



CLEAN ENERGY NH

Your Voice in All Energy Matters

14 Dixon Ave, Suite 202 | Concord, NH 03301 | 603.226.4732

May 9, 2023

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

Re: Docket No. IR 22-076, Investigation of Whether Current Tariffs and Programs are Sufficient to Support Demand Response and Electric Vehicle Charging Programs
Clean Energy NH's Reply Comments

Dear Chairman Goldner,

Thank you for the opportunity to submit reply comments in Docket No. IR 22-076, Investigation of Whether Current Tariffs and Programs are Sufficient to Support Demand Response and Electric Vehicle (EV) Charging Programs. Clean Energy NH appreciates the Public Utilities Commission's (PUC) willingness to engage in an iterative process of discovery over several months with stakeholders, allowing for exploration of interrelated complex issues. CENH looks forward to the findings of the docket informing the adjudicative docket to follow.

CENH submits the following comments on behalf of its membership, which includes more than 130 businesses, 36 municipal members - comprising nearly 425,000 New Hampshire citizens - and over 400 individuals in every corner of the Granite State. CENH is a 501(c)(3) nonprofit organization that advocates for the adoption of clean energy initiatives through a non-partisan, fact-based lens. However, rather than advocate for any single sector of the economy or society, CENH's mission is to deliver low cost, abundant, reliable, clean energy for all New Hampshire residents, communities, and businesses.

The transition to EVs is inevitable as the major auto manufacturers have signaled that they are making the major investments needed to transition to EVs and sales are growing year over year. These vehicles will need a public charging network established before they arrive. In fact, the lack of a network may impede their adoption, and the New Hampshire economy and environment will miss benefits of rapid deployment. CENH encourages the PUC to consider how electric rate design and utility programs can address critical economic gaps in current public EV charging landscape and will provide significant returns to the New Hampshire economy, communities, and environment.

1. **Electric Vehicle Market:** The EV market is fast evolving and presents significant opportunities and challenges for New Hampshire’s energy system, economy, community welfare, and environmental quality.

a. *EVs are currently a small fraction of the passenger vehicle fleet, but that is changing rapidly in New Hampshire, as well as the entire Northeast.*

EVs have surpassed 5 percent of new vehicle sales but are forecast to be more than 25 percent of new vehicle sales by 2026, and more than 50 percent of new vehicle sales by 2030.¹ New Hampshire is projected to see at least a ten-fold increase in EVs registered in the state over the next decade.² This adoption trend is expected to be more dramatic in the region surrounding New Hampshire. **ISO New England, the regional grid operator, is forecasting that there will be a 50-fold increase in EVs between 2022 and 2031, from 35 thousand to 1.9 million.**³ Further, many auto manufacturers have already announced that they will stop making gas and diesel vehicles by 2030 and 2035, and only offer EVs. Between New England and Quebec, there are expected to be more than 3 million EVs on the road by 2030.

b. *Investment will be needed to prepare the economy for the widespread adoption of electric vehicles.*

While EVs are projected to grow substantially, New England states that tourists may choose to visit are aggressively in public EV charging infrastructure. ***New Hampshire is already becoming known as a “charging desert” with fewer than half the number of publicly available ports as Maine and Vermont.*** As of April 14, 2023, Vermont has 870 public charging ports and Maine has 866, while New Hampshire has only 437.⁴ This disparity is mirrored in the number of direct current fast charging (DCFC) stations, of which Vermont has 107 ports spread across 47 locations, Maine has 205 ports across 70 locations. New Hampshire has 135 ports across 26 locations, but the majority of these DCFC chargers are only accessible to Tesla drivers.⁵

As EV ownership increase to the in southern New England and in Canadian provinces, New Hampshire travel and tourism industry will be at a significant disadvantage to the surrounding states. ***Without significant investment in charging infrastructure, made in advance of widespread EV adoption, EV-driving tourists choose other states for their vacations and day trips.***

¹ BNEF. “More Than Half of US Car Sales Will Be Electric by 2030.” BloombergNEF, <https://www.bloomberg.com/news/articles/2022-09-20/more-than-half-of-us-car-sales-will-be-electric-by-2030>.

² ISO-NE (2022). “2022 Final Transportation Electrification Forecast”, ISO-NE Load Forecast Committee, February 18, 2022. https://www.iso-ne.com/static-assets/documents/2022/02/evf2022_forecast.pdf.

³ ISO-NE (2022). “2023 Draft 2023 Transportation Electrification Adoption Forecast”, ISO-NE Load Forecast Committee, https://isonewengland.com/static-assets/documents/2022/12/transfx2023_adapt.pdf.

⁴ US DOE (2023). “Electric Vehicle Supply Equipment (EVSE) Ports by State”, US DOE Alternative Fuel Data Center, <https://afdc.energy.gov/data/10366>.

⁵ US DOE (2023). “Electric Vehicle Supply Equipment (EVSE) Ports by State/Station Locator”, US DOE Alternative Fuel Data Center, <https://afdc.energy.gov/stations/states>.

- c. *EV charging faces a critical “chicken or the egg” issue with respect to financing the development of a robust public EV charging network in advance of when that network will be fully utilized.*

With a relatively small number of EVs on the road, it is not yet economic to build, operate, and maintain the adequate number of public EV charging facilities that will be needed in the next ten years. The utilization rates for stations in these areas are currently too low to recover the cost of construction. However, the stations must be built before more EVs reach New England roads in order for New Hampshire to stay competitive with the states around us.

Over the next few years, as EV ownership gradually increases, the public EV charging station operators will experience infrequent and sporadic charging sessions. Unfortunately, serving this early demand for public EV charging offers limited revenue opportunities. Charging operators will simply not be able to derive sufficient income to cover: 1) initial site development costs; 2) utility infrastructure upgrades; 3) electric vehicle (energy) supply equipment (EVSE) acquisition and installation costs; and 4) electric charges (supply and demand charges).

Public support will be necessary to ensure that adequate public EV charging is in place to address the chasm. Such public support will benefit the earliest EV adopters, while also giving all New Hampshire residents and businesses the confidence that they can purchase EVs, as the price falls, range improves, and models expand, regardless of their place of residence or socioeconomic status.

2. **EV Charging Opportunities:** The balance of impacts will be positive, but proactive steps will be needed to derive the greatest benefit at the lowest cost for the whole state.

- a. *EV rates and EV managed charging programs should be designed to improve overall load factor while avoiding increased electric demand during all seasons of the year.*

The PUC should continue to support residential time of use rates as they have the potential to improve all-around load factor, by shifting consumption and demand to the times of day when the generation, distribution, and transmission systems are significantly underutilized.⁶

CENH disagrees with Eversource regarding time-of-use (TOU) rates. It is expected that as much as 80 percent of charging will be done at residences. As EVs increase as a percentage of the New Hampshire fleet and in the number of vehicles carrying visitors to the state, the rise in electric power consumption has the potential, if not

⁶ Salisbury, M. and Toor, W. (2016). How Leading Utilities are Embracing Electric Vehicles, Southwest Energy Efficiency Project, http://www.swenergy.org/data/sites/1/media/documents/publications/documents/How_Leading_Utilities_Are_Embracing_EVs_Feb-2016.pdf.

properly managed, to increase the total ISO-NE daily and seasonal peaks, as well as New Hampshire's share of that peak.⁷

Well crafted TOU rates have been found in other states to provide effective price signals that can influence behavior. Paired with cost effective managed charging programs, and utilities will have the start of a portfolio of options that can appeal to a range of EV drivers/owners.

Assuming that residents do not find TOU rates appealing now, when the concept is still new to most consumers is not appropriate.

- b. Allow for utility make-ready programs to match the early, upfront investment that will be provided by federal funding sources, and investors, ensuring that public EV charging stations are in place to support out of state drivers, as well as New Hampshire residents and businesses.***

New Hampshire state agencies are administering and pursuing public EV charging station funding sources that are intended to fill some of the economic need left by low utilization rates. However, this funding does not cover the full level of economic need.

There is a small make-ready program already approved for the Eversource electric territory, but this is limited to a \$2M match of funds dispersed by the Volkswagen Mitigation Trust Administered by the NH Department of Environmental Services. Similar funding is not authorized in any other electric distribution territory, and the \$2M made available is far from sufficient to ensure the development of a robust EV public charging network.

The PUC should consider what the full economic impact of a more comprehensive and uniform public EV charging make ready program would be and evaluate how such an investment by New Hampshire electric utilities would benefit the entire New Hampshire economy, all ratepayers, and residents.

- c. Continue to explore alternatives to demand charges to ensure that the distribution costs to serve load are met while not undermining the business case to develop a station.***

At current EV penetration rates and expected low utilization rates for the DCFC at present, the demand charge would be spread across just a few users making the cost per unit of charge (kwh or time) that a station owner must charge to recoup the demand related costs unreasonable, thereby discouraging the use of that station.

⁷ Harper, C., McAndrews, G., and Sass Byrnett, D. (2019). Electric Vehicles: Key Trends, Issues, and Considerations for State Regulators, National Association of Regulatory Utility Commissioners, <https://pubs.naruc.org/pub/32857459-0005-B8C5-95C6-1920829CABFE>.

With today's EV market penetration and current public DCFC utilization rates, demand charges can be responsible for over 90 percent of electricity costs.⁸ Therefore, the value proposition for third parties owning and operating DCFC limits the current availability of these chargers and prospects of additional investment.

This results in fewer stations being built, reducing the viability of owning an EV, reducing the business case for owning DCFC, and the cycle continues. Addressing the impact that demand charges can have on profitability of DCFC stations, and therefore increasing their economic viability, is likely to result in a greater number of stations across the state. This issue has been documented independently.^{9,10,11,12}

At present time, with few EVs on the road, a DCFC may be used by only a few vehicles each day, or in remote areas, a few vehicles each week. This restricts the revenue public charging stations can generate; revenue needed to pay for upfront capital costs, including utility upgrades, and operating costs, including demand charges.

A significant barrier to developing the necessary EV charging network, as we heard in testimony are the demand charges and utility make ready costs incurred by site operators as they are significant source of costs that undermine the economics of public charging. New Hampshire municipalities have expressed how the two factors are stifling investment in public charging.

In a previous docket, DE 20-170, the Commission received a letter and verbal comment provided by the Jeff Moulton, the Chair of the Town of Derry's Net Zero Task Force. Mr. Moulton provided documentation of the chilling impact that demand charges can have on public charging facilities. In Derry's case, they disconnected their four (4) level 2 chargers are incurring demand charges that represented 78 percent of the bill for the chargers. Had utilization rates been higher, this cost breakdown would not have been the case. With EV adoption expected to rise significantly in the coming decade, New Hampshire will need more chargers not fewer. But we need the chargers now to support those earliest residents and visitors.

Similar, CENH was contacted by the Town of Bristol, located just off Interstate-93 in Grafton County. They had been working for the past several months to develop a VW application for a DCFC station with co-located Level 2 charging ports at their library. However, the engineering estimates that Eversource provided regarding the necessary

⁸ Fitzgerald, G. and Nelder, C., (2017). EVgo Fleet and Tariff Analysis: Phase 1: California, Rocky Mountain Institute, https://rmi.org/wp-content/uploads/2017/04/eLab_EVgo_Fleet_and_Tariff_Analysis_2017.pdf.

⁹ Utility Dive (2019). PG&E Wants EV Demand Charges to Mimic Smartphone Plans. Regulators Are Skeptical, <https://www.utilitydive.com/news/pge-wants-ev-demand-charges-to-mimic-smartphone-plans-regulators-are-skep/563757/>.

¹⁰ Fitzgerald, G. and Nelder, C., (2017). From Gas to Grid: Building Charging Infrastructure to Power Electric Vehicle Demand. Rocky Mountain Institute, https://www.rmi.org/insights/reports/from_gas_to_grid.

¹¹ Fitzgerald, G. and Nelder, C., (2017). EVgo Fleet and Tariff Analysis: Phase 1: California, Rocky Mountain Institute, https://rmi.org/wp-content/uploads/2017/04/eLab_EVgo_Fleet_and_Tariff_Analysis_2017.pdf.

¹² Salisbury, M. and Toor, W. (2016). How Leading Utilities are Embracing Electric Vehicles, Southwest Energy Efficiency Project, http://www.swenergy.org/data/sites/1/media/documents/publications/documents/How_Leading_Utilities_Are_Embracing_EVs_Feb-2016.pdf.

electrical upgrades totaled \$18,952.18. This proved to be too expensive for the site operator that they had been working with, who subsequently backed out, even if they had received a VW award. As a result, the Town was unable to go forward with the project.

3. **Seek Synergies Through Innovation:** The PUC should recognize that the Northeast is on the cusp of a massive leap forward by the energy system, and that traditionally separate sectors and uneconomic technologies can be combined and optimized.

- a. ***Expand existing energy storage pilots to full programs and encourage new pilots.***

The PUC should build on the success of the Liberty Battery Storage Pilot (DE 17-189) and enable the utility to expand the program to a broader geographic area and a much larger number of customers. The program has proven to be cost-effective, able to reduce costs for the utility and utility customers, while also providing a measure of resilience for battery hosts.

Expanding this program now will ensure greater benefits as well as help to keep the electric peak down as more electric consumption occurs due to electrification of the transportation and building sectors.

- b. ***Explore Vehicle to Grid Programs.***

CENH agrees that the PUC should encourage the development and proposal of vehicle-to-grid (V2G) programs by the electric utilities. This has the potential to transform EVs from simply new sources of load into new grid assets, and in doing so address the PUC's interest in decreasing/managing peak load.

As a result, the Commission should urge utilities to submit a proposal for a V2G program alongside any EV charging and demand response program proposals that are submitted. Since auto manufacturers, the utilities, and the PUC have limited familiarity with V2G programs, it would seem appropriate to solicit input on design and then conduct pilot V2G programs before rolling out in full.

Please contact either myself, Chris Skoglund (chris@cleanenergynh.org, (603) 573-9926 ext 702) or our Executive Director, Sam Evans-Brown (sam@cleanenergynh.org, (603) 573-9926 ext 700) with questions.

Sincerely,

/s/ Chris Skoglund

Chris Skoglund
Director of Energy Transition
14 Dixon Ave
Concord NH 03301