

THE STATE OF NEW HAMPSHIRE  
BEFORE THE  
NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION

Docket No. DE 17-189

Liberty Utilities (Granite State Electric) Corp.  
d/b/a Liberty Utilities

**Petition to Approve Battery Storage Pilot Program**

**Technical Statement of Heather M. Tebbetts**

January 22, 2021

**A. Purpose of Technical Statement**

On January 18, 2019, Liberty Utilities (Granite State Electric) Corp. (“Liberty” or “the Company”) received Order No. 26,209 in this docket approving a settlement agreement that was reached in support of its proposal for a battery storage pilot program.

This technical statement provides updates to the operation of the program and requests a Commission ruling confirming that customers with solar installations are allowed to charge their batteries from the electric grid.

**B. Installations as of Date of Filing**

As of the date of this filing, the Company has 98 customers with meters that allow the capture of interval data, 66 of those customers have batteries that are fully operational and taking service under Rate D-11, and six of those 98 customers have batteries installed utilizing back up mode only. Of the 66 customers with operational batteries, there are 22 with solar at this time, although seven other solar customers have pulled out of the program once they understood that they could not charge their batteries from the electric grid, but only from their solar installations. The six customers with backup mode only have simply not yet submitted their Certification of Completion paperwork as required in the Company’s interconnection tariff to allow for full utilization of the batteries and time-of-use (TOU) rates.

**C. Solar Customer Charging**

The Settlement Agreement provides as follows:

Net-metered customers shall not be permitted to charge their batteries from the grid except when the batteries are under Liberty’s control; subject to the foregoing limitation, those customers shall receive credit for all energy exported to the grid, whether from their batteries or from their DG, according to the terms of the Alternative Net Metering Tariff with credits determined based on the TOU rates.

Settlement Agreement at Bates 7-8 (emphasis added).

At the time of the Settlement Agreement and Order No. 26,209, the above language

reflected the intent that customers would retain control over their batteries except when Liberty took control in advance of a projected peak event so that Liberty could fully charge the batteries from the grid and thus be ready for dispatch. This has changed due to advances in Tesla's software over the intervening years. The programming of the batteries now provides that customers may only see what the batteries are doing on their smartphone app, but they never have any control over the batteries. Liberty (through Tesla's software) retains control as to when the batteries are charging and when they are dispatching power, either to the customer's home or the grid.

The algorithm provided through Tesla's software currently dictates that the customer's batteries will only charge from their solar installation, unless otherwise directed by Tesla when a peak event is predicted more than 24 hours prior. Again, any control by the customer has been removed from the programming which means that at all times the batteries are under Liberty's control.

The above arrangement is in place because Staff suggested during recent technical sessions that Order No. 26,209 may be read to require customers with solar to charge their batteries only from their solar installations and not the electric grid, based on a different interpretation of the above language in the Settlement Agreement. Liberty does not believe that suggested interpretation is correct because the language limiting solar customer's ability to charge from the grid is only applicable when the Company does not have control of the batteries, which is never the case as purposely provided by the programming.

Administration of the program using Staff's suggested interpretation has caused problems. Since early fall of 2020, the Company has received several complaints from customers due to the fact that their solar systems are either not large enough to charge the batteries during the winter, or they are covered in feet of snow, as happened after the Nor'easter on December 17, 2020, where customers in the Lebanon area received over two feet of snow and their solar system was not only unable to provide power to their home, but their batteries were unable to be charged to be utilized during critical peak hours. In such situations, the customers are not only unable to charge their batteries from their solar installations, they are also prohibited, under Staff's suggested interpretation, from charging their batteries from the electric grid. Customers participating in the battery storage pilot program who do not have solar installations do not have a similar prohibition from having their batteries charged from the electric grid and, thus, are able to take full advantage of the off-peak Time-of-Use ("TOU") rates that were an integral part of the design of the pilot program.

The same issue arises for customers whose solar systems are too small to charge their batteries in the winter due to the shortened days of sunlight in the winter. During summer months their solar installations are able to power the home and charge the batteries with over fifteen hours of daylight in June and July, but are unable to do the same with ten hours or less of daylight in December and January.

Two issues arise from this problem. First, since these customers are on the program's TOU rates, they are not able to utilize their batteries during critical peak hours and end up being charged critical peak rates since their batteries are not charged. Second, the batteries are also not fully charged when needed for peak events if that event is not identified at least 24 hours before the potential event, which happened a few times in 2020 due to the shoulder months being more difficult to identify peak events. Tesla occasionally sends a signal to the batteries the morning of the potential peak event and if a customer's solar facility has not charged their batteries during mid peak hours that day, the batteries are unavailable to help offset peak load. This results in poor experiences for the customer and for the program not

meeting its commitment to reduce peak loads during peak events.

The following excerpts are from customers with solar that have experienced issues due to not being able to charge with the grid:

Customer 1

My solar will never charge the batteries to anywhere near the level of “full”. I think there’s been a big misunderstanding on the utilization potential here. My solar system is tiny, and only powers about 10kwh a day. In the winter it doesn’t power on at all due to snow. Are you saying that the batteries won’t get used all winter? My home uses so much more energy than my solar system I basically do not net meter. Look at my bills. The battery functionally will not charge from my solar. There is no point in having these units if they are uncharged, provide basically no service to me, and cost me \$60/month.

Customer 2

My Powerwalls have been at 5% or lower (currently 0%) since the 3 hour power outage on 12/19 from about 3 AM to 6 AM. This is due to the fact that because I have solar, only the solar recharges the batteries. My solar panels are still covered by the 2 feet of snow that fell on Wednesday / Thursday. This points out the issue with the programming that I have brought forward previously that there seems to be no mechanism for the batteries to recharge at off-peak based on how much charge is in them. Relying on solar for all of the battery charging in November - February with snow and little quality sunlight is obviously not working very well. As well, my batteries regularly fall below the 20% minimum, even as low as 15%, under normal operations.

This distills into the main fact that I have had essentially zero possible backup from the Powerwalls for 4+ days so far and with several days of rain and heavy cloud cover to come, I expect this will continue for three more days. Financially, November of 2020 did not pan out very well for breaking even or even coming close and cost me about \$85 more in 2020 (solar, Powerwalls, and TOU billing) than in 2019 (solar only) and I seem to have returned to almost exactly where I was before I installed solar panels (2017 and 2018, no solar or Powerwalls) in terms of cost per month. I will watch future months, but this is very discouraging. My bill for November is more than double what it was last year. So, my request is that something changes in the way the Powerwall programming works for those of us with solar panels. I can’t take advantage of the savings from the TOU billing if I don’t have any (or little) charge in my batteries, so my monthly winter bills will continue to suffer from having to pay the approximate \$0.32 / kWh during PEAK time. Additionally, I expect December and January will be worse than November.

The current situation has also caused many customers to incur costs for batteries from which they receive little or no benefit, and in some cases has resulted in customers incurring larger electric bills than they otherwise would have due to the fact that they end up paying for usage at critical peak times. This is obviously contrary to the intent and design of the pilot program.

The Company has one customer who has their batteries installed, but their PV system cannot charge the batteries and as such, their batteries are actually turned off at this time until this issue is resolved with the Commission.

The simple solution, which the Company believes is already provided for in the Settlement Agreement, is to allow all customers' batteries to be charged in the off-peak hours to make available the full charge to the customer when needed for critical peak hours or peak events. This solution can be achieved by the Commission simply confirming that the Company's interpretation of the Settlement Agreement is correct. If the Commission determines that customers with solar must charge with their solar, then some customers with solar most likely will request to have their batteries removed and no longer participate in the pilot, which will undermine the value of the pilot as there will not be robust groups of customers participating both with and without solar.

#### **D. Request to Commission**

The Company is requesting that the Commission expeditiously affirm the language in the Settlement Agreement that provides that when the Company has control of the batteries it can charge them from the grid as needed. In this case that is twenty-four hours per day, 365 days per year for all customers participating in the program. Such confirmation is consistent with the Commission's intent,<sup>1</sup> would allow customers with solar installations to charge their batteries during off-peak periods rather than only with their solar system and to avoid increased costs during critical peak periods, and would avoid batteries not being fully charged for peak events as well as for use during power outages.

#### **E. Conclusion**

The Company asks that the Commission expeditiously confirm via secretarial letter the request outlined in part D of this technical statement. No hearing is necessary because the Company does not ask the Commission to change Order No. 26,029, but to merely confirm a reasonable interpretation of that order.

Should the Commission disagree and find that a hearing is necessary, the Company respectfully asks that the Commission grant the requested relief by Order Nisi to avoid further detrimental effects being experienced by customers contrary to the design and intent of the pilot program.

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<sup>1</sup> "Assuming the batteries are charged with cleaner sources of energy from the grid during off-peak hours or from customer-sited renewable sources, the pilot will have direct environmental benefits. Order 26,029 at 36 (emphasis added).