BEFORE THE STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

Docket No. DE 20-170

ELECTRIC DISTRIBUTION UTILITIES

Electric Vehicle Time of Use Rates

CLEAN ENERGY NH CLOSING

Clean Energy NH (CENH), intervenor in this docket, is a non-profit member-based organization dedicated to supporting policies and programs that strengthen our state's economy by encouraging the transition to renewable energy and promoting energy efficiency. CENH offers the following closing statement for Docket No. 20-170, Electric Vehicle Time of Use Rates, as instructed by the Commission in its February 1, 2022 order issued in the instant docket.

General Support for Electric Vehicles

The transportation sector is the single largest consumer of energy in New Hampshire, responsible for 42 percent of the state's total end-use energy.[1] As electric vehicles (EVs) use 25 percent of the energy of a conventional ICE vehicle to travel the same distance,[2] EVs present clear economic, energy, and environmental opportunities for the state, and New England as a whole, by reducing overall energy consumption, reliance on energy imports, and the emission of air pollutants and greenhouse gas emissions. As the ISO-New England grid becomes even cleaner, and electric power supply costs fall, due to the transition away from coal, oil, and natural

[1] Calculations based on US DOE State Energy Data System (SEDS): 1960-2017 https://www.eia.gov/state/seds/seds-data-complete.php?sid=NH.

[2] US DOE (2019). All-Electric Vehicles, Office of Energy Efficiency & Renewable Energy, https://fueleconomy.gov/feg/evtech.shtml, (Last accessed April 18, 2019).

gas, and through the interconnection of distributed energy resources and large renewable energy projects, the net economic, energy, and environmental benefit of EVs will grow.

As the vast majority of EV charging occurs at home, and can occur in the overnight hours, there is enormous potential for the electrification of transportation to result in improved load factors for existing electricity infrastructure. In a well-designed policy landscape, this could result in substantial rate-depression, and resultant savings for all consumers.[3] For these reasons, CENH and its members actively support this technology.

Residential Time of Use Rates

CENH supports the proposed residential three-part three period Time of Use (TOU) rates. While EVs will consume more electricity and, therefore, result in more KWHs over which to spread the other utilities' fixed costs, EV load growth will result in greatest savings to all customers *if forecasted and managed properly*. Absent price signals, a typical EV owner is likely to plug their vehicle into their home charger when they arrive home from work, which may coincide with the evening peak demand. As at much as 80 percent of charging is done at home, and as EVs continue to 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 properly managed, to increase the total ISO-NE daily and seasonal peaks, as well as New Hampshire's share of that peak.[4]

[3] NREL (2021). Incorporating Residential Smart Electric Vehicle Charging in Home Energy Management Systems, https://www.nrel.gov/docs/fy21osti/78540.pdf.
[4] 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.

If the above were to occur, the electrification of transportation would increase electric rates, instead of decreasing them. TOU rates are a critical element of achieving this improved resource utilization by shifting load to off-peak periods when the cheapest, and cleanest grid mix exists. The inclusion of residential TOU rates is an important step in ensuring that widespread EV adoption results in savings and not costs, by encouraging off-peak charging.

Commercial Customer EV TOU Rates

CENH maintains its objection to the inclusion of EV TOU rate provisions in the Settlement Agreement (Agreement). CENH does believe that TOU rates are entirely suitable for residential applications, commercial TOU rates are not appropriate at this moment in time. EV penetration remains relatively low and the deployment of public and private DCFC and networked Level 2 EVSE is necessary to support rapid fleet electrification. Implementing commercial TOU rates too early is likely to have a negative impact on the business case for developing and operating public charging locations.

It is the position of DOE that a commercial TOU rate would spur innovation on the part of charging site hosts to reduce the impact of the rate's higher on-peak rate to site host overall costs. While CENH agrees that innovation will be of increasing importance as EV adoption increases and commercial EV sites increase in number and in utilization, CENH is concerned that the implementation of commercial TOU rates at this moment in time will result in limited uptake by public charging site hosts as the technologies such as co-located batteries increase the upfront capital costs to develop a site; costs that will not necessarily be recovered in appropriately under likely site utilization rates.

Demand Charge

CENH also maintains its objections to the inclusion of the 50 percent demand charges for the commercial EV rate classes. Similar to the concerns regarding the adoption of commercial TOU rate, CENH is of the opinion based on input from its members that each utility should develop and offer a DCFC rate or a customer class that provides greater flexibility around demand charges in order to give owners of DCFC stations or networked Level 2 chargers much greater potential to recover costs and make a business case for their stations.

The Letter and verbal comment provided by the Jeff Moulton, the Chair of the Town of Derry's Net Zero Task Force, illustrated the real and chilling impact that demand charges can have on public charging facilities. In Derry's case, they disconnected their four level 2 chargers are incurring demand charges that represented 78 percent of the bill for the chargers. With EV adoption expected to rise significantly in the coming decade, New Hampshire will need more chargers not fewer.

The economics of Direct Current Fast Chargers (DCFCs) may be more challenging under current and proposed demand charges as DCFCs can draw a significant amount of power. Many DCFC installations require a three-phase 480-volt AC electric circuit. Most existing DCFC stations are 50 kilowatts (KW) with much faster DCFC stations, including ones that deliver up to 350 KW starting to be installed. Draws of this magnitude can result in significant demand charges, which at low utilization rates are spread across just a few users. In these scenarios, demand charges can be responsible for over 90 percent of electricity costs and can make the cost per unit of charge (kwh or time) unreasonable. Such rates either discourages site-hosts from installing chargers, or drivers from using the station.

This results in fewer stations being built, reducing the viability of owning an EV, reducing the business case for owning DCFC. Thus, the current lack of widespread charging infrastructure is a pressing chicken-and-egg problem[5] that is impeding the electrification of transportation, which has the potential to result in substantial economic benefits to all New Hampshire ratepayers.

Overall EV Regulatory Approach

New Hampshire must be looking to the future and establishing rates that will encourage early investment in a widespread network of charging that spans the entire state and meets the demand of residents, businesses, and visitors alike. CENH disagrees with the notion expressed in the EV TOU hearings that more information is required. EVs require forward looking rate design that will enable companies to invest in the charging infrastructure before it is fully profitable.

While EVs are more efficient and increasingly cost-effective than ICE vehicles, their utilization of the local electric distribution network and the regional grid requires pre-planning and careful integration to support their adoption by consumers and the realization of their full potential. In the absence of well-designed policies and appropriate price signals, there is a risk that electrification of transportation will increase electricity rates by increasing demand during peak hours. An effective policy package would balance policies encouraging speedy adoption of EVs by enabling the creation of a public fast-charging network, while simultaneously maximizing the incentive to charge vehicles during off-peak hours with strong residential TOU rates.

[5] Kadoch, C. (2020). Roadmap for Electric Transportation: Policy Guide, Regulatory Assistance Project, https://www.raponline.org/EV-roadmap/.

As mentioned in its previous comments, the commission should aim to eliminate economic barriers to public fast charging during this period of early adoption. The major auto manufacturers have signaled 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 benefiting from the deployment.

Drivers' concern about lack of available charging infrastructure is a significant barrier to EV adoption. However, current utility commercial electric tariffs and those proposed in the Agreement, designed following cost-causation principles, undermine the economics of public charging. At present time, with relatively 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.

In summary, an appropriate EV policy would avoid rigid adherence to cost-causation principles when it comes to rate design for high demand public charging applications while simultaneously sending strong price signals encouraging off-peak charging in residential applications. These two policies are necessarily complementary: implementing one without the other will either result in limiting the ratepayer savings that would flow from increased EV adoption or result in a growth in peak demand and electric rates.

Sincerely,

/s/ Chris Skoglund

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