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Mrs. Judith Whitney, Clerk
Vermont Public Utility Commission
112 State Street
Montpelier, Vermont 05620-2601

Re: *Review of the Standard Offer Program 17-5257-INV*

Dear Mrs. Whitney:

Green Mountain Power appreciates the opportunity to comment on the Order ("Order") issued on December 29, 2017 in Case Number 17-5257-INV regarding the Standard Offer Program.

Overview

GMP has supported and helped accelerate the adoption of distributed generation in Vermont since 2008, when we launched the first solar "adder" to encourage net-metering and also through the Standard Offer program. The overwhelming success of distributed renewable growth in Vermont is evident by the fact that as of January 1, 2018, distributed generation capacity in GMP's service territory, including Net Metering, Power Purchase Agreements ("PPAs"), Standard Offer, and others, totaled approximately 30% of GMP's 2017 peak demand.

We understand that, among other things, this puts GMP among the highest penetrations of distributed solar power in the nation. It signals that Vermont's policies promoting renewable growth have largely succeeded.

Mindful of all the changes that have occurred since the Standard Offer's inception, GMP provides comments on the following topics to assist the Commission to better define the scope and goals of this programmatic review:

- evaluation for selection of Standard Offer projects;
- circuit and grid data;
- generation resources with storage capacity;

- transmission costs;
- exemption from the program; and
- other program enhancements.

Evaluation for Selection of Standard Offer Projects

The Standard Offer program has supported the development of substantial volumes of new distributed renewable projects in Vermont. PPA pricing for many projects that reached commercial operation in the past several years was determined by competitive bidding. This has helped to limit the cost of the program to customers of GMP and other purchasing utilities, and price is one critical consideration when evaluating projects. Although a meaningful fraction of projects awarded Standard Offer contracts have ultimately been delayed or cancelled for various reasons by their developers, such outcomes may slow the pace of development but not the ultimate volume that will be developed under the program. Considering the extraordinary pace of distributed renewable development that is already occurring in Vermont, in our view the benefits of price competition significantly outweigh the limitations. We are hopeful that some of the refinements to the RFP process that were proposed to the PUC for use starting in the 2018 RFP will, if implemented, help to limit the attrition risk for future projects.

Beyond price, each project should ideally be reviewed with a focus on the true costs and benefits it provides for Vermont's electric customers. A low-priced project located in a constrained area may have far fewer benefits for customers than a well-sited project with a slightly higher per kWh price. With this in mind, evaluation of standard offer proposals would ideally consider the project's location on the grid and any potential constraints or other factors (e.g., the profile of output based on the project's technology) that could affect the benefits associated with the project. Consideration of the true costs and benefits of a project could be accomplished in a variety of ways (e.g., adjusting the project's bid price for positive or negative factors, having an additional scoring mechanism outside of pricing etc.). It may be worthwhile to explore different ways to evaluate these Standard Offer projects in the 2019 Request for Proposal ("RFP").

The Order referenced the New York Public Service Commission's Benefit Cost Analysis Framework as one example of a method to value the costs and benefits of distributed energy resources. Based on our review and understanding, this is a complex and costly tool that appears to require a deep understanding of the factors impacting both near- and long-term market prices for various power market products; rapidly changing ISO-NE market rules; how existing renewable generation resources are affecting peaks; and economics. When taken as a whole, developing, maintaining, and applying a benefit/cost framework along these lines is likely to be a significant undertaking that will require a significant investment of time by stakeholders and the Commission over time. It will also be important to keep in mind the magnitude of potential locational value that may be harnessed by directing distributed generation toward preferred locations or away from costly and problematic ones. For example, Vermont presently exhibits very limited (if any) peak demand growth, and there appear to be few growth-driven transmission or distribution projects that are candidates for deferral. While GMP believes there is likely value in adopting such a Benefit Cost Analysis Framework in some circumstances, it is not necessarily clear that it is the appropriate model for this program. It will be appropriate to consider whether the administrative costs and complexity of maintaining such a model would be

excessive for Vermont's needs associated with analyzing a limited number of projects (each 2.2 MW or smaller), which are bidding for a maximum of 10 MW of Standard Offer contracts per year.

While the Benefit Cost model may not be the appropriate method to evaluate Standard Offer projects, we still should address the inherent limits of the current avoided cost cap methodology which focuses on the costs of a well sited, technology-specific project, but does not assess the value of the project's output for Vermont's electric customers. This type of evaluation may lead to the selection of projects where costs significantly exceed the potential benefits to customers over the life of the PPA, especially for technologies that have high avoided cost caps. The result would be customers paying significantly more than they otherwise would have paid for renewable generation resources. To prevent such results, it would be worthwhile to explore a new hybrid methodology between Vermont's current methodology and a complete Benefit Cost model.

Circuit and Grid Data

As part of the process of understanding how potential grid constraints affect the value of proposed projects, it is reasonable to consider whether the location on the grid is able to support additional generation without significant system upgrades and other relevant information. One possible tool to provide such information is a circuit-level review of the grid, but consideration must be given to the fact that creating and maintaining such a tool is a complex and time-consuming process, and the more dynamic the information the tool provides (e.g. changing loads, addition of generation resources, etc.), the more resource intensive the tool becomes. GMP believes that there is value associated with the VDUs periodically providing some sort of ranking of circuits and locations that have reached, or are close to reaching, their limit for additional generation resources without significant system upgrades or additional load. GMP utilizes multiple tools to review the distribution system which includes analytical load flow planning software, geospatial information (GIS), AMI metering data systems, SCADA data systems, among others. Combined, these systems provide us with a dynamic tool set that is used to determine where constraints currently exist or where they will occur over time given specific load growth scenarios. In most scenarios, we are not seeing load growth driving the need for system improvements (due to lack of growth), but running up against limitations of distributed generation hosting capacity. These limitations are displayed on the GMP Solar Map by circuit.

Generation Resources With Storage Capacity

Combining storage technology with distributed generation is happening on the grid and is anticipated to be an important way for utilities to drive down costs of the bulk grid for customers. Incorporating generation resources with storage capacity into the Standard Offer program raises a number of questions for customers. First, the Standard Offer program authorizes the Commission to issue standard offers for renewable energy plants that meet certain eligibility requirements.[1] Batteries do not produce renewable energy as that term is

[1] 30 V.S.A. § 8005a(a).

defined in Title 30[2]; rather, batteries store energy and later discharge it, which could make battery storage ineligible for participation in the program. Second, GMP views battery storage as a load management device that can provide power supply benefits such as peak management and Frequency Regulation Service that benefit customers. It is important to recognize, however, that the value associated with battery storage is highly dependent on the characteristics of the individual storage system (e.g., ratio of energy storage to maximum output, round-trip efficiency, quickness of response), as well as how the system is managed. Thus, the value per kW of storage capacity can vary greatly from project to project. It is therefore not clear to GMP how the value of battery storage would be determined without an understanding of what services would be provided by the devices; who would be responsible for managing their operation; and what sort of performance guarantees would be provided. Additionally, some potential benefits of storage (e.g., peak management) will be subject to diminishing returns as the volume of storage on the system increases, making it important to acquire storage as cost-competitively as possible.

Transmission Charges

GMP believes that it is reasonable to seek ways to minimize transmission charges associated with new Standard Offer projects, so long as this does not meaningfully increase the total cost of the program for Vermont's customers (e.g., by causing the selection of meaningfully more costly Standard Offer PPAs). It is also important to recognize that unless deployment of Standard Offer generation in a particular location requires meaningful upgrades to the distribution grid, wheeling charges from one VDU to the other VDU are essentially transfer payments. That is, although wheeling charges can change the effective cost of power from projects to the customers of particular VDUs, they do not generally increase the total cost of the power to Vermont customers as a whole. In short, transmission charges paid by one VDU represent revenue to another VDU. In addition, since transmission service is covered by tariffs, there are challenges to changing and/or reducing wheeling charges for each of the VDUs.

Exemption From The Standard Offer Program

As the Standard Offer program was envisioned as a statewide program it does not seem reasonable to exempt specific VDUs and their customers from sharing in the costs and benefits of the program – particularly when the primary effect of such exemptions is to reallocate the output and costs associated with Standard Offer projects that have been operational for many years. Exemptions have been granted to VDUs that already have reached 100% renewable generation, and once a VDU is exempt the program's output is allocated to the remaining VDUs for the following year. This additional allocation can create rate pressure for the customers of other VDUs. Exemptions granted to other Vermont distribution utilities in recent years accounted for approximately $1 million of cost pressure for GMP customers in 2017.

Other Program Enhancements

There are a number of possible program enhancements that would strengthen the RFP process. These include structural enhancements such as requiring larger, and at least partially nonrefundable deposits; tighter timeframes for achieving commercial operation; and smaller

[2] Renewable energy is defined as "energy produced using a technology that relies on a resource that is being consumed at a harvest rate at or beyond its natural regeneration rate.

technology set-asides. As VEPP Inc. discussed in its comments in Investigation 17-3935 dated October 20, 2017, the use of non-refundable deposits would help ensure that only those projects that are viable and likely to reach commercial operation apply. This would help screen out projects that are in the initial stages of development and unlikely to reach commercial operation. Along the same lines, tightening the timeframe for reaching commercial operation, when combined with larger or non-refundable deposits, would help to ensure that the developer does not view construction as optional, with a guaranteed specific price, while waiting to see if the cost of constructing the project will fall.

Thank you for the opportunity to comment on the Standard Offer program. If you have any questions please feel free to contact me at (802) 655-8462 or at Doug.Smith@GreenMountainPower.com.

Sincerely,

Douglas C. Smith

Douglas C. Smith
Director, Power Supply
cc: Service List (ePUC Only)