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

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

Petition to Approve Battery Storage Pilot Program

Docket No. DE 17-189

Technical Statement of Heather M. Tebbetts

November 25, 2019

A. Purpose of Technical Statement

On January 18, 2019, Liberty Utilities (Granite State Electric) Corp. ("Liberty" or "the Company") received an Order in this docket approving a settlement agreement that was reached in support of its proposal for a battery storage pilot program. As stated in the Order, the Company was required to conduct a thorough cyber security review and update the Commission on any changes to costs associated with the program.

This technical statement provides updates to the costs associated with the program and describes why the request for an extension of time to install the first 100 batteries is necessary due to the cyber security review that was required.

B. Cyber Security Review

The Company was ordered to conduct a cyber security review, an additional requirement that was not part of the Settlement Agreement and was not anticipated by the Company. As such, the parties did not build time into the settlement agreement to accommodate such a review, and the Order did not provide additional time for the review.

In compliance with the Order, the Company's IT team conducted a thorough review of how Tesla's systems may interact with the Company's systems. The Company worked extensively with Tesla, meeting on a weekly basis for approximately six months gathering and assessing an enormous amount of data and policies supporting the Tesla Energy Cloud Environment. This effort was driven to ensure compliance and alignment with the Liberty Utilities' cloud security strategy which utilizes the NIST 800-171 standard for assessing third-party environments. Only after this thorough assessment and review was completed was the Company comfortable to have the Commission-required certification signed by Shawn Eck, Senior Manager, IT Security, Risk and Compliance, and John Lowson, the Vice President, Transition Management and IT. Due to the significant amount of time it took to complete the thorough cyber security review, as ordered by the Commission, the start of battery installations had to be similarly delayed. Liberty informally notified the Commission Staff of these events over the summer, and formally notified the Commission through the Company's motion for an extension of the Order's deadline for installing 100 batteries by October 17, 2019.

C. Time-of-Use Rates Update

Time-of-Use Rates

Customers participating in the pilot program will be required to take time-of-use (TOU) rates for Distribution and Transmission, and, unless the customer is enrolled with a competitive electric power supplier, Energy Service charges. The TOU rate design is cost-based. The TOU periods and illustrative rates at the beginning of the pilot program are provided below, effective November 1, 2019, through April 30, 2020. The Company worked with Mr. Lon Huber to review the model update to ensure the rates were calculated correctly.

Winter TOU Rates November 1 through April 30

Customer Charge $ 13.95

	Monday through Friday			Saturday through Sunday and Holidays	
	Critical Peak	On Peak	Off Peak	On Peak	Off Peak
Distribution	$ 0.07502	$ 0.05269	$ 0.03515	$ 0.05269	$ 0.03515
Transmission	$ 0.14544	$ 0.00228	$ 0.00092	$ 0.00228	$ 0.00092
Energy Service	$ 0.11158	$ 0.10735	$ 0.08901	$ 0.10735	$ 0.08901
SBC	$ 0.00535	$ 0.00535	$ 0.00535	$ 0.00535	$ 0.00535
Consumption Tax	$ -	$ -	$ -	$ -	$ -
Stranded Costs	$ (0.00106)	$ (0.00106)	$ (0.00106)	$ (0.00106)	$ (0.00106)
Total	$ 0.33633	$ 0.16661	$ 0.12937	$ 0.16661	$ 0.12937

D. Benefit/Cost Analyses

The Company has updated its benefit/cost analyses, Attachments 1 and 2, to accommodate the following changes:

1. Battery Pricing

   The price of the batteries, including the gateway and installation by Tesla came down $200 per install. This change was reflected in the analyses.

2. Installer

   Liberty received a bid from ReVision Energy and Tesla to install the batteries. Tesla had the lowest pricing, thus the Company has chosen Tesla to install the batteries.

3. Regional Network System (RNS) Local Network System (LNS) Rates.

   Since the majority of the batteries will not be installed until early 2020, the Company has updated the analysis to start in 2020, rather than 2019, as was shown in the Settlement Agreement analyses.

   The analysis now provides updated estimated RNS rates from ISO New England for years 2020 through 2023, then includes an assumed increase of 4.66% for the remaining years. The estimated LNS rates are based on historic bills from National Grid to Liberty Utilities. The RNS charges in years 2033 and 2034 from the

Settlement Agreement had the avoided cost charges not the RNS charges on lines 6 and 8. These charges have been updated to reflect the RNS charges.

4. Revenue Requirement.

   The property tax rate used in the Settlement Agreement attachments was from the Company's previous FERC Form 1 filing based on the timeframe that the settlement was filed. It is appropriate to update all changes to the model, including the property tax rate. The rate of return was also revised to correct a minor error in the Settlement Agreement.

5. Net Energy Metering Credit.

   As part of the Settlement terms, the parties agreed that the costs associated with net energy metering (NEM) credits would be included in the analyses. These credits are those that customers will receive when Liberty exports power from the batteries to the grid for purposes of reducing coincident system peak load. The assumptions included the annual anticipated dispatch events and the degradation of the installed batteries over time. During discussions with Staff, it was found that there may have been a misunderstanding of how the net metering credit would function. The customer will essentially receive a net of kilowatt-hours on their bill, not a monetary credit, for those kilowatt-hours that are exported, unless the customer has a solar installation and they net export for the month. The analyses have been updated to remove the net metering monetary credit because there will not be a monetary credit provided to customers.

6. Dispatch of Batteries During Peak Events.

   The Company has contracted with Tesla to use their AutoBidder software to dispatch the batteries during peak hours. The analyses are updated to include the cost associated with using this program.

E. Notification to Customers

While the Company agreed that customers would be notified 24 hours in advance of a peak day when it was going to predict peaks on its own, with the use of AutoBidder from Tesla and anecdotal information that when customers know there may be a peak day coming they become irritated for potentially changing their behavior when that peak day doesn't come to fruition, the Company will not be notifying customers 24 hours in advance. To avoid customer discontent, customers will see a 'Grid Services' icon that shows up on their smart phone app when the battery is being commanded to do something other than its local mode. Whether through observing the behavior of the battery or looking for this icon, customers will be able to tell if the battery is doing normal time-based control dispatch by looking at their app.

F. Data Collection

The order requires meters to be installed prior to batteries being installed to gather pre-installation data on the customers' usage. Due to the cyber security requirement and the length of time it took to navigate through the data and review, the meters have not been installed. The primary reason is that customers may inform the Company they want to participate when contacted for commitment to the program, but their home may not be

compatible with a battery once Tesla screens the home for installation. The Company did not sign its contract with Tesla until ***after*** the cyber security review was completed in case parties could not come to agreement on the terms necessary for an annual cyber security review. If meters were installed prior to signing the contract with Tesla, some of these customers receiving meters may have had them removed if they did not want to pay for, e.g., electrical panel upgrades necessary for their battery installation, as final customer subscription to the program would not have been known at the time the meter was installed. Tesla would only be contacting customers ***after*** the contract was signed. This would harm the customer experience and immediately start the program off on the wrong foot.

The Staff has expressed they would like to capture pre-installation usage data to learn how customer behavior may change with the batteries and TOU rates. However, the Company, in conjunction with its consultant, Navigant, has decided to capture load data from its research customers at the same time its battery customers are utilizing their batteries. This is a far better means of collecting date for some of the following reasons:

- The use of a true control group is the only way to compare the variability of usage for the customers with batteries;
- The comparison will be of a customer without TOU rates versus a customer with TOU rates during the same period;
- Since weather affects usage, by gathering data at the same time from both the control group and the test group, the data will allow us to better compare the difference in usage at each hourly interval during extreme events, such as a heat wave, a comparison that would not be possible if the comparison was of pre- and post-installation usage by the same customer.

For these reasons, the Company proposes to gather data from its existing residential load research customers (there are approximately 100) at the same time as the battery customers, which will provide for a control group and avoid delays in installation of the batteries.

Navigant, the Company's consultant for the EM&V portion of the project, has provided a letter, Attachment 3, explaining why for their evaluation, the load research customers will provide the data necessary.

G. Conclusion

Customers on the waiting list have been emailing and calling almost daily asking when their batteries will be installed. With the delay caused by the additional and unscheduled requirement of the cyber security review, an undertaking that was far more involved and time consuming than either Liberty or Tesla anticipated, the Company has requested an extension to install all of the batteries until February 28, 2020, for the reasons stated in the motion and more fully explained here.

The Company also asks that the Commission approve the changes by Order Nisi to the Program that are embodied in this technical statement and the attached Benefit/Cost analysis.