



March 21, 2023

Daniel C. Goldner, Chairman
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: Conservation Law Foundation’s Initial Comments in Docket No. IR 22-076

Dear Chairman Goldner,

Thank you for the opportunity to submit comments in Docket No. IR 22-076, the Commission’s Investigation of Whether Current Tariffs and Programs are Sufficient to Support Demand Response and Electric Vehicle Charging Programs. Conservation Law Foundation (“CLF”) supports the Commission’s decision to conduct a three-month investigation into the issues raised in this docket, which includes several rounds of comment opportunities for participants, prior to the Commission initiating an adjudicative phase. CLF also supports the Commission’s decision to maintain a single proceeding to consider the issues raised in the original order of notice, as such issues are interrelated. Based on the far-reaching topics discussed in the order of notice, CLF believes that this investigatory docket and its subsequent adjudicative phase have the potential to help New Hampshire become “the most innovative state within the electricity market.”¹

1. Whether the Commission has previously met the requirements for consideration of demand response practices pursuant to 16 U.S.C. § 2621(d)(20)?

The Infrastructure Investment and Jobs Act of 2021 amended Section 111(d) of the Public Utility Regulatory Policies Act of 1978 to require that each “state regulatory authority (with respect to each electric utility for which it has ratemaking authority)” make a determination concerning whether it is appropriate to implement “[d]emand response practices.” 16 U.S.C. § 2621(d)(20). Regarding demand response practices, 16 U.S.C. § 2621(d)(20) explains that each “electric utility shall promote the use of demand-response and demand flexibility by commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand” and that each “State regulatory authority shall consider establishing rate mechanisms allowing an electric utility with respect to which the State regulatory authority has ratemaking authority to timely recover the costs of promoting demand-response and demand flexibility practices.” *Id.*

¹ Commissioner Simpson Statement, Hearing Transcript at 93 (NH PUC, Docket No. DE 17-189, Feb. 7, 2023).

Except for this docket, CLF is unaware of the Commission ever initiating a docket to explicitly consider the implementation of demand response programs for New Hampshire's electric utilities. Although the utilities' proposed 2021-2023 New Hampshire Statewide Energy Efficiency Plan included an active demand response program, this program was relatively tangential to the overall proposed plan, and the plan that was ultimately approved by the Commission only included an active demand response pilot. The Commission has not conducted a comprehensive investigation into the adoption of more widespread demand response programs by the state's electric utilities and, therefore, has not issued a determination on utility demand-response programs as required by 16 U.S.C. § 2621. To comply with the statute, the Commission has appropriately initiated this investigation.

2. How can demand response reduce electricity consumption during periods of unusually high demand, and what rate mechanisms should be developed to compensate ratepayers for their retail electricity market compensation?

More widespread adoption of time-of-use ("TOU") rates in New Hampshire has the potential to reduce electricity consumption during periods of high demand. TOU rates provide consumers with opportunities to shift electricity use from critical-peak periods to mid-peak and off-peak periods, which makes it possible for the grid to meet consumers' needs without building costly and redundant backup infrastructure.

At present, the three regulated utilities have all implemented time varying rates to some degree.² Unitil offers the most advanced TOU rate, offering a three-period, whole house TOU rate to all residential customers. Liberty offers a two-period TOU rate for large commercial and industrial ("C&I") customers and a three-period TOU rate for EV customers and for customers enrolled in its battery storage pilot.³ While Eversource offers a two-period residential time-of-day service rate, its adoption appears to be very limited at present.⁴

The Commission should consider ways to encourage and/or compel the utilities to make TOU rate adoption more widespread for residential and C&I customers across New Hampshire. Where TOU rates are opt-in, adoption tends to remain extremely low; therefore, the Commission should prioritize the adoption of TOU rates that are opt-out.⁵ The Commission should also

² See Granite State Electric Corp. Rate Schedule (Mar. 1, 2023), <https://new-hampshire.libertyutilities.com/uploads/2023-03%20Summary%20of%20Rates%20for%20Electric%20Service.pdf>; Eversource 2023 Summary of Electric Rates (Feb. 1, 2023), <https://www.eversource.com/content/docs/default-source/rates-tariffs/nh-summary-rates.pdf>; Unitil Residential Electric Rates (Jan. 1, 2023), https://unitil.com/sites/default/files/2022-12/UES_Res_01.01.23.pdf. Time-of-Use Rates, Unitil, <https://unitil.com/time-of-use>.

³ *Id.*

⁴ In testimony filed with the Commission in June 2021, Eversource stated that only 45 customers received service under its time-of-day rate. Testimony of Ed Davis, Eversource, Docket No. DE 21-119, at 5 (June 2021).

⁵ See Presentation on Four Reforms for a More Active Demand Side in Connecticut, NRG Energy, at Slides 113, 119 (Nov. 2022), https://portal.ct.gov/-/media/DEEP/energy/ConserLoadMgmt/Master-Slide-Deck_TM-5_DR.pdf.

prioritize three-period TOU rates, as such structures provide better price signals than two-period structures. The Commission should also consider ways to standardize TOU rates across the utilities' three service territories. Greater adoption of TOU rates will facilitate demand response by providing greater demand flexibility, which will in turn reduce electricity consumption during high load periods.

In addition to greater adoption of TOU rates, the Commission should explore the increased use of active demand response programs for both residential and C&I customers that either rely on (1) manual dispatch, whereby upon receiving a dispatch signal, a customer manually adjusts equipment or initiates an automated process; or (2) auto dispatch, whereby a predetermined demand response strategy is automatically initiated for the customer by the utility. By providing consumers with an incentive for participation in active demand response programs, such as via a monthly rebate, such programs can lead to reductions in electricity consumption during periods of peak demand.

3. What programs or services are currently offered by the utilities that support customer demand response activities to reduce peak demand, and what are the associated rate mechanisms?

The electric utilities have already adopted active demand response pilots as part of the NH Saves program, which include a C&I load curtailment pilot and a Wi-Fi Thermostat Direct Load Control pilot.⁶ The C&I Load Curtailment pilot provides Eversource and Unitil Electric customers an incentive for verifiable shedding of load in response to communication from the utility or curtailment service. The Wi-Fi Thermostat Direct Load Control pilot targets Eversource and Unitil's electric residential customers who own a qualified, wirelessly communicating thermostat that controls a central A/C system. Participants receive an incentive in exchange for allowing the utility to make a brief and limited adjustment to the Wi-Fi thermostat during peak electric demand events.⁷ Moreover, as discussed in response to Question 2, the three electric utilities provide different levels of time varying rate options. Additionally, the Liberty battery storage pilot has exhibited success in reducing demand during critical peak events.⁸

4. What new programs or opportunities could be implemented to further promote demand response practices and reduce consumption during unusually high demand periods?

As part of this docket, the Commission should consider ways to expand active demand response programs for both residential and C&I customers. Initially, the Commission could focus on expanding the types of pilots offered as part of NH Saves to more electric customers throughout New Hampshire. For example, the Commission could explore ways to expand

⁶ 2022-2023 New Hampshire Statewide Energy Efficiency Plan, at 73 (Docket No. 22-092, Mar. 1, 2022).

⁷ *Id.*

⁸ See Liberty Battery Storage Pilot Interim Evaluation Report, Prepared for Liberty Utilities by Guidehouse (NH PUC Docket No. 17-189, Nov. 2022).

demand response programs that are based on direct control of residential Wi-Fi thermostats that control a central A/C system, as well as programs in which C&I customers curtail load in response to communication from the utility. The Commission should also explore ways that battery storage programs could be employed to promote demand response. Liberty's battery storage pilot has been successful in reducing peak demand. Accordingly, the Commission could approve an expansion of Liberty's battery storage pilot and promote similar battery storage programs for the other utilities.

Although residential demand response programs have tended to focus on reducing peak summer demand, demand response programs also have the potential to reduce peak winter demand. Adoption of winter demand response programs could help reduce consumption during peak load periods and lessen the burden on families and businesses of the high electric prices New Hampshire has experienced this winter. Developing winter demand response programs is especially relevant given ISO-NE's forecast that, by 2035, the regional grid will begin experiencing its highest system load in the winter, because of increased heating electrification.⁹ A coalition of environmental advocacy organizations, including CLF, recently released a report on the need for New England to increase grid reliability in the winter. The report includes the following two recommendations that focus on the need to expand demand response programs for residential and C&I customers in winter:

1. Residential demand management can be harnessed now to help keep the electric grid reliable. . . . Simple, quick steps could expand [ADR] programs to provide targeted relief in the winter, not just during the summer as they do today. To reap the benefits of these residential programs in cold weather, the states and ISO-NE should collaborate to start paying for this electricity demand reduction service when it is needed in both the summer and the winter. The smart management of residential devices including battery storage, thermostats, and electric vehicle chargers, when coordinated through state energy efficiency programs, could provide substantial benefits in the winter. But these benefits are currently lost because the value these load reductions provide to winter reliability are not recognized and compensated for. State programs should recognize this value and incorporate it into active demand management programs that are already underway, expanding them for winter mobilization. . . .

2. Commercial and industrial demand response program. Commercial and industrial (C&I) demand response is an established resource in the region that has more benefits to offer the electric grid in the wintertime than it currently provides. In 2015, ISO-NE launched a grid relief initiative called the Winter Reliability Program, which included a C&I demand response element that enabled the grid operator to call on C&I customers for up to thirty grid reliability events each winter. Under demand response programs like this one, C&I customers can shift the timing of activities like industrial production or

⁹ 2050 Transmission Study, ISO, NE, at Slide 24 (April 28, 2022), https://www.iso-ne.com/static-assets/documents/2022/05/a13_2050_transmission_study_sensitivity_results_and_solution_development_plans.pdf.

deploy on-site demand-reduction devices like lighting controls to provide relief for a stressed grid. For example, cement producers can pause rock crushers, sawmills can temporarily delay operations, and large buildings like courts or schools can make minor adjustments to temperature set-points or fan speeds. For the 2016/2017 Winter Reliability Program, just six customers were able to provide 23 MW of demand response.¹⁰

Accordingly, as part of this investigation and the subsequent adjudicative docket, the Commission should explore the possibility of increased adoption of winter demand response programs.

5. What technologies are available today or could be available within a utility’s planning horizon to enable support of demand response and transactive energy?

The Commission should consider the potential for bring-your-own-device (“BYOD”) technology to enable the adoption of demand response programs. For residential programs, both BYOD thermostats and BYOD batteries have potential for use in demand response programs. In a recent presentation to the Connecticut Department of Energy and Environmental Protection, Eversource and Avangrid noted that in their Connecticut service territories, approximately 36,000 BYOD thermostats, totaling 24 MW, participate in summer demand response programs and approximately 800 customers with BYOD batteries, totaling 11 MW, participate in summer demand response programs.¹¹

To fully take advantage of demand response programs, New Hampshire customers need access to widespread advanced metering infrastructure (“AMI”). The lack of AMI throughout New Hampshire, and particularly in Eversource’s service territory, is an underlying issue that will hinder the deployment of demand response programs and should be addressed by the Commission in this docket. In a recent presentation to the Connecticut Department of Energy and Environmental Protection, NRG stated that “before Connecticut can have robust demand response or wide adoption of time-of-use rates, they must complete the rollout of smart meters to all customers.”¹² Similarly, New Hampshire’s rollout of demand response programs will be hindered by the lack of AMI across the state.

¹⁰ Acadia Center *et al.*, *New England’s Winter Electricity Challenges Call for a Clean Energy Solution*, 4-5 (2022), https://www.sierraclub.org/sites/default/files/2563%20NE%20Winter%20Reliability%20WP%2003_web.pdf.

¹¹ 2022 CES Technical Session #5: Active Demand Response (ADR), Eversource and Avangrid, at Slide 25 (Nov. 2022), https://portal.ct.gov/-/media/DEEP/energy/ConserLoadMgmt/Master-Slide-Deck_TM-5_DR.pdf.

¹² See Presentation on Four Reforms for a More Active Demand Side in Connecticut, NRG Energy, at Slide 118 (Nov. 2022), https://portal.ct.gov/-/media/DEEP/energy/ConserLoadMgmt/Master-Slide-Deck_TM-5_DR.pdf.

6. What market barriers exist that, to date, have prevented greater demand response management?

As noted in response to Question 5, the lack of AMI in the three utilities' service territories has prevented greater demand response deployment. Although BYOD programs have potential to enable demand response management programs, the cost of BYOD devices serves as a barrier to participation in such programs. The cost of BYOD devices can be an especially high burden for low- and moderate-income customers.

Further, because demand response programs are relatively new, there are information asymmetries between the utility and customers. This information asymmetry could be overcome, in part, by making enrollment in TOU rates opt-out instead of opt-in.

7. What are the current policies around customer-funded versus ratepayer funded interconnections of EV charging infrastructure?

In New Hampshire, it has generally been Commission policy for customers, instead of ratepayers, to fund EV charging infrastructure interconnections. However, in Order No. 26,738 in Docket No. DE 21-078, the Commission approved Eversource's expenditure of up to \$2.1 million in ratepayer funds on EV charging infrastructure interconnections. In that docket, the Commission carefully limited ratepayer funded costs by tying Eversource's expenditures to funding from the \$4.6 million Volkswagen Settlement Trust, which requires that Settlement awardees contribute at least 20 percent of infrastructure costs. *See* Order No. 26,667, Docket No. DE 21-078 (Aug. 15, 2022).

As several parties in Docket No. DE 21-078 noted, the infrastructure costs associated with connecting EV charging stations to the grid is one of the largest cost categories of installing and hosting EV charging stations.¹³ Moreover, the lack of public funding for EV interconnection costs has hampered the development of EV charging stations in New Hampshire.¹⁴ Increased EV charging station development in New Hampshire will benefit its economy, by encouraging tourists from other states who drive EVs and prioritize EV charging availability to visit here.¹⁵ Additionally, as transportation electrification increases, it will result in increased electricity consumption, which will lower electricity rates for all consumers by spreading fixed costs over more kWh sales.¹⁶ Because EV charging station development will result in significant benefits for New Hampshire's economy, there is justification for using ratepayer funding for EV charging infrastructure.

¹³ *See* Testimony of Matthew Deal, Chargepoint, at 8 (NH PUC Docket No. DE 21-078, Feb. 25, 2022); Testimony of Christopher Skoglund, CENH, at 22 (NH PUC Docket No. DE 21-078, Feb. 25, 2022).

¹⁴ *Id.*

¹⁵ Testimony of Christopher Villarreal, CENH, at 6-7,13 (NH PUC Docket No. DE 21-078, Feb. 25, 2022).

¹⁶ *Id.* at 6.

8. Can the development of EV charging infrastructure be structured to cost-effectively reduce electricity consumption during periods of unusually high demand?

The use of TOU rates for EV charging can be employed to provide a price signal to customers to shift consumption relating to EV charging away from peak periods and into lower cost periods.¹⁷ Other than TOU rates, managed charging programs can be developed for EV charging to reduce electricity consumption during periods of unusually high demand. Such programs provide cash incentives to customers that agree to allow the utility to directly control EV charging activity through networked EV supply equipment (“EVSE”) so that charging does not occur during peak periods. Indeed, Eversource proposed a load management program for EV charging in Docket No. DE 20-170.¹⁸ Eversource’s proposal would have allowed it to directly control EV owning customers’ EV chargers so as to limit charging during peak load events.

9. What programs or services are currently offered by the utilities that support EV charging by customers at non-peak demand periods, and what are the associated rate mechanisms?

The Commission previously approved EV-specific TOU rates for Unitil and Liberty in Docket No. DE 20-170. The Commission has not yet decided whether to approve Eversource’s proposed EV TOU rate.

10. What new programs or opportunities could be implemented to cost-effectively reduce EV charging consumption during periods of unusually high demand? What EV charging infrastructure technologies are available today or could be available in the future?

There are several new opportunities and technologies that the Commission should consider to reduce EV charging consumption during periods of high demand. First, the Commission should explore the possibility of co-locating and integrating energy storage with direct current fast chargers. Charging EVs from integrated energy storage at times of peak demand could reduce the contribution of DCFC charging to peak demand. The Department, therefore, should consider whether there are ways to incentivize integrating storage with EV charging.

Second, Vehicle to Grid (“V2G”) is a technology that enables electricity to be exported back to the electric grid from the battery of an EV by EV chargers. More specifically, vehicle-to-grid integration enables users to alter the time, charging level, or location at which grid-connected EVs can charge and allows for the discharge of power back into the grid. Discharging

¹⁷ Testimony of Christopher Villarreal, CENH, at 15 (NH PUC Docket No. DE 20-170, Oct. 13, 2022).

¹⁸ See Joint Testimony of Dennis Moore, Brian Rice, and Michael Goldman, Eversource, at 12-16 (NH PUC Docket No. DE 20-170, June 15, 2021); Eversource Proposal for Electric Vehicle Managed Charging Initiative, Attachment MRG-1 (NH PUC Docket No. DE 20-170, June 15, 2021).

electricity back to the grid by way of V2G can actually be used to reduce overall peak load. Other benefits of V2G include avoiding distribution infrastructure upgrades, integrating renewable energy resources, reducing the cost of electric supply, and increased grid reliability and resilience. Because of the numerous benefits to the grid and ratepayers from V2G, the Commission should further explore this technology and ways to incentivize its use.

Finally, the use of third-party metering embedded in either EVs or EVSE has potential to assist in increasing EV owning customers' participation in managed charging programs and/or enrollment in TOU rates. Given the current low rate of AMI deployment in New Hampshire, embedded metering offers an opportunity for EV owners to participate in demand response programs in the near term before AMI becomes more widespread. Greater participation in EV demand response programs through embedded metering can position the state to better manage EV load at peak load times in order to avoid increasing infrastructure costs. Both Unitil and Eversource have proposed embedded metering feasibility pilots; however, Unitil's proposal was rejected by the Commission in Order No. 26,653, Docket No. DE 21-030, and Eversource's proposal remains pending in Docket No. DE 20-170.

Conclusion

CLF appreciates the opportunity to offer these comments and the Commission's decision to schedule two more comment opportunities during the investigatory phase of this docket. Because the many issues raised in this docket all relate to demand response and ways to reduce electricity consumption at peak load times, the Commission has correctly maintained a single docket for the proceedings. Through its analysis of these issues, the Commission can enable New Hampshire to become the most innovative state in the electricity market.

/s/ Nick Krakoff

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