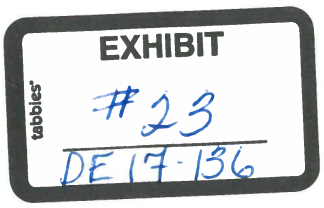

STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DOCKET **DE 17-136**

IN THE MATTER OF: 2018 – 2020 New Hampshire Statewide Energy Efficiency Plan
2020 Plan Update

DIRECT TESTIMONY

OF

Elizabeth R. Nixon
Utility Analyst
NHPUC Electric Division

November 13, 2019

Introduction

Q. Please state your full name?

A. My name is Elizabeth R. Nixon.

Q. By whom are you employed and what is your business address?

A. I am employed by the New Hampshire Public Utilities Commission as a Utility Analyst. My business address is 21 S. Fruit Street, Suite 10, Concord, NH 03301.

Q. Please summarize your education and professional work experience.

A. My educational and professional background is summarized in Attachment A.

Q. What is the purpose of your testimony in this proceeding?

A. My testimony provides comments and recommendations regarding the energy efficiency programs proposed in the New Hampshire Statewide Energy Efficiency Plan, 2020 Plan Update ("2020 Plan Update") originally filed on September 1, 2019 and revised as of November 1, 2019 filed jointly by the New Hampshire electric and gas utilities ("Utilities"). The Utilities are Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty Utilities ("Liberty Electric"), New Hampshire Electric Cooperative, Inc. ("NHEC"), Public Service Company of New Hampshire d/b/a Eversource Energy ("Eversource"), Unitil Energy Systems, Inc. ("Unitil"), Liberty Utilities (EnergyNorth Natural Gas) Corp. d/b/a Liberty Utilities ("Liberty Gas"), and Northern Utilities, Inc. ("Northern"). My testimony primarily focuses on the residential and commercial and industrial (C&I) demand response pilot programs proposed by Eversource and Unitil, the cost-effectiveness of specific programs, Eversource's customer engagement platform (CEP), the benefit/cost working group, and the next three-year plan.

Q. Please provide a summary of your testimony.

A. In general, Staff recommends approval of the 2020 plan, taking into consideration any issues highlighted in this testimony. Staff recommends approval of the residential and C&I demand response programs, but believes that additional details should be provided prior to implementation of such programs so that the purpose and details of the pilots are clear. Staff also notes that a few programs as proposed are not cost-effective, and several programs as proposed are marginally cost-effective. Staff recommends that these programs continue for 2020, but a detailed review of the cost-effectiveness of these programs should be conducted for the next triennial plan. For Eversource's CEP, Staff recommends that this tool be reviewed in great detail during the next triennial plan before any further energy efficiency funds are used to support the CEP, given its low participation rate and lack of effectiveness in encouraging energy efficiency program participation. Staff recommends that the benefit/cost working group reconvene when the results of the non-energy impact (NEI) studies are available to determine the appropriate NEI values to use. Finally, Staff provides a few recommended areas for consideration during the next triennial plan.

Q. Does Staff have any general comments regarding the 2020 plan update?

A. Yes. The Utilities filed their plan on September 13, 2019. Then on September 25, 2019, the Governor signed a bill affecting the low-income programs, which required a revision to the 2020 Plan Update. In addition, after the September 13, 2019, Eversource decided to discontinue its home energy reports program filing and also determined that a revision to its lost base revenue calculation was required. Given these changes, the Utilities filed a revised 2020 plan update on November 1, 2019. The passing of the new requirements by the legislature was not anticipated. However, Staff is concerned with these late filed changes and

revisions, which have compressed the already tight schedule for the review of this Plan Update.

Commercial and Industrial Active Demand Response Pilot Program

Q. What do the Utilities propose for the commercial and industrial ("C&I") active demand response pilot program?

A. Eversource and Unitil propose to continue the C&I Active Demand Reduction Initiative ("C&I DR pilot") as proposed for 2019 and approved with Order No. 26,232 with a few changes plus an addition of bring your own device ("BYOD") feature for Unitil. In the Utilities' plan, no specific details regarding the proposal for 2020 were provided, except for a brief explanation regarding Unitil's BYOD program, the total costs, and a reference to their filing on January 28, 2019 for the 2019 C&I DR pilot.[1] Unitil proposes that they provide an incentive for C&I customers for average summer demand reduction from customer thermal (ice) storage and battery storage systems. On Bates p. 60 in Attachment E1 p. 1 of 3, Eversource lists the costs of the C&I DR pilot as $380,200. On Bates p. 151 in Attachment H1 p. 1 of 3, Unitil lists the costs of the C&I DR pilot as $227,343.

Q. Did Staff obtain any additional information regarding the C&I DR pilot during this proceeding?

A. Yes. In response to a data request, Eversource and Unitil provided a little more detail. They indicated that they propose to modify the 2019 C&I DR pilot slightly. (See Attachment B.) Eversource proposes to increase the offering from 5 MW to 6.5 MW. Unitil plans to increase marketing efforts and increase the goal offering to 2.7 MW from of 1.8 MW in 2019. In

[1] Public Service of New Hampshire d/b/a Eversource Energy and Unitil Energy Systems, Inc., *2019 Commercial and Industrial Demand Reduction Initiative*, January 28, 2019. http://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2019-01-28_EVERSOURCE_AND_UES_REDUCTION_INITIATIVE.PDF

addition, Unitil proposes to offer a pay for performance C&I storage program. Unitil proposes to save 100 kW with battery storage or thermal (ice) storage, with an incentive between $275 and $350 per kW.

Q. How does the proposed C&I DR pilot compare to that proposed for 2019?

A. See Table 1 for a comparison.

Table 1. Comparison of 2019 and 2020 Proposed C&I DR Pilot

	2019 Demand Reduction Goal (MW)	2020 Demand Reduction Goal (MW)	2019 Incentive ($/kW Reduced)*	2020 Incentive ($/kW Reduced)*	2019 Total Proposed Costs	2020 Total Proposed Costs
Eversource						
Interruptible Load	5	6.5	35	50	$250,000	$380,187
Unitil						
Interruptible Load	1.8	2.7	35	52	$93,765	$227,343
Battery/Thermal (Ice) Storage	NA	0.1	NA	275-350	NA	
Total C&I DR Pilot	6.8	9.3			$343,765	$607,530

*For the interruptible load program, the incentive is paid to the curtailment service provider, who then provides a portion to the customer. The utilities did not provide a proposed incentive level on a $/kW reduced basis for 2020. The 2020 incentive levels are calculated based on the total incentive costs provided for the interruptible load program: $325,000 for Eversource and $140,000 for Unitil.

Q. What were the results of the 2019 C&I DR pilot?

A. The utilities have not provided any detailed results, except a brief summary at the Energy Efficiency Resource Standard (EERS) quarterly meetings and in response to a data request. (See Attachment C.) For Eversource, 36 sites totaling 5.905 MW were enrolled. For the Eversource participants, three events, which were each three hours in duration, were called.

Based upon data supplied by the vendor, the average estimated demand reduction over the nine hours was 5.190 MW for Eversource. For Unitil, six sites totaling 1.6 MW were enrolled. For the Unitil participants, one event, which was three hours in duration, was called. Based upon data supplied by the vendor, the average estimated demand reduction over the three hours was 1.3 MW for Unitil. Each utility called an event during the annual system peak, which occurred on July 30, 2019 during the hour ending 18:00.

Q. Does Staff expect the Utilities to provide more detailed results for the 2019 C&I DR pilot?

A. Yes, per Order No. 26,232, Eversource and Unitil will provide results of the 2019 C&I DR pilot with (or prior to), the 2019 Quarter 4 EERS report, which is filed by March 1, 2020. In addition, a consultant is conducting an evaluation of demand response programs conducted in New Hampshire, Massachusetts, and Connecticut. Staff believes that the consultant's preliminary results of the 2019 C&I DR pilot will be available in December 2019.

Q. Did the Utilities provide a benefit/cost analysis of the C&I DR pilot proposed for 2020?

A. No. The Utilities did not conduct such an analysis, stating that since it is in a "demonstration phase," and since they are not claiming any benefits, they do not need to provide such an analysis. In addition, they state that an active demand model being developed by Synapse Energy Economics, Inc. to calculate the costs and benefits is not yet complete.

Q. Does Staff agree with the Utilities regarding the need for a benefit/cost analysis for the C&I DR pilot?

A. No. Staff believes that the utilities should conduct such an analysis to provide, at a minimum, an estimated benefit/cost ratio using the avoided cost data available.

Q. Did the utilities provide a benefit/cost analysis for the 2019 C&I DR pilot?

A. Yes, they did in response to a data request. A copy of that response was provided with Staff's recommendation submitted on March 19, 2019[2] for the 2019 C&I DR pilot.

Q. What did that analysis show for the 2019 C&I DR pilot?

A. For a 5 MW reduction from Eversource participants, the benefit/cost ratio was estimated to be 4.93 using avoided cost estimates adapted from the AESC study.[3] For a 1.8 MW reduction from Unitil participants, the benefit cost ratio was estimated to be 4.73.

Q. Does Staff think that the benefit/cost analysis will be similar for the 2020 C&I DR pilot?

A. Staff thinks that the benefit/cost ratio will be greater than 1 for both utilities, and probably similar to the 2019 C&I DR pilot estimates, except that since Unitil's proposed costs are greater than Eversource's ($81/kW reduced for Unitil versus $59/kW reduced for Eversource), the benefit/cost ratio will probably be less for Unitil.

Q. Do the Utilities propose to earn performance incentive on the C&I DR pilot?

A. If the proposed performance incentive is approved, Eversource would earn approximately $21,000 - $26,150 associated with the costs of the C&I DR pilot, and Unitil would earn approximately $12,500 - $15,650.

Q. Does Staff have any concerns with the proposed 2020 C&I DR pilot?

A. Yes, Staff is concerned that Eversource and Unitil did not provide any significant detail in the filing regarding these proposed pilots, nor do they believe that they need to provide additional details. Only through data requests and technical sessions was Staff able to learn additional details.

[2] http://puc.nh.gov/Regulatory/Docketbk/2017/17-136/LETTERS-MEMOS-TARIFFS/17-136_2019-03-19_STAFF_REC.PDF

[3] Synapse Energy Economics, Inc., *Avoided Energy Supply Components in New England: 2018 Report*, October 24, 2018. https://www.synapse-energy.com/project/aesc-2018-materials

Q. Does Staff have any additional comments related to the 2020 C&I DR pilot?

A. Yes. Note that Unitil has proposed that approximately 23% of the costs are administrative costs as compared to 15% administrative costs for Eversource. Since Unitil did not meet their demand reduction goal and enrollment goal for 2019, additional costs for marketing may be necessary; however, Staff recommends that details regarding all of the costs be provided as well as a justification for such costs.

Residential Bring Your Own Device Demand Reduction Pilot Program

Q. What do the Utilities propose for the residential active demand response pilot program?

A. Eversource and Unitil propose to add a residential BYOD Demand Reduction Initiative ("Residential DR pilot"). No specific details regarding the proposal for 2020 were provided in the 2020 Plan Update, except for a brief explanation of the program and the total costs. They propose that the utility or a vendor will control a participant's wifi thermostat by increasing the set point by up to four degrees for three hours at a time for multiple events during the summer peak periods. The Utilities would provide a sign-up incentive of between $25 and $45 and also an annual incentive of $20 to $25 for participation. In addition, the Utilities propose to provide an incentive to customers with a battery storage system "that allows the Company or its vendor to dispatch that battery some number of hours per year…. Customers who agree to allow daily dispatch of their battery throughout the summer would be provided a rebate by the utility of for example, between $225 and $350 [per] annual kW." On Bates p. 60 in Attachment E1 p. 1 of 3, Eversource lists the costs of the Residential DR pilot as $128,500. On Bates p. 151 in Attachment H1 p. 1 of 3, Unitil lists the costs of the C&I DR pilot as $122,100.

Q. Do you have any additional information regarding the C&I DR pilot?

A. Yes. In response to a data request, Eversource and Unitil provided a little more detail. (See Attachment D.) Eversource proposes to enroll 1000 wifi thermostats totaling 500 kW and 20 battery storage systems totaling 100 kW with the total incentive cost at $109,500. Unitil proposes to enroll 500 wifi thermostats totaling 250 kW and 10 battery storage systems totaling 50 kW with the total incentive cost at $50,000.

Q. Did the Utilities provide a benefit/cost analysis of the Residential DR pilot proposed for 2020?

A. No. The Utilities did not conduct such an analysis. In a data response, they state that since the Residential DR pilot is a "demonstration initiative…no benefits are planned" or claimed and "the overall portfolio of programs for 2020 is cost-effective." In addition, they state that an active demand model being developed by Synapse Energy Economics, Inc. to calculate the costs and benefits is not complete.

Q. Does Staff agree with the Utilities regarding the need for a benefit/cost analysis for the Residential DR pilot?

A. No. Staff believes that the Utilities should conduct such an analysis to provide, at a minimum, an estimated benefit/cost ratio using the avoided cost data available. The Utilities argue that the avoided cost data available in the AESC study does not show all of the benefits. However, Staff believes that the data from the AESC study would provide an estimate of the benefit/cost ratio. Given the total cost of the programs in relation to the total demand reduction expected ($214/kW for Eversource and $407/kW for Unitil compared to about $60-$80/kW in the C&I DR pilot); the Utilities should provide more explanation and justification of the expected benefits.

Q. Do the utilities propose to earn performance incentive on the Residential DR pilot?

A. If the proposed performance incentive is approved, Eversource would earn approximately $7,000 - $9,000 associated with the costs of the Residential DR pilot, and Unitil would earn approximately $6,500-$8,400.

Q. Does Staff have any concerns with the proposed 2020 Residential DR pilot?

A. Yes, Staff is concerned that Eversource and Unitil did not provide any significant detail in the filing regarding these proposed pilots, nor do they believe that they need to provide additional details. Only through data requests and technical sessions was Staff able to learn additional details.

Q. Does Staff have any additional comments related to the 2020 Residential DR pilot?

A. Yes. Note that Unitil has proposed that approximately 59% of the costs are administrative costs as compared to 15% administrative costs for Eversource. Since Unitil did not meet their demand reduction goal and enrollment goal for the 2019 C&I DR pilot, additional costs for marketing may be necessary; however, Staff recommends that details regarding all of the costs be provided as well as a justification for such costs, especially since the administrative costs exceed the incentive costs.

Staff is also concerned with the number of dispatches expected for the battery storage pilot. The utilities propose to dispatch 30 to 60 times for approximately three hours per event. Also, Staff is concerned with the one-year timeframe proposed for the battery storage portion, because if one of the purposes of the program is to provide incentive for customers to install battery storage systems, then a one-year period would not provide a guaranteed revenue stream for the participants beyond the first year. Given that battery installed costs

can exceed $10,000 to $15,000, a one-year incentive of $1000 - $1500 may not provide an indication of participation in a longer-term incentive program.

Q. Does Staff have any additional comments related to the DR pilots?

A. Yes, Staff believes that the Utilities need to show that they have a well-defined pilot program that takes into account all related requirements, such as net metering requirements related to photovoltaic systems paired with batteries, and other concerns. The utilities must ensure that if the utilities are communicating with devices behind a customer's meter, that cybersecurity is addressed.

Staff believes that the cost recovery approach for all demand response programs should be reviewed during the next triennium. While pairing demand response program delivery with energy efficiency programs may be appropriate, the cost recovery method may not be appropriate since in some cases, the load is shifting and the actual benefits are realized in reduced transmission or distribution costs.

Finally, since these are pilots, Staff does not believe that lost base revenue (LBR) related to any savings (kWh or kW) associated with these pilots should be allowed. Staff understands that no LBR is included in the Utilities' request related to these demand reduction pilots.

Q. What information does Staff believe would be useful in the filing for demand response pilots (or other new programs or pilots)?

A. Staff believes that a demand response pilot (or any new program or pilot) should provide at least, but not limited, to the following:

- Proposed goals (e.g., demand reduction in kW);
- Other goals or measures of success for the pilot;

- Other lessons or best practices to be learned;
- Proposed incentive levels to be paid to vendors and/or participants;
- Detailed, itemized costs;
- A benefit/cost analysis;
- Detailed narrative of the proposed methodology for determining the baseline usage;
- Detailed narrative of the proposed methodology for calculating the kW reduced;
- Other details of the proposed program;
- Timing of the payment to the vendor and/or participant;
- Proposed marketing and education plan for enrolling participants; and
- Proposed evaluation, monitoring, and verification study and timing of such study.

Program Cost-Effectiveness

Q. Are all of the programs that the Utilities have proposed cost-effective?

A. No. A few programs are planned to have a benefit/cost ratio of less than one. NHEC's municipal energy solutions program as proposed is expected to have a benefit/cost ratio of 0.96 and Northern's home energy report programs, a benefit/cost ratio of 0.83. In addition, several programs as proposed are expected to be marginally cost-effective, such as Unitil's home energy reports program (1.03), Liberty Gas' home energy assistance program (1.01), Liberty Gas' energy star home program (1.04), Liberty Gas' home energy reports program (1.02), Northern's home energy assistance program (1.03), Northern's energy star homes program (1.01), and Northern's home performance with energy star program (1.01).

Q. What do recommend regarding these marginally cost-effective programs?

A. Given that the Utilities are in the third year of a three-year plan, Staff recommends that the Utilities continue these programs for 2020. However, during the planning process for the next triennial plan, Staff recommends that these programs are more thoroughly analyzed and reviewed to determine if they should be changed in some way or even discontinued.

Eversource's Customer Engagement Platform

Q. What data was Eversource required to provide about the Customer Engagement Platform (CEP)?

A. Per the Settlement Agreement approved by Order No. 26,207, Eversource was required to report during the EERS quarterly meetings whether the number of new users increased by 50 percent during 2019 over 2018 users. In addition, Eversource was required to track and report the number of CEP users who later participate in one of the energy efficiency programs.

Q. Did Eversource provide such data for the percent increase of monthly new users from 2018 to 2019?

A. During the quarterly meeting, Eversource provided a graph showing the number of users by month during 2018 and 2019. In addition, in response to a data request, Eversource provided the actual monthly data through September 2019. (See Attachment E.) Based on Staff's calculation, the percent increase in the number of CEP users from 2018 to 2019 on a monthly basis ranged from 34% to 95% for residential customers and a decrease of 14% to an increase of 83% for C&I new users. Note that in 2018 the number of new residential users increased to an average of about 1200 new users per month during the third quarter (compared to

average of about 600 new users per month for the rest of 2018), and the 2019 data for the third quarter is not available yet.

Q. Did Eversource provide data showing the number of CEP users who then participated in an energy efficiency program?

A. Eversource did not provide such data until asked in a data request. (See Attachment E.) For January through September 2019, a total of 853 customers have participated in the energy efficiency programs who also have used the CEP. The energy efficiency programs include Energy Star Products (excluding upstream lighting), Home Performance with Energy Star, Energy Star Homes, and Home Energy Assistance. In the data response, Eversource indicated that 26,487 residential customers and 1,293 C&I customers for a total of 27,280 customers have used the CEP since it was launched. This equates to about 6% of residential customers and less than 2% of C&I customers. The total customers in 2019 that have participated in the energy efficiency programs and who also used the CEP since its launching compared to all retail customers in Eversource's territory is less than 0.2%.

Q. What do you recommend regarding Eversource's CEP?

A. Given the low usage rate and very low usefulness in encouraging customers to participate in the energy efficiency programs, Staff recommends that during the next triennial planning process, this tool should be reviewed for its usefulness and effectiveness related to the energy efficiency programs. One consideration could be to subject the CEP to a cost-effectiveness test. Another would be to no longer allow energy efficiency funding to support the CEP.

<u>Benefit/Cost Working Group</u>

Q. Does Staff have any recommendations regarding the benefit/cost working group?

A. Yes. The benefit/cost working group has been very productive in providing technical assistance for the cost-effectiveness test study and the energy optimization study. In addition, in prior years, the benefit/cost working group served to determine the appropriate assumptions to use for the benefit/cost analysis. A few topics still need to be finalized in the benefit/cost working group. Per the Settlement Agreement approved by Order No. 26,207, the benefit/cost working group needs to determine what to do with the results of the studies reviewing the non-energy impacts (NEIs). When the results of the home energy assistance program evaluation and the cross-cutting NEI study are available, the benefit/cost working group must determine what values to use for NEIs in the benefit/cost test. Note that the Utilities proposed that the work of the benefit/cost working group was complete; however, as noted in the referenced Settlement Agreement and Order, the working group's tasks are not complete yet.

Next Triennial Plan

Q. Does Staff have any recommendations regarding the next triennial plan?

A. Yes. Staff recommends that the Commission hire an evaluation, measurement and verification (EM&V) consultant for the next triennium to provide similar assistance as the current EM&V consultant. Staff also recommends that the following areas be reviewed during the triennial planning process:

- The administrative costs to run the energy efficiency programs;
- The amount of costs incurred by third party vendors and contractors versus that incurred by the Utilities;

- Methods (e.g., alternative payment structures, etc.) for encouraging additional vendors/contractors to install low income energy efficiency measures;
- Transparency (e.g., detailed descriptions of programs, listings of incentives available, changes in program assumptions, etc.) of the programs and filings;
- Cost recovery of demand response pilots and programs;
- Adherence to Settlement Agreement conditions concerning materials to be filed with annual plans and updates as opposed to being asked for in data requests; and
- CEP usefulness and effectiveness.

Q. Do you have any other recommendations regarding the 2020 Plan Update and future plans and updates?

A. Taking into consideration the concerns outlined in Staff's testimonies, Staff recommends approval of the 2020 Plan Update. Staff recommends that the Utilities and Stakeholders continue the active stakeholder engagement process to develop the next triennial plan.

Q. Does this conclude your testimony?

A. Yes.