STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Case No. 21-3883-RULE

Proposed creation of Vermont Public Utility Commission Rule Concerning Energy Storage	

Order entered: 09/17/2021

ORDER OPENING RULEMAKING

I. INTRODUCTION

On June 3, 2021, Act 54 was signed into law.[1] Among other provisions, Act 54 grants the Vermont Utility Commission ("Commission") the authority to "adopt and implement rules that govern the installation and operation of energy storage facilities of all sizes."[2]

In today's Order, the Commission initiates a proceeding to develop rules governing the installation and operation of energy storage facilities in Vermont. To that end, the Commission seeks comments from stakeholders on the issues identified below, as well as any other issues that commenters believe need to be considered in this process.

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[1] *An act relating to miscellaneous energy subjects.* Also known as H. 431. Available at https://legislature.vermont.gov/Documents/2022/Docs/ACTS/ACT054/ACT054%20As%20Enacted.pdf.

[2] 30 V.S.A. § 8011. ENERGY STORAGE FACILITIES (pp. 9-10 of Act 54)

(a) The Commission may adopt and implement rules that govern the installation and operation of energy storage facilities of all sizes.

(b) The rules may establish a size threshold below which storage facilities need not submit an application for a certificate of public good pursuant to section 248 of this title.

(c) The rules may include provisions that govern:

(1) the respective duties of retail electricity providers and energy storage facility owners or operators;

(2) the electrical and fire safety, power quality, interconnection, metering, and decommissioning of energy storage facilities;

(3) the resolution of disputes between energy storage facility owners, operators, and the interconnecting provider;

(4) energy storage aggregators and the operation of aggregations; and

(5) energy storage facilities paired with other resources, such as net metering and standard offer plants, including retrofits of existing plants.

(d) The rules shall establish standards and procedures governing application for and issuance or revocation of a certificate of public good for certain energy storage facilities under the provisions of section 248 of this title. In establishing these standards and procedures, the rules may:

(1) waive the requirements of section 248 of this title that are not applicable to energy storage facilities, including criteria that are generally applicable to public service companies as defined in this title;

(2) modify notice and hearing requirements of this title as the Commission considers appropriate; and

(3) seek to simplify the application and review process.

II. DISCUSSION

A decline in the cost of energy storage facilities is already resulting in the rapid deployment of storage throughout Vermont. Energy storage, particularly battery storage, acts in unique ways on the grid by appearing to grid operators as both a user and source of electricity. Storage also offers the opportunity to shift the times for production and consumption of electricity to potentially alleviate congestion and smooth the integration of renewable energy. The advent of this new technology necessitates changes to several Commission programs and processes. In Act 54, the Vermont General Assembly granted authority to the Commission to adopt rules that integrate storage into the grid.

In addition to 30 V.S.A. § 8011, there were several modifications to Title 30 in Act 54 that are relevant to this rulemaking. Effective December 31, 2022, Act 54 amends § 248(u) to lower the threshold for storage facilities seeking a certificate of public good ("CPG") from 500 kW to 100 kW and directs the Commission to establish a simplified application process for energy storage facilities with a capacity of up to 1 MW.[3] Act 54 also clarifies that certain energy storage aggregators must obtain a CPG under 30 V.S.A. § 231 to operate in the state.[4]

A. Scope

It is likely that this work will include three major topic areas, but it is possible that there will be additional topics and issues to discuss.[5] The Commission plans to explore these three

[3] Currently, § 248(u) states that "A certificate under this section shall only be required for an energy storage facility that has a capacity of 500 kW or greater." On December 31, 2022, the new revised § 248(u) provision takes effect. It states that: "For an energy storage facility, a certificate under this section shall only be required for a stationary facility exporting to the grid that has a capacity of 100 kW or greater, unless the Commission establishes a larger threshold by rule. The Commission shall establish a simplified application process for energy storage facilities subject to this section with a capacity of up to 1 MW, unless it establishes a larger threshold by rule. For facilities eligible for this simplified application process, a certificate of public good will be issued by the Commission by the forty-sixth day following filing of a complete application, unless a substantive objection is timely filed with the Commission or the Commission itself raises an issue. The Commission may require facilities eligible for the simplified application process to include a letter from the interconnecting utility indicating the absence or resolution of interconnection issues as part of the application."

[4] Act 54 adds a provision: 30 V.S.A. §231(c) "An energy storage aggregator that operates an energy storage facility is subject to this section only if the aggregator is not a retail electric provider." An aggregator is defined as "an entity other than a distribution utility that is operating an energy storage aggregation of 100 kW or greater aggregate nameplate capacity."

[5] The Commission is also considering issues relevant to storage in two other rulemakings currently open: 19-0856-RULE, Proposed revisions to Vermont Public Utility Commission Rule 5.500 (interconnection); and 19-0855-RULE, Proposed revisions to Vermont Public Utility Commission Rule 5.100 (net-metering).

topics through a series of written comments and workshops. Participants are encouraged to read the sections of Act 54 that are relevant to energy storage and offer additional topics and issues for the Commission's consideration.

Topic 1. Simplified siting

Energy storage has a comparatively small footprint. For example, a 1 MW/4MWh lithium-ion storage system occupies about 300 square feet.[6] By comparison, a 1 MW solar generating system can occupy as much as 7-9 acres.[7] Because battery energy storage has a smaller footprint than other energy infrastructure, there may be several criteria under 30 V.S.A. § 248 that could be conditionally waived, while other criteria and requirements, such as interconnection, public safety, and decommissioning, will remain relevant to energy storage projects.

Under the amended version of 30 V.S.A. § 248(u) and under 30 V.S.A. § 8011(b), (c)(2), and (d)(1)-(3), the Commission plans to create a simplified application process for storage facilities under 1 MW (or higher threshold) seeking a CPG.

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

Third-party aggregators will soon be able to combine small resources and bid them into wholesale markets at the regional level.[8] Small storage resources are unlikely to cause system stability and reliability issues on their own. However, when these resources are aggregated and act in a coordinated fashion in response to wholesale price signals, they may cause system stability and reliability issues, particularly on circuits with low loads. At a minimum, a communication process will need to be developed between energy storage owners, operators, and aggregators and local distribution utilities to address concerns that may arise from the operation

[6] *See* Case No. 17-2813-PET, *Petition of Green Mountain Power for a Certificate of Public Good pursuant to 30 V.S.A. § 248(j), authorizing the installation and operation of a battery storage system on the GMPSolar Panton Project site located in Panton, Vermont, to be known as the "GMP Panton Battery Storage Project."* Exh. GMP-KS-2 at 1.

[7] Sean Ong, Clinton Campbell, Paul Denholm, Robert Margolis, and Garvin Heath, "Land-Use Requirements for Solar Power Plants in the United States," Summary of Land-Use Requirements for PV and CSP Projects in the United States at 5 (June 2013). https://www.nrel.gov/docs/fy13osti/56290.pdf.

[8] FERC Order 841, 18 CFR 35 (Feb. 2018); FERC Order 2222, 18 CFR 35 (Sept. 2020).

of these systems. Commenters should identify and be prepared to discuss any other issues with respect to aggregation that the Commission should explore.

The Commission also seeks comments and recommendations for a process, including substantive requirements, for energy storage aggregators to receive CPGs under 30 V.S.A. § 231(c) and the need for a dispute resolution process under 30 V.S.A. § 8011(c)(1), (3)-(4).

Topic 3. Role of energy storage with existing resources

Energy storage offers important opportunities to shift the consumption of renewable energy to hours when it is most needed, thereby reducing ratepayer costs. On the other hand, energy storage interconnected to existing net-metering systems and standard-offer projects may result in increased program costs. The Commission seeks comments and recommendations on the potential integration of storage with existing resources in a rational and fair fashion that maximizes the value of storage assets without imposing any additional costs on Vermont's utilities and their customers.[9]

B. Process

The Commission plans to begin the rulemaking process by working with stakeholders to identify issues and approaches to those issues. We plan to start with written comments followed by two half-day workshops and another round of written comments. Additional process will likely be necessary once the Commission releases a draft rule. The Commission adopts the following schedule for the initial comment and workshop period.

Event	Date
Deadline to submit initial comments	Friday, October 22, 2021
Workshop on Topic 1: Simplified siting	Tuesday, November 9, 2021
Workshop on Topics 2 and 3: Aggregation and existing resources	Tuesday, November 16, 2021
Deadline for post-workshop comments	Tuesday, December 21, 2021

[9] Section 8011(c)(5) grants the Commission the authority to promulgate rules that govern "energy storage facilities paired with other resources, such as net metering and standard offer plants, including retrofits of existing plants."

The Commission will establish a service list for this proceeding, which is not a contested case. Anyone interested in participating should contact the Clerk of the Commission at puc.clerk@vermont.gov. After contacting the Clerk and becoming a participant in this proceeding, participants should file comments in this case in ePUC using the "Add Briefs, Comments, or Discovery" action. Comments should not be filed using the "Public Comment" option.

C. Questions for initial comments

To facilitate a productive process, the Commission requests that participants include responses to the following questions in their comments filed on October 22, 2021.

Stakeholders are encouraged to submit substantive comments on these and any other issues pertinent to energy storage as well as comments on the process proposed in this order.

Topic 1. Simplified siting

a. **Threshold**. The amended provision of § 248(u) states that "the Commission shall establish a simplified application process for energy storage facilities subject to this section with a capacity of up to 1 MW, unless it establishes a larger threshold by rule." Should the Commission establish a threshold larger than 1 MW for projects to be eligible for simplified siting? If not, why not? If so, what should that threshold be and why?
b. **Conditional waivers**. Which, if any, Section 248 criteria and requirements for a CPG should be conditionally waived?
c. **Codes and standards**. Are there any codes and standards relevant to energy storage that the Commission should incorporate by reference into the rule? If so, which ones and why?
d. **Application materials**. What application materials should stand-alone storage facilities be required to file to be considered administratively complete?
e. **Retrofitting**. Would the list of applicable § 248 criteria or the list of materials to be filed be different for storage facilities that are being added to existing facilities (e.g., an

existing solar facility with a CPG adding storage)? How should the Commission consider cumulative impacts of adding storage to existing facilities?

f. **Comment deadline**. Noting that Act 54 requires the Commission to issue a CPG within 46 days if no major issues are raised, what is an appropriate deadline for stakeholder comments on CPG applications for energy storage facilities (e.g., 15 or 30 days after the application is filed)?

g. **Notice**. Should the Commission modify the notice requirements of Title 30 for energy storage projects in the simplified process?[10]

h. **Interconnection**. What is the optimal process to manage interconnection for facilities in the simplified siting review? Should the Commission require that applicants file a copy of an executed interconnection agreement with the application? Are there size thresholds that should trigger a requirement for an interconnection agreement? If so, what are the appropriate size thresholds?

i. **Other issues**. What other issues should the Commission consider in establishing a simplified siting process for 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?

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?

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?

[10] *See* 30 V.S.A. § 8011(d)(2).

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?

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

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?

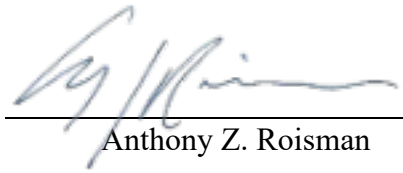
b. **Carbon impact**. Storage systems programmed to optimize deployment for revenue only can have a significant carbon impact because they can charge on carbon-intensive, overnight energy. If storage systems are paired with resources in State renewable programs, should the Commission impose charge and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

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?

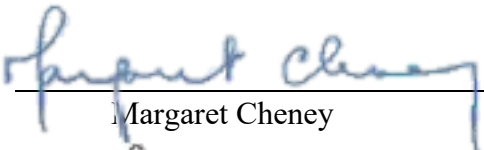
d. **Other issues**. What other issues should the Commission consider when determining how to integrate storage with existing resources?

SO ORDERED.

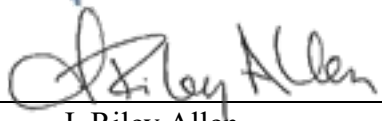
Dated at Montpelier, Vermont, this 17th day of September, 2021.



Anthony Z. Roisman) PUBLIC UTILITY



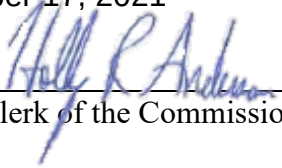
Margaret Cheney) COMMISSION



J. Riley Allen) OF VERMONT

OFFICE OF THE CLERK

Filed: September 17, 2021

Attest: 

Clerk of the Commission

Notice to Readers: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Commission (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: puc.clerk@vermont.gov)

PUC Case No. 21-3883-RULE - SERVICE LIST

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Sent to the large service list outside ePUC