

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DE 23-039

Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty
Distribution Service Rate Case
Battery Storage

DIRECT TESTIMONY

OF

DMITRY BALASHOV

April 28, 2023



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1 **I. INTRODUCTION**

2 **Q. Please state your full name and business address.**

3 A. My name is Dmitry Balashov, and my business address is 354 Davis Road, Oakville,
4 Ontario, Canada.

5 **Q. On whose behalf are you submitting this testimony?**

6 A. I am submitting testimony on behalf of Liberty Utilities (Granite State Electric) Corp.
7 d/b/a Liberty (“Liberty” or the “Company”).

8 **Q. Please describe your educational and professional background.**

9 A. I hold a Bachelor of Political Science degree from the University of British Columbia in
10 Vancouver, BC, Canada, which I completed in 2005. I also obtained a master’s degree in
11 Public Administration with a concentration in energy policy from Queen’s University in
12 Kingston, ON, Canada, completed in 2008. Finally, I obtained an Executive Master of
13 Business Administration degree from the Rotman School of Management at the
14 University of Toronto, ON, Canada, which I completed in 2018.

15 I started my electricity sector career in 2007 at the Transmission and Distribution Policy
16 Division of Ontario’s Ministry of Energy, where I held several advisory positions in
17 support of both electrical infrastructure planning and regulatory policy matters. Between
18 2013 and 2017, I was employed by Toronto Hydro-Electric System Limited (“THESL”)
19 – Canada’s largest urban distribution utility at the time – where I worked as a Lead of
20 Process and Analytics. My position primarily entailed identifying, obtaining regulatory
21 approval for, and implementing a variety of operations and capital planning and asset

1 management initiatives aimed at enhancing system reliability and labor and capital
2 productivity. Between January 2017 and February 2021, I worked as a Director of Utility
3 Strategy and Economic Regulation at METSCO Energy Solutions Inc. – a utility sector
4 engineering and asset management consulting company. My primary area of
5 responsibility was development of risk-based asset management plans that helped
6 transmission and distribution utility customers identify, pace, and prioritize the highest-
7 value capital projects and maintenance program enhancements, based on objective
8 quantitative analysis of asset health, connectivity, and reliability performance. I joined
9 Liberty Utilities (Canada) Corp. (“LUCO”) in February of 2021 as a Senior Director of
10 Policy and Strategy and transitioned to my current role of Senior Director, Grid
11 Modernization in early 2022.

12 **Q. Please describe your duties at Liberty.**

13 A. I am employed by LUCO as a Senior Director, of Grid Modernization. In this capacity, I
14 oversee the development and implementation of a variety of initiatives across LUCO’s
15 electrical subsidiaries. These include setting and supporting the implementation of
16 LUCO’s Advanced Metering Infrastructure (“AMI”) strategy through specific
17 deployments, implementation of Electric Vehicle (“EV”) charging programs and
18 supporting operational and rate design frameworks, design and implementation of risk-
19 based asset analytics and capital planning frameworks, and execution oversight on a
20 variety of analytical studies aimed at proactive and evidence-based modernization of
21 electricity transmission and distribution systems owned by LUCO’s electric utility
22 subsidiaries.

1 While I am a corporate employee based in LUCO's head office in Canada, in performing
2 my duties I work closely with local engineering, planning, operations, and regulatory
3 subject matter experts located directly in the companies' service territories, including
4 those overseeing Liberty's electric operations in New Hampshire.

5 **Q. Have you previously testified in regulatory proceedings before the New Hampshire
6 Public Utilities Commission ("Commission")?**

7 A. No, I have not.

8 **Q. Have you testified in other regulatory jurisdictions?**

9 A. Yes, I have testified on behalf of LUCO before the Kentucky Public Service Commission
10 and the Missouri Public Service Commission, along with submitting written evidence to
11 several Canadian utility sector regulators, including the Ontario Energy Board, the
12 Manitoba Public Utilities Board, and the Alberta Utilities Commission.

13 **II. PURPOSE OF TESTIMONY**

14 **Q. What is the purpose of your testimony?**

15 A. I discuss the proposed plan for the continuation and expansion of the Company's battery
16 storage pilot program and related activities.

17 **Q. Please describe the battery storage pilot approved in Docket No. DE 17-189.**

18 A. The Commission approved a Settlement Agreement in Docket No. DE 17-179 (the
19 "Settlement Agreement") allowing the Company to implement a battery storage pilot
20 program. Pursuant to the terms of the Settlement Agreement, the Company has deployed
21 behind-the-meter Battery Energy Storage System ("BESS") devices to approximately 100

1 residential customers throughout the service territory. A primary purpose of the pilot was
2 to evaluate the potential to use batteries to reduce customer costs by reducing the regional
3 and local network service (“RNS” and “LNS”) transmission charges and the Forward
4 Capacity Market (“FCM”) costs through targeted and coordinated discharging of
5 customer-sited batteries during the times of forecasted system peaks.

6 Tesla (the manufacturer of the Powerwall 2 batteries used in the pilot) served as the
7 battery system operator, triggering discharge during the times when its ISO NE system
8 models forecasted a high likelihood of monthly peak events. All customers participating
9 in the pilot had two Powerwall batteries installed in their households behind the utility
10 meter and adopted a three-tier Time of Use schedule for their household consumption.

11 The batteries are programmed to assist individual customers in an energy arbitrage
12 function – by charging the batteries during the daily off-peak periods when the prices are
13 lowest and then enabling the household to draw down the stored energy during the peak
14 period when the consumption prices were the highest. Participants that already had solar
15 panels installed on their roofs were able to store their solar output and use it later. The
16 Time of Use (“TOU”) rate scheme enabled the pilot’s participants to reduce their
17 electricity bills – an average customer’s monthly bill was reduced by about 33% or \$60.
18 Finally, participating customers could count on their BESS installations to provide
19 backup power during outages, as 20% of the batteries’ capacity was always reserved for
20 this purpose.

1 **Q. What is the pilot program's current status?**

2 A. The program has now been in operation for more than two years, and pursuant to the
3 terms of the Settlement Agreement, Liberty engaged Guidehouse to perform an
4 independent evaluation of the pilot across several categories prescribed by the Settlement
5 Agreement. Specifically, the battery fleet's average monthly coincident peak
6 performance was 79% over the evaluation period – well above the 75% threshold
7 prescribed in the Settlement Agreement. The pilot's overall cost-effectiveness, as
8 calculated using the methodology established in the Settlement Agreement, met the
9 stakeholders' expectations – yielding a projected benefit-cost ratio of 0.99 for the
10 combined Phase 1 actuals and Phase 2 projection calculations.

11 On March 15, 2023, the Commission issued Order No. 26,784, which found the Phase 1
12 evaluation period to be complete, and ordered that pilot participants who also have
13 distributed generation installed on their premises should be allowed to charge their
14 batteries from the grid in the same manner as all other participants. The Commission also
15 ordered the Company to propose the next steps for the pilot program no later than May
16 30, 2023. Specifically, the Commission directed the Company's proposal to address the
17 following elements: (a) ongoing operation of Phase 1 batteries; (b) simplified reporting
18 metrics for the Pilot; (c) a regulatory proceeding venue in which the Bring Your Own
19 Device ("BYOD") program would be addressed; and (d) to state whether the second
20 phase of the pilot would be pursued and, if so, to propose the associated procedural
21 schedule.

1 **Q. How will the Company address these issues?**

2 A. The Company will address these directives as part of this rate case. In the remainder of
3 my testimony, I describe the Company's proposed approach to continue the operation of
4 the batteries already in service for the pilot program, a second phase of that same
5 program, reporting metrics, and a BYOD scheme. The Company will also be submitting
6 a response to Order No. 26,784 memorializing this approach including a request to close
7 DE 17-189.

8 **Q. What is the Company's proposal with respect to Phase 1 of the Pilot?**

9 A. Liberty proposes to continue operating the Phase 1 pilot using the same program rules
10 and updating the associated rate schedule for currency and transparency with the values
11 proposed in Company Witness Gregory Tillman's testimony. In addition, and consistent
12 with the Commission's findings to that effect in Order No. 26,784 (March 15, 2023),
13 program participants with distributed generation ("DG") installations on their premises
14 will now be allowed to charge their batteries from the grid. The Company proposes to
15 maintain the \$50 monthly charge for program participation. Phase 1 will conclude
16 gradually as the customers' 10-year contracts reach their respective expiry dates.

17 **Q. What changes to the pilot reporting metrics does the Company propose?**

18 A. Now that the overall program viability has been substantially validated, Liberty proposes
19 to eliminate the requirement for quarterly progress reporting that has been in place since
20 the program's commencement. Instead, the Company suggests that general rate cases
21 offer a reporting forum with frequency and stakeholder participation that is optimal for a

1 program of this maturity. The Company does not suggest the removal of any metrics
2 associated with reporting to date but recommends that the requirement for a third-party
3 results validation report no longer apply. In the Company's submission, the proposed
4 changes to the reporting standards simply reflect the fact that the program has reached the
5 level of maturity where previous reporting frequency and third-party results validation
6 are no longer necessary for effective program oversight and governance and can be
7 discontinued as a matter of administrative cost management.

8 **Q. What is the Company's proposal regarding the Bring Your Own Device (BYOD)**
9 **program?**

10 A. Liberty proposes that the BYOD program be included in Phase 2 of the current program
11 as a separate program facet, which would allow customers to exercise choice in
12 technology providers and the manner of financing their behind-the-meter technology
13 assets. Fundamentally, program design as the Company currently envisions it (and is
14 currently capable of accommodating) is substantially similar to the existing utility-owned
15 BESS program.

16 **Q. What are the key parameters of the BYOD program as the Company proposes?**

17 A. The Company is proposing a simple BYOD program, which draws on our experience and
18 resources developed through the current storage pilot. The program would allow all
19 customers who procure eligible BESS installations to enroll in the Company's TOU rates
20 for storage devices as discussed in Company witness Tillman's testimony.

1 Customers that opt to enroll in the BYOD program will be able to protect themselves
2 from the impact of potential outages and enable savings through energy arbitrage across
3 the TOU period. Customers that also have access to solar PV installations will be able to
4 utilize their BESS systems to further reduce their consumption from the grid by
5 consuming any unused solar output.

6 **Q. What technologies or vendors does the Company propose to be eligible for inclusion**
7 **in the BYOD program?**

8 A. At this juncture, having received guidance on Phase 1 of its BESS program
9 approximately a month ago, the Company does not have a definitive list. In principle,
10 given the rapid development of the DER marketplace, Liberty believes that it would be
11 imprudent to be overly prescriptive on the type and vendor of devices. However, a key
12 initial consideration is to initially limit the program eligibility to stationary battery
13 storage installations that would be configurable to operate in a manner consistent with the
14 Tesla Powerwall units used in Phase 1 of the pilot. As the program matures, the
15 Company will explore opportunities to expand the scope of eligible devices to include
16 technologies like EV V2B (vehicle to building) technology that is becoming available
17 from several vendors. As discussed below, the Company proposes to conduct a program
18 evaluation study at the BYOD Program's third anniversary, at which point it would
19 submit a comprehensive report that would, among other matters, recommend the
20 inclusion of additional technologies, increase in the number of participants, expand
21 beyond the Residential rate class, etc. In the interim, the Company will encourage

1 customers and vendors to submit proposals for devices they would include in the
2 program, and conduct a preliminary review based on the following parameters:

- 3 • *Technological Maturity* – Is the proposed device offered by a reputable vendor
4 with a demonstrated track record of residential deployments in the United States?
- 5 • *Electrical Safety* – Is the device certified for operation in a residential setting by
6 the appropriate regulatory authorities to the Company’s satisfaction?
- 7 • *Operational Capabilities* – Is the device capable of being programmed to charge
8 and discharge across specific time periods as specified in the Company’s TOU
9 tariff for storage devices?
- 10 • *Vendor Support and Warranty* – Are the Terms and Conditions offered by the
11 vendor sufficiently robust to provide for a timely resolution of any operating
12 issues that would minimize the risk of failure or malfunction to the customer and
13 utility?

14 As discussed below, this analysis would be performed by the staff of the proposed
15 Emerging Technologies Facilitation Office (“ETFO”) who, among other duties, would be
16 required to perform proactive and reactive vendor evaluation and broader market scans
17 with the aim of periodically updating program rules to ensure that the program can
18 accommodate the latest technological and commercial offering with the potential of
19 offering customer value.

1 **Q. Would existing customer installations be permitted to enter the program, or would**
2 **it only be open to new devices?**

3 A. The Company does not see a reason for limiting the opportunities to reap additional
4 benefits offered by the Company's TOU rate schedules for early adopter customers who
5 have already procured their storage devices. As with new devices, the Company would
6 apply the evaluation criteria listed above to the existing installations. The only exception
7 that the Company reserves in relation to existing installations is to limit the contract term
8 to the difference between the contemplated 10-year program contract term and the age of
9 the existing installation. For instance, if a customer wanted to enroll in the program with
10 a two-year-old device, Liberty would offer them an eight-year contract.

11 **Q. Does Liberty propose that the BESS BYOD program include an element for the**
12 **coordinated discharge of stored energy into the grid during the times of anticipated**
13 **upstream system coincident peaks?**

14 A. Not currently. This is because the Company does not currently have its own short-term
15 system peak forecasting capabilities or system dispatch capacity. Since the program is
16 designed to be vendor-agnostic, Liberty also does not anticipate that a single BESS
17 vendor could offer integration services into multiple technologies that would enable
18 coordinated and efficient dispatch for participants.

19 As Liberty explained during a recent hearing before the Commission regarding the Phase
20 1 battery program, the reason that a BYOD program has not materialized earlier from the
21 initial discussion was related to the potential proponents' inability to commit to being

1 able to coordinate dispatch across multiple vendor solutions. Moreover, at this juncture
2 the Company is not prepared to advance an empirically backed BYOD tariff schedule for
3 customer compensation that would establish a firm rate for customers' BESS devices
4 assisting the Company in peak shaving.

5 However, the Company recognizes that DER aggregation and coordinated operation is a
6 significant value driver. To this end, the program's contemplated contractual
7 arrangements would include provisions for future addenda that could efficiently augment
8 the contract by including a compensation rate for verified BESS discharge that assists
9 Liberty in future demand response efforts. Similarly, the contract is proposed to contain
10 a clause that permits system owners to enter system capacity aggregation arrangements
11 with third parties with prior notification of the Company.

12 **Q. Would BYOD customers arrange for their installation of the BESS devices?**

13 A. Yes, the BYOD contract would contain provisions requiring the installation to be
14 performed by a licensed electrician. However, a visit from the Company's representative
15 will be necessary to install the eligible TOU meter and ensure proper installation and
16 configuration of the BESS system, and the fact that the system has been programmed in a
17 way that aligns with the company's TOU framework and ensures that no distribution
18 system discharge can take place if the customer experiences an outage. The latest
19 requirement is critical to ensure the safety of the Company's line personnel when
20 rectifying outages in the electrical vicinity of DG installations.

1 **Q. Does the Company propose to impose any charges on BYOD program participants?**

2 A. Yes, the program contemplates a one-time \$500 program enrollment charge that would
3 cover the cost of program registration, preliminary abbreviated Connection Impact
4 Assessment (“CIA”) at the proposed installation site, and a Company personnel visit to
5 install the AMI meter and validate the installation from an electrical safety and system
6 operation risk perspective. Should the abbreviated CIA determine that further studies
7 and/or system upgrades are required to safely incorporate the proposed BESS installation,
8 customers will be required to reimburse the Company for the cost of such studies.
9 Should the studies determine that certain system modifications are required on the utility
10 side of the revenue meter, the customer will be required to make an appropriate
11 Contribution in Aid of Construction (“CIAC”) to ensure that the proposed system can be
12 integrated safely into the Company’s distribution system. Finally, the Company proposes
13 a monthly BYOD administrative charge of \$50.00 consistent with the utility-owned
14 program stream.

15 **Q. How many customers does the Company propose to enroll in the BYOD program?**

16 A. The Company proposes to limit the initial enrollment to 150 customers for the first three
17 years from the date of the Commission’s approval of the program. At a three-year
18 juncture, the Company would conduct a program evaluation study and would file a report
19 with the Commission with recommendations regarding a potential increase in the number
20 of participants and/or types of devices to be eligible for inclusion going forward.

1 **Q. What is the Company's proposal regarding Phase 2 of the existing (utility-owned)**
2 **BESS program?**

3 A. The Company proposes to proceed with Phase 2 of the program as originally
4 contemplated. The program would be open to the enrollment of 150 additional customers
5 who would pay the same \$4,866 enrollment fee and an ongoing \$50 monthly program
6 participation fee. Customers would be required to execute a 10-year contract consistent
7 with those executed by Phase 1 customers. Tesla would remain the technology provider
8 and operator/aggregator who would call on the batteries to discharge during the predicted
9 upstream system coincident peak times. A key value feature of the program is the fact
10 that Liberty holds a contract that would enable Phase 2 battery units' procurement at
11 costs that would be approximately 30% lower than the current market prices for similar
12 units. In all other respects, the Company proposes to administer the program in a manner
13 consistent with the rules that applied to Phase 1.

14 **Q. Now that the Company proposes both utility-owned and customer-owned (BYOD)**
15 **residential storage programs, what is the rationale for having both?**

16 A. The core reason for offering both a utility-owned and customer BYOD is to offer a
17 choice that Liberty believes customers deserve to have in what is a new and rapidly
18 growing marketplace. As newer technological and commercial offerings become
19 available in the marketplace, the Company wants its customers to leverage them in a
20 coordinated manner that utility administration enables. However, the Company also
21 believes that utility ownership and operation of storage – both front- and behind-the-
22 meter – is an important part of that choice and one that offers significant benefits to

1 customers and the system. Among the key benefits of utility ownership of storage are
2 transparent (and regularly reviewed) cost of capital parameters, robust and enforceable
3 customer service and customer protection standards, and a mandate for integrated least-
4 cost planning that ensures that optimal value is extracted from existing assets before new
5 ones (including those that may be serving duplicative functions) are built. To this end,
6 the Company believes that offering both types of commercial arrangements on what are
7 largely equivalent program participation terms will be a key distinguishing feature of the
8 second phase of the proposed pilot. As the Commission observed in Order No. 26,784,
9 ownership and operation of behind-the-meter technologies is not yet a core competency
10 of a traditional electric distribution utility like Liberty. However, given the long-term
11 load-shaping (and thus grid investment-shaping) potential of behind-the-meter storage
12 devices, it is imperative for the Company to continuously develop its knowledge and
13 practical capabilities in relation to these new technologies to ensure that their value
14 proposition and operating parameters are incorporated in all utility planning activities.

15 **Q. How does the Company propose to support this pilot's work on a day-to-day basis?**

16 A. The Company proposes to launch the ETFO to assist customers with storage- and EV-
17 related inquiries. The ETFO is proposed to be initially staffed by two individuals – a
18 Program Manager and a Solutions Engineer. The Program Manager's purview would
19 entail the programmatic and commercial aspects of the Storage Program and any
20 inquiries associated with enrollment logistics into the Company's EV rate offerings or
21 matters like potential site evaluation for public charging installations. Aside from dealing
22 with program-related matters, the ETFO staff would be expected to conduct forward-

1 looking research into technologies or vendors offering services that would benefit the
2 existing programs or enable new offerings.

3 **Q. Are there any other factors that may influence the scope, nature, or timing of the**
4 **Company's proposal regarding Phase 2 of the storage pilot program?**

5 A. Yes. The Company recognizes that as conveyed in this testimony, there remain several
6 program elements that warrant additional development. In large part, this is a function of
7 the recency of the Commission's Order with respect to Phase 1 of the program, which the
8 Company anticipated as an important milestone source of further guidance. The
9 Company expects to amend its evidence as appropriate throughout this rate case as it
10 continues to define further logistical, commercial, and legal elements (most notably
11 program rules and commercial contracts) and responds to the participants' data requests
12 pertaining to this program. Moreover, Liberty is also a participant in the ongoing docket
13 IR-22-076, which is expected to tackle a variety of issues that span the adjacent domains
14 of energy storage, EVs, demand response, and operating data flows among industry
15 participants. Liberty expects to draw significant insights from information sharing and
16 constructive debates that have characterized the docket's activities to date. These
17 insights are also expected to provide additional critical inputs into the form and function
18 of the Phase 2 Storage Pilot program that the Company proposes today.

19 **Q. What are the costs associated with the current proposal?**

20 A. Table 1 below details the budget associated with Phase 2 of the program across both its
21 utility-owned and BYOD streams.

1

Table 1: Phase 2 Storage Pilot Program and ETFO Staffing Costs

Component / Year	Rate Year 2	Rate Year 3
Utility-Owned BESS: Device Costs	\$1,300,000	\$1,300,000
BYOD: Software and Studies Costs	\$71,000	\$71,000
ETFO Staffing Costs	\$258,000	\$258,000

2

3 **III. CONCLUSION**

4 **Q. Does this conclude your pre-filed direct testimony?**

5 A. Yes.