

STATE OF NEW HAMPSHIRE
BEFORE THE
PUBLIC UTILITIES COMMISSION

Docket No. DE 17-136

2018-2020 New Hampshire Statewide Energy Efficiency Plan

TESTIMONY OF
CHRIS RAUSCHER

On behalf of Clean Energy NH and Sunrun, Inc.

November 13, 2019

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1 **I. INTRODUCTION AND QUALIFICATIONS**

2 **Q. Please state your name, the organization you work for, your position and business**
3 **address.**

4 **A.** Christopher J. Rauscher, J.D. I am the Director of Policy & Storage Market Strategy at
5 Sunrun, Inc. which is located at 225 Bush Street, #1400, San Francisco, California.

6 **Q. Please describe your qualifications.**

7 **A.** I joined Sunrun in 2015, with an initial focus on federal energy policy. I now focus on the
8 intersection of energy policy and distributed energy resources (“DER”) aggregation
9 business development. I primarily work in the Northeast and Caribbean but have
10 experience nationally. I lead Sunrun’s ISO-NE and NEPOOL engagement and help guide
11 interactions with FERC. I frequently testify at state legislative hearings and intervene in
12 regulatory dockets throughout the Northeast. My work centers around the role that
13 aggregated distributed solar and storage can play in our electricity system by providing

1 services that more traditional resources do. This includes driving Virtual Power Plant
2 procurement opportunities, retail-level tariff development, wholesale market
3 participation, and disaster recovery.

4
5 Prior to Sunrun, I was an energy policy advisor to US Senator Angus King. I counseled
6 the Senator on the Energy and Natural Resources Committee in the US Senate. I advised
7 Senator King on all subjects related to his committee responsibilities and to the energy
8 system both nationally and in the New England region. I also conducted research and
9 drafted bills for the Senator, including the Free Market Energy Act which set federal
10 parameters around state-level distributed generation proceedings. I have a Bachelor of
11 Classics degree from Dalhousie University in Halifax, Canada, and a Juris Doctor from
12 University of Maine School of Law. My CV is attached as Exhibit 1 to this testimony.

13 **Q. Have you testified previously before the New Hampshire Public Utilities**
14 **Commission or other regulatory bodies?**

15 A. I have provided expert testimony to the Puerto Rico Energy Bureau and am scheduled to
16 testify before another New England regulatory body in 2020. Although this is my first
17 time testifying before the New Hampshire Public Utilities Commission, I have testified
18 before the NH Legislature on numerous occasions and participated in a number of New
19 Hampshire regulatory proceedings.

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

21 A. The purpose of my testimony is to support the proposal by the utilities to include a bring-
22 your-own-device battery demonstration program in the 2020 EERS plan update. I provide

1 supporting information regarding similar programs in other states energy efficiency
2 programs. I also discuss program limitations that should be considered if demonstration is
3 expanded to full program offering.

4 **Q. How is energy efficiency changing?**

5 A. Energy efficiency is viewed increasingly as including a diverse set of tools to not only
6 passively lower overall energy use but also to target and lower peak demand events
7 through active demand response. Peak demand drives overall system costs as well as the
8 relative share each state pays for regional costs. New Hampshire is the only state in the
9 ISO-NE region with projected increased peak demand.¹ This is in part because other New
10 England states are increasingly making investments and developing programs aimed
11 specifically at flattening peak demand, including within their energy efficiency programs.
12 In the ISO-NE region, many wholesale market costs are socialized to utility ratepayers
13 based on a utility's share of a regional peak. Given that, the states and utilities that do not
14 have active demand reduction programs in place will shoulder an ever-increasing share of
15 regional market costs.

16 A recent report from the Vermont-based Clean Energy Group titled "Energy Storage: The
17 New Efficiency"² ("CEG Report") highlights the system benefits of incorporating energy
18 storage in energy efficiency portfolios. The CEG Report followed the Massachusetts
19 Department of Public Utilities recent incorporation of energy storage as an efficiency

¹ https://www.iso-ne.com/static-assets/documents/2019/01/new_england_power_grid_state_profiles_2018-2019.pdf

² Olinsky-Paul, Todd, Clean Energy Group, Energy Storage: The New Efficiency, How States can use Energy Efficiency Funds to Support Battery Storage and Flatten Costly Demand Peaks (Apr. 2019) ("CEG Report")

1 resource in Massachusetts. The CEG Report notes that the inclusion of energy storage as
2 an efficiency measure was “preceded by the recognition that in addition to reducing
3 consumption, there is also value in shifting consumption from times of high electricity
4 demand to times of lower demand.”³ The report further notes that “[t]his peak load
5 shifting is an increasingly important application for which batteries are well suited, and
6 which cannot be accomplished with traditional, passive efficiency measures.”⁴
7 Recognizing the high cost of high electricity demand (peak demand) to utility customers
8 and to the grid, Massachusetts brought demand reduction measures into its efficiency
9 program.

10
11 The Massachusetts energy efficiency portfolio now includes behind the meter (“BTM”) energy storage programs. These programs create new market participation pathways for
12 residential customers with BTM energy storage systems to participate through third party
13 aggregators under a “bring-your-own-device” (“BYOD”) model to reduce system peaks.⁵

14
15 **Q. Why should BYOD be incorporated into an energy efficiency plan?**

16 A. There is increasing recognition that energy efficiency should not only aim to reduce
17 energy consumed but also energy demand, especially during peak demand periods. This
18 is in large part a recognition that demand peaks drive most of the system costs and the

³ CEG Report at 7.

⁴ CEG Report at 7.

⁵ See, Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan 2019–2021 (Apr. 30, 2018) available at <http://ma-eeac.org/wordpress/wp-content/uploads/2019-2021-Three-Year-Energy-Efficiency-Plan-April-2018.pdf>; Mass. Dept. of Pub. Utils, Docket Nos. 18-110 - 18-119, Order Approving Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan 2019-2021 at pp. 31-35 (Jan 29, 2019) (“EEAC Order”).

1 operation of peaker generation units are the most expensive and polluting. Regarding
2 costs, for example, the State of Charge⁶ report in Massachusetts concluded that 40
3 percent of that state's energy costs was directly attributable to the top ten percent demand
4 hours.

5 **Q. Are New Hampshire's energy efficiency programs shifting to consider demand and**
6 **peak demand? Is this in line with policy?**

7 A. Yes, for example the Performance Incentive recommended by the PI working group,
8 which is presented as Attachment M in the utilities' 2020 plan update, now includes
9 consideration of summer and winter demand reduction as a measure of success for the
10 efficiency programs. Furthermore, the 10-year State Energy Strategy⁷ published in 2018
11 by the Office of Strategic Initiatives includes a section on Demand Response ("DR")
12 under the Energy Efficiency section which states: "Increasing DR utilization by New
13 Hampshire's utilities and customers would enhance energy efficiency and grid
14 management goals."

15 Eversource and Unitil proposed as part of the 2019 EERS plan update to pilot an active
16 demand response program with commercial-industrial customers, and the Commission
17 approved this pilot. Preliminary reports from the utilities indicate that this pilot program
18 has been successful. Unlike C&I demand response where operations are modified or
19 curtailed and bring-your-own thermostat programs where temperature settings are
20 perceptibly adjusted, one of the advantages of using batteries to reduce peak demand is

⁶ <https://www.mass.gov/media/6441/download>

⁷ <https://www.nh.gov/osi/energy/programs/documents/2018-10-year-state-energy-strategy.pdf>

1 that it is typically imperceptible by the customer and therefore participation can be
2 greater.

3 **Q. Why do the demonstration project now?**

4 A. Proceeding with the proposed bring-your-own-device battery demonstration project
5 proposed by Unitil and Eversource will provide valuable information and experience to
6 test customer participation and the potential value of such measures. It will ensure that
7 other states do not outpace NH in demand reduction and shift costs onto NH ratepayers.
8 This pilot will provide valuable information for the preparation of the next EERS plan
9 beyond 2020 when active demand reduction will become even more critical to system
10 cost management. This demonstration is also very limited in the number of participants,
11 budget, and duration thus posing very little risk. Finally, there are likely cost savings due
12 to the utilities already offering similar bring-your-own device battery and thermostat
13 programs in MA.

14 **Q. Is a BYOD program risky?**

15 A. No. In fact, the BYOD structure itself - whether in pilot form or full program - is very
16 low risk for utility ratepayers in general. Customers and their storage
17 providers/aggregators finance the systems and ratepayer capital is not put at risk;
18 especially as compared to a program where the utility ratebases storage assets.
19 Additionally, BYOD can also be structured to pay for only verified savings - therefore
20 performance risk can also be mitigated.

1 **Q. Are you aware of other BYOD programs within larger energy efficiency plans?**

2 A. The current Mass Saves energy efficiency plan for 2019-2021 includes a bring-your-own-
3 device program and performance payments. The recently approved three-year energy
4 efficiency programs are the first in the country to include specific offerings dedicated to
5 energy storage resources installed on customer premises (behind the meter, customer- or
6 developer-owned). This inclusion is based on an innovative extension of energy
7 efficiency programs, looking to reduce kW (of demand) in addition to the traditional
8 conservation of kWh (of consumption/load). By enrolling in the program, customers –
9 both residential and commercial/industrial – earn performance payments over a five-year
10 period to help finance the installation of the battery energy storage resource. In exchange,
11 they are responsible for discharging the battery to reduce their onsite demand during peak
12 events, which are announced by the electric distribution utility (Eversource and National
13 Grid) roughly a day in advance of the expected peak period. The approved program is
14 expected to include 30-60 peak events per summer season, each lasting 2-3 hours per
15 event. Compensation for performance during the peaks (assessed on an average basis
16 over the season) is set at \$200/kW (for commercial) and \$225/kW (for residential). There
17 are also performance payments to compensate for winter peak performance, though those
18 payments will be much smaller due to the lower peak capacity savings (\$25 and

1 \$50/kW). Through this BYOD Sunrun, among other companies, helped lower peak costs
2 for Massachusetts ratepayers this past summer.

3
4 Prior to this first full program year, Sunrun piloted this BYOD structure with National
5 Grid in 2018, proving out the program structure and its ability to induce customers and
6 drive DER performance. This one-year pilot, followed by longer term program, is the
7 same structure proposed in New Hampshire.

8
9 Very similar to the Massachusetts energy efficiency programs described above, this
10 year's energy efficiency programs in Rhode Island will include specific, dedicated
11 offerings for energy storage. Rhode Island's compensation rates will be higher than in
12 Massachusetts, offering \$300/kW for commercial customers and \$400/kW for residential
13 customers.

14 **Q. Is the BYOD in the 2020 New Hampshire plan update similar to Massachusetts?**

15 A. Yes, both utilities proposing the bring-your-own-device battery demonstration project
16 also operate in Massachusetts and have experience with the program described above.
17 The utilities indicated that the proposed sign up and dispatch performance payment is
18 structured and based on their experience with this program in Massachusetts.

19 **Q. Are there BYOD programs outside of energy efficiency plans?**

1 A. Green Mountain Power (“GMP”) has expanded its successful utility-owned residential
2 customer sited battery program⁸ using three different versions of a bring-your-own-
3 device approach. GMP has realized substantial transmission and capacity savings by
4 successfully dispatching this network of batteries. Customers can select upfront
5 compensation (\$850 per kW pledged for performance) or ongoing payments.

6
7 The program is open to customers across the GMP service territory. This enables GMP to
8 access battery capacity and bring a battery offering to its customers in partnership with
9 solar/storage providers, without taking on the responsibility to manage the deployment of
10 the resources. Solar/storage providers are able to customize offers to suit customer
11 preferences and can enroll customers as part of an aggregation.

12
13 In New York, through its Utility 2.0 Long Range Plan⁹, PSEG Long Island enhanced its
14 system-wide Super Savers program with the introduction of a Standard Offer \$/kW-year
15 payment for qualified capacity savings. PSEG Long Island offers a payment to third party
16 aggregators, selected via a qualification process that allows PSEG Long Island to
17 remotely control customers’ energy storage systems to reduce load during called events.
18 PSEG Long Island compensates the third-party aggregator on a pay-for-performance
19 basis for load reduction, with the expectation that customers will also receive a rebate or
20 cost savings, either through a portion of the rebate from PSEG Long Island transferred to

⁸ Grid Transformation Innovative Pilot – Update by Josh Castonguay, Case No. 19A-1069. Green Mountain Power, Grid Transformation Innovative Pilot. Filed on 4/15/19.

⁹ <https://www.lipower.org/wp-content/uploads/2018/06/2018-06-29-PSEG-LI-Utility-2.0-2018-AnnualUpdate.pdf>

1 them, and/or an upfront discount from the aggregator for the battery installation. This
2 structure provides space for the storage market to innovate and implement solutions that
3 will achieve maximum program participation.

4
5 While this BYOD is system-wide, it is also innovative in that it incorporates local adders
6 for transmission and distribution congestion and further allows the ability to stack with
7 Non-Wire Alternatives. The BYOD structure is an ideal method to address distribution
8 level issues by engaging an enrolled fleet on the grid and also addressing localized issues
9 as the need arises.

10
11 The program includes co-marketing with PSEG Long Island encouraging battery sales to
12 complement solar installations. This reduces customer acquisition and consumer prices.
13 PSEG Long Island partners with equipment manufacturers and contractors on collateral
14 material to support and drive participation, including targeted direct mail outreach to
15 energy storage prospects, driving interest and contractor leads.

16 **Q. Is BYOD cost-effective?**

17 A. Because this is a demonstration project and very limited in scope, a cost-benefit analysis
18 is typically not required. However, in other states where these programs are more
19 established or in full operation BYOD battery measures have proven cost effective and
20 prudent.

21 **Q. Should enrollment numbers in the pilot be a metric of success?**

1 A. Given the small program size and the one-year program length, this pilot is not likely to
2 induce developers to enter the NH market with a new storage offering. Nor is it likely to
3 encourage a proliferation of offerings from current in-market developers. Thus, overall
4 enrollment numbers should not be used as a metric of success of the pilot.

5
6 In fact, the MA Connected Solutions pilot had relatively low enrollment but helped to
7 prove out the use case, program structure, and benefits and costs.

8
9 This pilot need not have high enrollment to provide the necessary case study for the
10 utilities and stakeholders to craft a successful long-term program. That said, one way to
11 ensure robust participation is for the utilities to undertake comarketing with approved
12 developers. A developer is not likely to invest resources to acquire customers for such a
13 small opportunity, but if the utility is able to market to potential customers and direct
14 those customers to qualified developers, this can substantially increase enrollment. This
15 utility comarketing has proven successful in the states that currently have BYOD
16 programs.

17 **Q. What is the role of aggregators in other BYOD programs?**

18 A. Aggregators have proven to be a key component of successful BYOD programs. An
19 aggregator can simplify the complexity for both customers and program administrators.
20 Aggregators present straightforward, easy to understand battery offerings to busy
21 residential customers, and then manage battery charge, discharge, measurement and
22 verification, and settlement for the customer. Additionally, many aggregators insulate

1 their customers from performance risk - even if an individual customer's battery does not
2 perform, an aggregator may still give them the agreed upon performance payment while
3 spreading this non-performance risk across the aggregator's fleet. Secondly, the
4 aggregator simplifies dispatch, performance, and settlement for the utility by serving as a
5 single point of contact for a dispatch signal, performing customer management and care,
6 and providing a reliable, large scale load management resource. This capacity, improved
7 efficiency, and scale amounts to higher customer participation and lower overall program
8 costs.

9 **Q. Are there any limitations to consider if this were to be expanded to full**
10 **program/measure?**

11 A. We support the demonstration project as proposed, however we want to recognize that if
12 it is successful and expanded, we advise the following recommendations, among others,
13 be considered. If expanded into a full program, it would be important to size the total
14 dispatchable capacity appropriately to achieve desired demand reduction and to
15 compensate battery owners or aggregators appropriately for the services and savings
16 realized. The program should also be expanded to include monthly transmission peak
17 reduction, as GMP in Vermont does. Compensation should also include a fair share of all
18 transmission and capacity savings and should ideally have a guaranteed program duration
19 that will encourage private investment similar to the 5-years offered in Massachusetts. A
20 permanent program could also operate under a shared savings model, whereby utility and
21 participating aggregator/customer incentives are aligned such that, e.g., as the utility's

1 peak prediction and dispatch signaling performance increases, the utility is able to receive
2 an increasing share of the savings.

3 **Q. Does this conclude your testimony?**

4 A. Yes.

5