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May 8, 2019

Olivia Campbell Anderson
Executive Director, Renewable Energy Vermont

Re: GMP – Resilient Home Innovative Pilot

Dear Olivia:

Green Mountain Power is a proud member of Renewable Energy Vermont ("REV"), and supports the work you do to advance Vermont's use of local, clean energy in the fight against climate change. I appreciated the opportunity to share with you our Resilient Home Innovation Pilot filing over four weeks ago; we have worked hard especially in recent months, as you know, to increase our outreach to you so that we can both work on behalf of customers to move quickly and offer innovative programs that advance our renewable energy goals. I have reviewed the letter you sent this week regarding the Pilot and I'm offering this to clarify points, clear up confusion, and respond to your suggestions.

The Resilient Home program is about growing market solutions for customers and upending the decades old model of energy delivery by making the traditional utility meter obsolete. We're creating more choices with this revolutionary approach and delivering a climate resilient solution, greater reliability for customers, and the opportunity to dramatically reduce carbon and costs. Battery storage systems are becoming an integral part of the energy delivery system, no different than the traditional poles and wires except for the fact that battery storage systems can cover their own cost and produce value for all customers.

We've been open, transparent and encourage multiple energy storage options. Regarding the recommendations in your letter, there are already areas we are doing what you ask, and plan to do:

- The BYOD program already allows for what you call "closed storage systems".
- GMP is happy to provide the API and technical requirements to REV and other storage companies and look forward to having you propose solutions back so they can be

evaluated for cost, reliability, and safety. The timeline will be determined through an open and transparent process with REV.

- The Pilot will allow all batteries eligible for the current BYOD to participate in the subscription portion of the Pilot following the requirements for subscription pricing; we agree with REV that this is a very positive feature of the program.
- GMP is committed to filing a tariff for the Tesla Powerwall and is actively working on it now; we are very excited to move forward for customers.
- We have made sure our announcements and other promotion for this new Pilot made clear that it includes equal room for BYOD/third party offerings. We are also happy to continue work with you on joint BYOD promotion, as previously offered and continue to promote these other options when talking to customers and on our website. Our team continues to push customers to BYOD options when discussing the program as well.
- The customer protections request appears to be based upon misinformation. Participation in all GMP pilots are completely voluntary and have a customer agreement that lays out all of the terms and conditions for the customer.
- We are also open to discussing additional deployment options that provide other channels for third party installers to participate specifically with the Powerwalls in the GMP pilot. GMP will review this change with the DPS and propose an amendment to the Pilot filing.

Resilient Home Pilot Program Benefits all Customers

Battery storage is going to be instrumental in assuring there can be continued deployment of distributed PV on the distribution system. The goal of this pilot is to show battery storage systems can provide a greater level of metering data information than the utility AMI meter system, and offers the potential to reduce costs by eliminating the need for a single-purpose house meter, while providing GMP with a resource to manage peak- and energy- related costs to drive down costs for all customers. It also provides customers with a flexible, local backup power source (which a traditional meter cannot do). The Pilot is modeled to offer both innovative solutions for participating customers and overall savings for all customers. In the case of this pilot, we are projecting a benefit to non-participating customers of approximately $1.4M.

The pricing is done so that it produces a benefit for all customers which is shown within the pilot filing. It is a direct result of the cost of the equipment and installation, the value that is produced for power supply along with any tax credits that can be achieved when paired with solar. The pricing would depend upon equipment costs, installation costs, the level of customer support offered and other factors that would vary from manufacturer to manufacturer.

Customer experience is also critical to assuring that batteries become an accepted part of the home and business, which is why we have a level of due diligence with battery systems prior to accepting them into a program or deploying on a larger scale. They must function for the host customer and provide value for all customers.

The direct GMP Powerwall offering provides additional value in the form of an Investment Tax Credit when paired with solar as well as an additional 5 years of power supply value. With respect to the BYOD program, the ITC can be taken by the customer if they so choose but it must be managed with the appropriate level of charging from solar. Further, we can not extend the additional 5 years of value to systems not owned and maintained by GMP for several reasons. First is that Tesla is providing a peak performance guarantee to assure the batteries will provide the peak value that is determined in the model to all customers. Additionally, GMP has oversight of the installation process and assuring batteries are maintained and in proper working order in our direct offer program. In BYOD it is up to the customer or their installers to assure the batteries remain in working condition throughout the life of the program. And at this point a peak performance guarantee is not available from all battery providers in the BYOD program. It should be noted however that in the case of BYOD, we have provided an increased incentive when batteries are added to areas of the grid that is currently constrained on the GMP solar map. We do not assume any additional financial incentive for the GMP program in these locations.

Storage Options

It is important to note, that the choice of the Powerwall for our initial Pilot allowed us to learn what is possible with an integration platform that provides very responsive algorithms for load control, at a good cost for participating customers and with good value for nonparticipating customers, backed by a very competitive warranty and performance guaranty. Now that we have completed that Pilot, using the Powerwall for the next step of investigation -- meterless data management and billing -- makes the most sense and maximizes the value of our prior Pilot learnings for the benefit of all our customers. We have made clear in the Pilot filing, at REV's suggestion, that we will provide our API requirements to any manufacturer interested in pursuing a similar solution with us. We would very much welcome that opportunity and any help you can provide to make it happen.

While the Powerwall is the first battery system to be integrated, our vision is to quickly expand to other battery solutions that can provide the right format of data and have the appropriate reliability needed for the billing system. Consistent with REV's suggestion, the Pilot specifically states that GMP will share its API requirements with other manufacturers and work with them

to determine whether their system can be utilized for the same type of pilot, with quality metering data and good value for all GMP customers.

There are some misconceptions in your letter that I'd like to clear up: First, there is no additional charging compared to the normal peak dispatching that will be done with the battery systems, so it is unclear what REV is referring to with respect to 'lifecycle impacts of this additional charging…'

Also, the Powerwall is not the only system that GMP integrates with or supports for other values such as peak management, nor is it the only system that has been evaluated. Over the past several years, GMP has had communication with many battery manufacturers; some GMP contacted directly and some were connected to GMP by other Vermont installers. These include Sonnen, LG, SolarEdge, enPhase, PIKA, Sunverge, and SimpliPhi. An initial review and in some cases, actual installations were done on each one to determine if the systems were compatible, reliable and met the specifications to best serve customers. Maintaining the safety and reliability of our system is at the center of all we do. Ultimately, the most reliable systems were chosen to integrate into our BYOD program which currently are Sonnen, Sunverge, Powerwall and soon to include PIKA.

GMP, in partnership with REV and REV member direct feedback, recently launched the BYOD 2.0 to encourage customers to acquire different devices and battery systems, so that both customers and installers have greater options for the storage devices being installed. There is still plenty of room for participation in the BYOD Pilot.

Right now, the majority of currently enrolled systems in the BYOD program are actually Tesla Powerwalls. The only other systems that have been enrolled in BYOD to date are Sonnen systems. The BYOD pilot offers a monthly credit or up-front payment to customers. GMP is always open to sitting with folks and walking through our platforms, how we dispatch resources, the value that is created, how we track it, etc. The BYOD Pilot is offering the largest incentive for energy storage for any utility in the country; therefore, we do not believe the Resilient Home Pilot (which itself creates equal room for third-party provided Powerwalls) can be fairly considered a barrier to customers choosing among the proliferation of other battery systems in the market.

Transparent About Performance

GMP recently filed the final report for the Grid Transformation Pilot, our first residential storage pilot. The filing outlined the peak reduction performance of the GridLogic platform. The pilot has already achieved a net gain of $486,132, which flows 100% to all customers. This report was

sent to REV on April 15, 2019. Additionally for the GMP Powerwall program, the full financial models, cost analysis, and performance was provided in a fully litigated rate case.

As you will see in our response above GMP has engaged with many battery manufacturers and is always open to engaging with more. REV members can bring these to GMP at any time for review. It is also important to dig into the details of each battery solution. As some REV members discovered, in some batteries the listed energy storage cannot actually be utilized and you end up with something considerably less. There are discrepancies in what some battery manufacturers say and how the systems actually function once GMP has installed systems for testing. We are happy to share in detail with REV some of those issues we have found with battery companies they mention.

Efficiency

Your letter also mentions 'more efficient.' Some battery manufacturers are only providing the battery itself and are not including the inverter needed to transform the energy from DC to AC. The Powerwall has a self-contained inverter so this is all handled within the single battery system. When comparing cycle efficiency, it is important to make sure you are comparing apples to apples and including efficiency of both the battery itself along with the inverter equipment. While GMP had not previously heard of the Humless system we will connect with them to learn more. Our quick review is that they are a considerably more expensive system with less power and energy than the Powerwall system. The 10kWH system for example can output at 3.4kW and costs approximately $20,000 not including installation. Tesla advertises the Powerwalls online at approximately $14,500 for two units which would provide 27kWHs and 10kW of power.

Cost Effective for Customers

It is not clear what REV means in its letter by more "economically responsible" for Vermonters. What we have seen so far is from a cost/kWH basis, the Powerwall has been the leader, but that being said we completely respect the option for customers and solar installers to utilize other solutions that work for them, even if more expensive.

GMP has worked extensively with Sonnen including deployment of battery systems in the field, and has qualified these systems for BYOD participation. While it tends to be a more costly system, it provides more options for solar providers and customers to choose from.

REV mentions the comparison of LFP batteries. To date we have not seen any battery manufacturer provide a warranty for an 18-20 year lifespan

So, some of the challenges include product availability in Vermont, higher equipment costs and added costs of communication (translating both to potentially lower interest for customers seeking a battery and lower available value for nonparticipating customers), and variable customer support. Also, not all systems have good ability at this time for utility shared access and monitoring. However, GMP has continued to have and welcomes discussions with all battery manufacturers and continues to work with each one to connect with Virtual Peaker, GMP's platform available to these systems, in order to provide the opportunity to integrate and become a compatible GMP system for GMP's BYOD program.

Subscription Pricing

BYOD customers that join this Pilot absolutely can participate in the subscription flat pricing, as REV suggests. With respect to the flat subscription electricity pricing, in the absence of existing data on how customers' behavior changes in a flat pricing model, GMP chose to test a value of 7% higher than the average usage within each tier. At this value, the pilot is very likely to provide an excess value for non-participating customers. Plus, this option is entirely voluntary.

Accurate Pricing to Benefit Customers

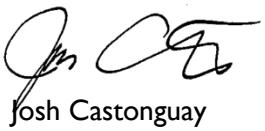
GMP strongly disagrees that the Powerwall program is a 'subsidized' program, as recently confirmed by the PUC during the GMP 2019 full rate case. It also does not mask the true costs of available technologies. As stated previously, there are many alternative technologies, but at this point they have not become cost competitive with the Powerwall solution. GMP expects however, that we will see more battery technology options drop in cost and become more cost competitive in this space. Even so, we still feel it is important for customers to know that they always have a choice and can choose a different system for other personal reasons, which is why we created the BYOD program.

The BYOD program was designed in a way that allows the customer to determine what the depth of drawdown will be in exchange for the incentive credit that they would like to receive. Customer experience and satisfaction is of the utmost importance for us as we hope it is for other REV members installing systems in customers' homes and we encourage any other REV member or customer to contact GMP at any time if a concern arises. In fact, to date, there have been fewer Peak Events called for BYOD customers than was communicated originally. In only one instance, for a single BYOD participant (not a GMP Powerwall participant) has there been a more significant drawdown of energy than expected, and after immediate follow up it was determined to be caused by the battery manufacturer's incorrect data flowing through the API. All GMP Powerwall customers are participating with the understanding that GMP has shared access with the battery system and will utilize the batteries to maximize benefits for all

customers while balancing and maximizing the battery availability to the customer in the event of an outage.

Battery storage is the key to making renewable energy local and cost-effective for Vermonters, which is critical in the fight against climate change. BYOD and the Resilient Home pilot are examples of how we can work together to transform the grid to make it more dynamic for more distributed generation, and provide greater energy independence for customers to cut carbon and costs. There is so much we can accomplish as a team. I look forward to continuing to talk and deliver solutions that benefit Vermonters.

Sincerely,



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Rebecca Foster, Efficiency Vermont
Judith Whitney, Vermont Public Utility Commission