.

d. Dispute resolution. *Should the Commission create a special or unique dispute resolution process for parties involved in energy storage? If so, what is an appropriate process for dispute resolution when disputes arise between storage facility owners, operators, and the interconnecting providers? Are disputes likely on matters other than system stability and reliability? Are there limits on the Commission's jurisdiction to resolve disputes among these entities?*

Sunrun reserves comment at this time and looks forward to the discussions of this topic in this proceeding.

e. Other issues. *What issues outside system stability and reliability should the Commission consider when issuing a CPG for energy storage aggregators?*

Sunrun reserves comment at this time and looks forward to the discussions of this topic in this proceeding.

Topic 3. Role of energy storage.

a. System optimization. *How can the Commission encourage or require energy storage systems paired with existing resources to allow for system optimization, including: injecting power during times tied to regional power supply expense drivers, alleviating local grid congestion, and shifting renewable production to cover peak times? What tools, inverter settings, and control protocols are needed to ensure that storage paired with systems in State programs is benefitting the grid as much as possible?*

Well-designed peak demand reduction programs, time-of-use or critical peak pricing rates, grid support tariffs or programs, or other grid optimization programs will incent participation without the need to require it. Green Mountain Power's voluntary Bring Your Own Device Program is such an effective program that has been replicated across New England. With regard to inverter settings, control protocols, and planning processes we support the comprehensive comments filed by Renewable Energy Vermont on July 30, 2021 in Case No. 19-0856 RULE which addressed these topics.

It is important to keep in mind that for behind-the-meter energy storage resources, particularly for residential customers, the primary customer value is back-up power. That use case could be sacrificed if the customer were *required* to allow their system to be used to maximize grid value. Under such a structure, customers will either not participate in the rate designs or programs or will just not install storage if participation in prescribed programs is required.

b. Carbon impact. *Storage systems programmed to optimize deployment for revenue only can have a significant carbon impact because they can charge on carbon-intensive, overnight energy. If storage systems are paired with resources in State renewable programs, should the Commission impose charge and discharge requirements related to carbon intensity? If so, how might this be done?*

We do not believe that charge and discharge requirements related to carbon intensity are necessary for energy storage resources paired with renewable generation. In most cases the storage will charge exclusively from the renewable resource in order to claim the federal investment tax credit, and the discharge will be determined by the available programs and tariffs which should be sending price signals that generally align with offsetting carbon resources during peak hours. If the price signals and carbon intensity are misaligned, that should be dealt with through price signal alignment rather than limiting the economic potential of energy storage systems with non-optimal charge and discharge requirements.

*c. **Equity and access.** Historically disadvantaged and low-income communities have comparatively little access to clean energy technologies, including storage. How can the benefits of energy storage be shared in an equitable fashion? How can the Commission improve equity and access for energy storage?*

One way that underserved communities and low-income residents can share in the benefits of energy storage is through policies that make on-site solar and storage viable for multifamily buildings, ideally with utility bill credits from the solar being shared with tenants. While energy storage would be unlikely to provide individual unit back-up in multifamily buildings, it could provide back-up for critical loads and common areas. If the storage associated with these projects are participating in state programs or tariffs or wholesale markets, that can add further value to the projects which could result in increased utility bill savings for tenants.

Respectfully submitted,

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