



To: DGFVG Matters

From: Anne Margolis, Renewable Energy Development Manager
Ed McNamara, Director of Energy Policy & Planning

Date: March 15, 2017

Re: Comments on Draft 2017 PV Forecast

The Vermont Department of Public Service (VDPS) offers the following comments on the 2017 draft Distributed Generation PV forecast.

The VDPS appreciates that ISO-NE considered our December 16, 2016 presentation in formulating its 2017 draft PV forecast (“draft forecast”). In our December 16 presentation, the VDPS assumed that, to meet the Vermont Renewable Energy Standard (RES) requirements that went into effect January 1, 2017, Vermont would expect to see approximately 25 MW of PV installed each year over the 10-year forecast period. The presentation further noted that growth required by the RES will be met with projects under the existing Standard Offer and net metering programs, and to a lesser extent from utility-owned or contracted projects outside of these two programs.

As part of its draft forecast, ISO-NE noted that 73.8 MW of PV was installed in Vermont in 2016 and, given that the RES requirements drive the policy need for PV in Vermont, suggested lowering the amount of PV anticipated in the next three years. The VDPS appreciates the work of ISO-NE in attempting to adjust the PV forecast to reflect the RES requirements; however, the VDPS recommends a different approach related to the significant amount of PV installed in Vermont in 2016, as explained below.

The 25 MW per year required for the RES do not reflect what will get built in any given year. The Standard Offer program provides a fairly predictable forecast of new PV based on the amount that is solicited each year through the RFP process and the percentage of that which has historically been PV. However, the net metering program no longer has a specific cap but instead uses a biennial (starting in 2018) mechanism to adjust the price paid under that program. To the extent that there is more net metering than necessary, when combined with the amount of Standard Offer projects commissioned, there may well be more PV installed than necessary to meet the RES.

The utilities do not have control over the pace of these programs; pursuant to statute the Public

Service Board must solicit a certain amount of Standard Offer per year, and the amount of net metering will be dependent on the level of interest in the incentive offered under the program (it is important to note that Vermont does not yet have experience with how responsive net metering growth will be to the adjustment mechanism newly included in the program). The RES does allow for some amount of banking of RECs and the VDPS expects that utilities will utilize this mechanism. However, it is also possible that RECs from Standard Offer program projects could be sold if the amount of Tier 2 RECs is greater than necessary. For these reasons, there may well be more than 25 MW commissioned in any given year; the VDPS specifically recommended 25 MW as this is the amount necessary to meet RES requirements and the forecast has been based upon Vermont policies; and further there is insufficient experience to predict the level of PV that would be installed beyond the RES requirement. The VDPS recommends therefore that lowering of future RES-driven forecast, if any, should be implemented beyond 2018.

There are several policy drivers that support near-term PV deployment in Vermont of 25 MW or more per year. First, the RES distributed generation tier (“Tier 2”) that is a primary policy driver for distributed PV growth in the state can only be met with “new” projects, meaning projects that were commissioned after July 1, 2015. The draft forecast assumes the Standard Offer program will promote 110 MW of PV (out of 127.5 MW total growth) and that all RECs will be sold to utilities and count toward Tier 2. It is important to ensure that the draft forecast is only considering Standard Offer projects commissioned after July 1, 2015, which will be some subset of that 110 MW. Note that approximately [38.5 MW of PV projects](#) were commissioned under this program prior to July 1, 2015. Another 8.4 MW of PV has been commissioned since July 1, 2015 that could be used for Tier 2 compliance, and an additional 15 MW of PV has been contracted but not yet commissioned. Overall, PV projects represent approximately 62 of the 76 MW of projects that have contracts (or 82%). Another approximately 55 MW of projects will be bid into the program in 2017-2022 (7.5 MW/year in 2017 and 2018, and 10 MW/year in 2019-2022). If the same technology trends hold, 45 MW of that will be PV (6 MW each in 2017 and 2018, and 8 MW/year in 2019-2022).

Second, installations of net metering projects in 2016 will not contribute toward Tier 2 compliance in any meaningful way, because the previous net metering program (which expired at the end of 2016) did not incentivize assigning project RECs to utilities. Therefore, all net metering commissioned in 2016 should be subtracted from any 2016 PV growth assumed to be used for future RES Tier 2 carveout compliance. The draft forecast assumed that 43.8 MW could be used for future compliance with RES (all but 25 MW of 2016 growth). However, Green Mountain Power (the dominant utility in Vermont representing 80% of state load), saw approximately 40 MW of net metered projects installed in 2016, and the vast majority of these projects cannot be used for RES compliance.

Third, it is reasonable to expect that the [new net metering program](#), which started January 1, 2017 (and which does incentivize assigning project RECs to utilities) is likely to drive PV deployment beyond the 25 MW/year needed to meet the RES Tier 2 – at least in 2017 and 2018 – due to pent-up customer demand after the expiration of the old net metering program, and continuing strong financial incentives that are not scheduled to be adjusted until at least 2018.

In late 2015, Green Mountain Power met the 15% of peak load “cap” to which they were

required to allow net metering, thus effectively closing net metering to projects > 15 kW for all of 2016 (other than 7.5 MW worth of 150 kW projects the utility received special permission to allow). Thus, a number of projects that would have moved forward through permitting and possibly commissioning in 2016 were pushed back to 2017. The new net metering rule restricts projects > 150 kW (and < 500 kW, the net metering project size limit) to “preferred locations,” acting as a limiter (in addition to reduced financial incentives) on the number of larger net metering projects that will ultimately move forward from the pent-up demand pool.

And, while the net metering financial incentives under the new program are lower than those under the old program, they are still generous enough to be driving strong demand (\$0.09 to \$0.19/kWh, depending on siting and disposition of RECs). As of mid-February 2017, Green Mountain Power [had received nearly 6 MW worth](#) of net metering applications since the start of the year; if that pace continues, 36 MW of net metering would be deployed in Green Mountain Power service territory alone. However, 2/3 of that application capacity was from systems > 150 kW, indicative of pent-up demand projects and unlikely to continue through the entirety of 2017. Another Vermont distribution utility, Vermont Electric Cooperative, [represents that they have received 1.77 MW of applications in the first 45 days of 2017](#) and at that pace would achieve 14.7 MW of total applications by the end of the year. (Note that PV systems historically represent 96% of net metering systems.)

Vermont’s new net metering program, which went into effect at the start of 2017, does not include any annual or cumulative cap on the amount of capacity that utilities are required to interconnect. Rather, it contemplates a biennial review process, the first of which will happen in 2018, to modify the financial “adjustors” modulating pacing and other program goals. Pacing under the net metering program is tied not only to the RES but also to the Comprehensive Energy Plan “and any other relevant state program.” Ostensibly this would include statutorily required [factors other than necessary deployment to meet the RES](#) that must be considered in any evaluation of net metering adjustors, including ensuring “all customers who want to participate in net metering have the opportunity to do so.”

Therefore, it is reasonable to expect that *at least* the 25 MW needed to meet the RES will be deployed as PV in 2017 (and likely again in 2018). The VDPS supports a level deployment of 25 MW/year over the entire forecast period modified by the appropriate discount factors; this approach is most consistent with a policy-based forecast and reflects the uncertainty associated with PV growth from net metering projects. The VDPS is not inherently opposed to the idea of reducing the 25 MW amount for specific years if that amount is significantly exceeded in a year; however, the expiration of the old net metering program and change in program rules starting in 2017 have led to a specific circumstance in which the 2016 PV amounts will not reduce future RES obligations and there is a built-up demand for new net metering projects in 2017 and 2018. At the end of 2017, Vermont will have more experience with the new metering program and will also have a better sense of the extent to which the Vermont utilities will be using the RES banking provisions.

The VDPS also appreciates the comments provided by David Hill of Vermont Energy Investment Corporation (VEIC) during the DGFWG meeting on February 28 regarding the pace of PV deployment required to achieve Vermont’s Comprehensive Energy Plan (CEP) goal of

90% renewable by 2050 (across all energy sectors) according to the scenarios studied in VEIC's [Solar Market Pathways report](#). The Department's CEP itself envisions multiple pathways to achieving 90% by 2050, and perhaps more importantly, sets a goal that presently lacks the weight of both a specific statutory underpinning and an enforcement mechanism. Therefore, the Department does not consider it an explicit "policy" to guide projections of deployment that would inform the 2017 PV forecast, though we do recognize it may contribute to any evaluation of pacing conducted as part of the net metering program's biennial adjustor review. The enforceable and statutory policies we do consider were represented in our December 16, 2016 presentation to the Distributed Generation Forecast Working Group and inform the deployment projections we presented at that time along with the further detail provided in this letter.