STATE OF VERMONT
PUBLIC UTILITY COMMISSION

Docket No. 17-4632-INV

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| Continuing issues related to the implementation of the Renewable Energy Standard | |

Order entered:

## PROPOSAL FOR DECISION

### I. INTRODUCTION

This proceeding concerns a request filed by Green Mountain Power Corporation ("GMP") with the Vermont Public Utility Commission ("Commission") asking that the Commission provide guidance on the eligibility of a battery storage program under Tier III of the Renewable Energy Standard ("RES").

In this proposal for decision, I recommend that the Commission conclude that GMP's battery storage program meets the eligibility requirements for RES Tier III.

### II. BACKGROUND AND PROCEDURAL HISTORY

The requirements under Vermont's RES are divided into three categories or "Tiers."[1] Tier III requires each Vermont electric distribution utility to achieve fossil-fuel savings through energy transformation projects or procurement of distributed renewable energy in amounts equal to two percent of the utility's annual retail electric sales during the year beginning January 1, 2017, and increasing by an additional two-thirds of a percent each subsequent year until reaching 12 percent on and after 2032.[2]

On March 15, 2018, GMP filed with the Commission its RES Tier III savings claim report for the 2017 compliance year.[3] The savings claim included a battery storage program.

On June 1, 2018, the Vermont Department of Public Service ("Department") filed its report evaluating the electric distribution utilities' compliance with Tier III RES obligations.[4] In its report, the Department recommended that the portion of the GMP savings claim related to its

[1] 30 V.S.A. § 8005.
[2] 30 V.S.A. § 8005(a)(3).
[3] *Green Mountain Power RES Tier III Savings Claim Report 2017 Plan Year*, March 15, 2018.
[4] *Evaluation of Electric Distribution Utilities Compliance with Tier III Obligations*, June 1, 2018.

battery storage program be disallowed until the Commission provides clarification on whether this measure and resulting savings are allowable under Tier III.

On June 14, 2018, GMP filed comments requesting additional guidance from the Commission with respect to the eligibility of battery storage under Tier III and suggested that a workshop be convened to discuss the matter.

On August 13, 2018, the Commission staff conducted a workshop to discuss the use of energy storage to meet Tier III RES obligations, including a discussion of whether GMP's battery storage program meets the RES eligibility requirements.

On September 19, 2018, the Department and GMP separately filed comments addressing GMP's battery storage program.

## III. GMP BATTERY STORAGE PROGRAM

GMP offers Tesla Powerwalls as a reliability improvement in customers' homes. Under the program, a Tesla Powerwall is installed to provide backup power to participating customers during grid outages. During an outage, participating customers with a connected solar system can charge their battery with solar, self-supplying power for longer durations, if necessary.

In addition, GMP manages the charging/discharging patterns of the aggregated group of Powerwalls as a means to drive down costs for all GMP customers by reducing monthly and annual peak consumption. In 2017, GMP installed 90 Powerwalls at participating customer locations.

GMP worked with a third-party consulting firm to determine the net value of lifetime fossil fuel reductions per unit. GMP's energy savings amount for the program is based on the premise that power generated during peak periods comes from a demonstrably more carbon-intensive portfolio of sources than during off-peak hours. The Tier III quantification is based on the fossil fuel offset that occurs when off-peak power stored in batteries is dispatched into the grid during peak periods.

## IV. PARTICIPANTS' POSITIONS

GMP

GMP maintains that its battery storage program is an energy transformation project as defined in 30 V.S.A. § 8002(28), meets all the eligibility criteria of 30 V.S.A. § 8005(a)(3)(C)(ii) and (iii), and should therefore be eligible to receive Tier III savings credit.

GMP argues that its battery storage program meets the definition under Section 8002(28). First, GMP contends that Section 8002(28) clearly contemplates and specifically refers to the storage of renewable energy on the electric grid. Second, GMP argues that the battery storage program meets the requirements under Section 8002(28) for providing "energy-related goods or services" because it stores and emits energy, GMP controls the battery during peak periods to reduce its customers' consumption of fossil-fueled electricity, and the battery does not generate electricity, it only stores and emits energy. Third, GMP argues that the battery storage program meets the requirements that a project result in a "net reduction in fossil fuel consumption" by its customers because GMP's purchase of fossil-fuel-based energy sources during peak periods is reduced by the amount of energy discharged by the battery, and GMP's customers are the consumers of GMP's energy purchases.

Further, GMP argues that the definition under Section 8002(28) does not dictate where the generation of fossil fuel-based energy must take place, but instead focuses entirely on reducing the customers' consumption. GMP contends that the Department has misinterpreted the RES statutory requirements and the Order in Docket 8850[5] when it recommended disallowing the battery storage program for Tier III savings. GMP maintains that under Tier III distribution utilities must secure fossil fuel reductions for their own customers, but never mentions where the fossil fuel that is reduced must be located. In addition, GMP maintains that the Commission in Docket 8550 did not conclude that fossil fueled reductions must be physically located in a distribution utility's territory for a project to qualify for Tier III savings—rather it merely did not allow the trading of Tier III savings with another service territory. GMP adds that had the Vermont General Assembly required the fossil-fuel reductions to be physically located in a distribution utility's territory, it would have written this requirement into the statute.

GMP contends that its battery storage program meets the requirements of Section 8005(a)(3)(C)(ii) and (iii). GMP argues that Section 8005(a)(3)(C)(ii) allows a project to be eligible for Tier III savings as long the project reduces customers' use of fossil-fuel-based energy even if that energy is provided by the distribution utility. GMP asserts that its battery storage program satisfies the eligibility criteria because it reduces its customers' consumption of fossil-fueled energy supplied by GMP during peak hours. Further, GMP argues that the battery storage program satisfies the requirement of Section 8005(a)(3)(C)(iii) that the project meet the need for

[5] *Order Implementing the Renewable Energy Standard*, Docket 8550, Order of 6/28/16 at 30.

goods or services "at the lowest present value life cycle cost, including environmental and economic costs." GMP states that for non-participating customers the battery storage program leverages the value of reduced demand during transmission and capacity peaks to ensure the investment results in a positive net present value. For participating customers, the battery storage program serves as a low-cost, carbon-free alternative to fossil-fuel-fired backup generators.

Department

The Department argues that fossil fuel reductions that occur under GMP's battery storage program do not occur within the service territory of the distribution utility providing incentives for the storage device and that consequently, the savings do not satisfy the requirement of Section 8005(a)(C)(ii) that "the project shall result in a net reduction in fossil fuel consumed by the provider's customers." The Department interprets the language in Section 8005(a)(C)(ii) to require a net reduction in the fossil fuel consumed by the customer on its own property resulting in direct fossil fuel cost savings that are greater than any increased electrical usage by the customer. The Department contends that the qualifying project must be a net positive transaction for both the customer and distribution utility by reducing overall energy costs of the home or business while reducing the overall fossil fuel used in Vermont along with the corresponding reduction in greenhouse gas emissions.

The Department maintains that the fossil fuel reduction being claimed by GMP under its battery storage program is based upon average fuel mix at non-peak times versus the fuel mix at peak times which does not reduce fossil fuel consumption within Vermont since, for the vast majority of hours, there is no fossil fuel generation within the State. Further, the Department contends that the battery storage program is not consistent with the Commission's determination in Docket 8550 that prohibited a Tier III trading system based on an interpretation of the statutory language in Section 8005(a)(3)(A) to require distribution utilities to secure fossil-fuel savings for their customers in their own service territories.

The Department also contends that the use of storage as a Tier III measure raises concerns because the measurement and verification process require the establishment of a measurement boundary. The Department maintains that if the measurement boundary for the "net reduction" of fossil fuels is drawn around the home/premises of the Tier III participant, it creates an easily measurable set of potential measures that can be quantified, and if the

measurement boundary is drawn expansively to include the New England area, as GMP has proposed, then verification becomes more difficult and the spectrum of qualifying measures becomes unwieldy.

## V. DISCUSSION

GMP and the Department request that that the Commission provide additional guidance with respect to the eligibility of battery storage under RES Tier III. I recommend that the Commission conclude that GMP's battery storage program meets the eligibility requirements for RES Tier III.

Pursuant to 30 V.S.A. § 8002(28), an energy transformation project is defined as:

> an undertaking that provides energy-related goods or services but does not include or consist of the generation of electricity and that results in a net reduction in fossil fuel consumption by the customers of a retail electricity provider and in the emission of greenhouse gases attributable to that consumption. Examples of energy transformation projects may include … infrastructure for the storage of renewable energy on the electric grid.

An energy transformation category is established under 30 V.S.A. § 8005(a)(A). The category "encourages Vermont retail electricity providers to support additional distributed renewable generation or to support other projects to reduce fossil fuel consumed by their customers and the emission of greenhouse gases attributable to that consumption."

Pursuant to 30 V.S.A. § 8005(a)(C), for an energy transformation project to be eligible, it must comply with each of the following criteria:

> (i) Implementation of the project shall have commenced on or after January 1, 2015.
>
> (ii) Over its life, the project shall result in a net reduction in fossil fuel consumed by the provider's customers and in the emission of greenhouse gases attributable to that consumption, whether or not the fuel is supplied by the provider.
>
> (iii) The project shall meet the need for its goods or services at the lowest present value life cycle cost, including environmental and economic costs. Evaluation of whether this subdivision (iii) is met shall include analysis of alternatives that do not increase electricity consumption.
>
> (iv) The project shall cost the utility less per MWh than the applicable alternative compliance payment rate.

This proceeding considers the issue of whether GMP's battery storage project meets the definition of an energy transformation project under Sections 8002(28) and 8005(a)(3)(A) and meets the requirements under Section 8005(a)(3)(C)(ii) and (iii). The Department argues the

savings from the GMP battery storage program are not allowed under Tier III because the fossil-fueled electrical generation being avoided would not take place within GMP's territory or take place in Vermont. GMP argues that its battery storage program reduces its customers' consumption of fossil-fueled energy during peak periods and that there is no requirement that the fossil-fueled generation being displaced be located in Vermont.

Based on my review of GMP's 2017 Tier III saving claim and Sections 8002(28), 8005(a)(3)(A), and Section 8005(a)(3)(C)(ii) and (iii), I conclude that GMP's battery storage program meets the eligibility requirements for RES Tier III.

First, the battery storage program meets the definition of an energy transformation project under Section 8002(28). The battery storage program provides "energy-related goods or services" and "does not include or consist of the generation of electricity" because it stores and discharges energy. During transmission or capacity peak periods, GMP releases energy stored in the battery to the grid, thereby reducing GMP's requirement to make energy market purchases that match its customers' electric use. The battery storage program results in a "net reduction in fossil fuel consumption by the customers of a retail electricity provider" because GMP's purchase of fossil fuel-based energy sources during peak periods on behalf of its customers is reduced by the amount of energy discharged by the battery. The battery storage program results in a net reduction "in the emission of greenhouse gases attributable" to its customers' consumption because the energy resources purchased during peak periods are fossil-fuel based. Section 8002(28) does not specify that the net reduction in fossil fuel consumption by a distribution utility's customers come from sources located in Vermont. Further, Section 8002(28) contemplates examples of energy transformation projects that include "infrastructure for the storage of renewable energy on the electric grid."

Second, the battery storage program meets the goals for the energy transformation category established under Section 8005(a)(3)(A), which encourages distribution utilities "to support projects to reduce fossil fuel consumed by their customers and the emission of greenhouse gases attributable to that consumption." As discussed above, the battery storage program reduces the amount of fossil fuel consumed by GMP customers during peak periods by the amount of energy that is discharged from the battery during those periods. Further, Section 8005(a)(3)(A) does not specify that the fossil fuel consumed by customers come from sources located in Vermont.

The battery storage program is consistent with the Commission's determination in Docket 8550 that prohibits a Tier III trading system.[6] In Docket 8550, the Commission read Section 8005(a)(3)(A) to require distribution utilities to secure fossil-fuel savings for the customers in their own service territories, and thus concluded that the trading of Tier III credits was prohibited. The Department incorrectly contends that the battery storage program is not consistent with this determination. In this instance, GMP is securing fossil-fuel savings for its customers by reducing the amount of fossil fuel consumed by its customers during peak periods by the amount of energy discharged by the battery. While the fossil fuel reduction occurs from energy resources located outside of Vermont,[7] the fossil fuel savings are on behalf of GMP customers. Thus, the energy storage program is consistent with the determination in Docket 8550 and requirements of Section 8005(a)(3)(A).

Third, the battery storage program meets the eligibility requirements under Section 8005(a)(3)(C)(ii). The documentation in GMP's 2017 Tier III savings claim demonstrates that over the life of the program the battery storage program will "result in a net reduction in fossil fuel consumed by" GMP's customers and in a net reduction "in the emission of greenhouse gases attributable to that consumption." Over the life of the program, the battery storage program reduces GMP customers' consumption of fossil-fueled electricity supplied by GMP during peak hours. This reduction in fossil fuel is consistent with the eligibility requirements of Section 8005(a)(3)(C)(ii).

Fourth, the battery storage program meets the eligibility requirements under Section 8005(a)(3)(C)(iii). The documentation in GMP's 2017 Tier III savings claim demonstrates the battery storage program will "meet the need for its goods or services at the lowest present value life cycle cost, including environmental and economic costs." GMP has provided a lifecycle analysis of the energy storage program that demonstrates the savings of MWh, fossil fuel, and carbon emissions. The lifecycle analysis is consistent with the eligibility requirements of Section 8005(a)(3)(C)(iii).

Finally, the Department raises concerns about the measurement and verification of the battery storage program, specifically with respect to the difficulty of establishing a measurement boundary that includes all of New England. While measurement and verification of the battery

[6] Docket 8550, Order of 6/28/16 at 30.
[7] Not taking into account in-state fossil-fuel-fired peaking units.

storage program may be more complex than some energy transformation projects, the issue of the measurement boundary exceeding the distribution utility's service territory is not unique to battery storage. Other energy transformation projects, like electric vehicles, may face similar challenges. These measurement boundary challenges should not disqualify a project from Tier III eligibility.

GMP's 2017 Tier III savings claim provides its recommended process for measuring the savings from the battery storage program.[8] As established in Docket 8550, I recommend that the Department and GMP work together through the Technical Advisory Group process to determine an agreed-upon process for measuring and verifying the savings of the battery storage program, including determining whether the program may be characterized as a prescriptive measure. If an agreed-upon approach cannot be reached, the Department and GMP should request resolution from the Commission.

## VI. CONCLUSION

Based on the consideration of the parties' comments and recommendations, I recommend that the Commission conclude that GMP's battery storage program meets the eligibility requirements for RES Tier III.

This proposal for decision is being circulated to the parties for their review and comment in accordance with 3 V.S.A. § 811.

Dated at Montpelier, Vermont this 20th day of March, 2019

Mary Jo Krolewski
Hearing Officer

[8] GMP's 2018 Tier III savings claim also includes a battery storage program. *See* Case No. 19-0716-INV, *Green Mountain Power Cutting Carbon: RES Tier III Savings Claim Report 2018 Plan Year*, March 15, 2019.

## VII. ORDER

IT IS HEREBY ORDERED, ADJUDGED, AND DECREED by the Public Utility Commission of the State of Vermont that the conclusions and recommendations of the Hearing Officer are adopted.

Dated at Montpelier, Vermont, this _____.

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|---|---|
| _____ Anthony Z. Roisman | PUBLIC UTILITY |
| _____ Margaret Cheney | COMMISSION |
| _____ Sarah Hofmann | OF VERMONT |

OFFICE OF THE CLERK

Filed:

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)*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Commission within thirty days. Appeal will not stay the effect of this Order, absent further order by this Commission or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Commission within twenty-eight days of the date of this decision and Order.*

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