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February 19, 2020

NH Public Utilities Commission
Attn: Deborah Howland, Executive Director
21 South Fruit Street
Concord, NH 03301

Re: Investigation of Electric Vehicle Rate Design Standards, Electric Vehicle Time of Day Rates for Residential and Commercial Customers

Dear Executive Director Howland,

This letter is in response to the Public Utilities Commission's (Commission) January 16, 2020 Order of Notice inviting written comments on items outlined in the January 16, 2020 Staff Recommendation in docket IR20-004, relating to the investigation of electric vehicle (EV) rate design standards and EV time of use rates. Clean Energy NH (CENH) appreciates the opportunity to comment on these important topics and looks forward to fully participating in the ensuing docket.

CENH supported the passage of SB575 in 2018, which required the Commission to determine if rate design standards for electric service providers should be instituted for EV charging stations in New Hampshire. As an organization dedicated to promoting clean energy and clean technology, CENH sees the growth and expansion of the EV market and charging infrastructure as an important development in the clean tech industry. EVs are a vital method to lower air pollution and greenhouse gas emissions from the transportation sector, therefore providing important societal benefits. In addition, EVs can provide important grid services, which will be discussed in further detail below.

CENH is pleased to submit the following comments and looks forward to engaging with Staff, the regulated utilities, and other stakeholders as this docket progresses.

Rate Design Standards for Electric Vehicle Charging Stations

CENH recognizes that the key aspects of the Commission's rate principles should apply to EV charging stations. Just as providing quality and reliable electric service to customers is a societal objective embraced by the Commission, so to is access to EV charging a societal objective that causes reduced air pollution and positive economic impacts for the host site and community. Drivers of EVs should have the same access to fueling stations as drivers of internal combustion engine vehicles. In order to provide transparent rates that both enable access to EV charging and provide for adequate coverage of costs, determining appropriate rate design mechanisms is crucial.



In general, CENH supports EV charging rates that prioritize simplicity and consistency for the EV driver. The average EV driver should be able to easily understand how much charging their vehicle will cost, either within their own home, at their workplace, or at a public charging station. They should also be confident that the rate structure they use is not subject to undue price volatility from constantly changing rates, to ensure their economic payback expectations for purchasing and operating the vehicle are met. Furthermore, all EV drivers should have equal access to EV charging rates, regardless of the utility service territory they live in. Currently, this is not the case; EV drivers in Eversource, Liberty, and Until service territories have unequal or no access to residential Time-of-Use (TOU) rates. CENH supports the development of a statewide, residential TOU rate that is consistent among the regulated utilities and provides an incentive for drivers to provide maximum grid benefits.

Standard residential flat rates do not provide incentives for EV drivers to charge their vehicles at optimal times for grid conditions. In contrast, by instituting TOU rates, EV drivers are able to respond and adjust their charging habits at off-peak times when low cost generation capacity is available and increase load factors. This results in grid benefits and cheaper fuel costs. According to the Regulatory Assistance Project's (RAP) 2019 report "Beneficial Electrification of Transportation"ⁱ, "PG&E customers who have enrolled in EV-only rates conduct 93 percent of EV charging off peak; on Southern California Edison's EV-only rate, 88 percent of charging is off-peak." Closer to home, the NH Electric Cooperative (NHEC) has launched a residential TOU rate for customers that incorporates an "off-peak" rate that is lower cost than the basic residential rate. NHEC estimates that a driver of an all-electric Chevrolet Bolt that drives 16,000 miles a year can save \$20 per month by charging off-peakⁱⁱ under this rate structure.

On the commercial side, demand charges require extensive evaluation and discussion under this docket, as they represent a significant financial barrier to the expansion of EV charging, particularly Level 3 Direct Current (DC) fast-charging. A 2019 report developed for the NH Office of Strategic Initiatives found that "while most EV drivers charge their vehicles at home, in order to vastly increase percentages of EVs within the state there must be access to alternate charging methods for those without access to home charging."ⁱⁱⁱ Considering there are currently no demand charges affixed to residential rate classes and that DC fast-charging is a necessary component of a robust EV charging network, especially in a rural state that relies on tourism as a key industry, the PUC needs to evaluate if demand charges are necessary or appropriate for commercial customers seeking to install DC fast chargers.

A 2017 study "EVgo Fleet and Tariff Analysis"^{iv} by the Rocky Mountain Institute (RMI) found that "demand charges can be responsible for over 90% of a charging station's electricity costs, depending on the tariff and the extent to which the charger is used (its utilization rate)." Furthermore, the study found that "demand charges are especially challenging to new charging infrastructure that has not yet reached a sustainable utilization rate." In NH, EVs currently represent a very small but rapidly growing percentage of total automobiles on the road. Therefore, DC fast-charger host sites may see low rates of utilization now, but higher rates in the



future. If demand charges make the investment uneconomical now, the state cannot adequately expand infrastructure to meet current or future needs.

The RMI study further explains: “Traditional demand charges were designed for small-to-medium commercial customers and industrial customers, not public fast-chargers. Operators of these chargers have little control over when customers use them, and the chargers have widely varying utilization rates in widely varying locations and site types. In short, these charger networks look and behave nothing like a large commercial or industrial facility, but they are being billed as if each location is a separate commercial facility. Demand charges tend to shift system capacity costs onto customers with peaky demand profiles, and put an undue cost burden on those who may happen to have very brief and occasional demand spikes, like DCFC owners. To avoid such a cost-shift, system capacity costs should be recovered via energy sales, not separate demand-based charges.”

CENH supports the development of alternatives to demand-based rates for DCFC. As explained in detail in the testimony of Kevin Miller that CENH has introduced in the ongoing Eversource rate case DE 19-057 there are multiple approaches already tested to achieve this including replacing or pairing lower demand charges with higher volumetric rates, using a rate limiter, forgive a portion of the demand charge while use frequency is low, phase in demand charge as use increases, or develop DCFC specific rate. Some of the NH utilities have developed and made available DCFC rates in other states where they operate such as Eversource’s Connecticut DCFC tariff rider.

The need for demand charges in workplace, public level 2, and DCFC applications should be evaluated carefully. Paired with appropriately developed rates, the growth of EVs as a share of the vehicle market in NH has the potential to benefit the grid and all utility customers, not just those who choose to drive EVs. Several studies¹ highlight that the expected long-term energy revenues from incremental EV load generally exceeds the costs for the grid to support that load.² In effect, prudent investments in EV supply equipment (“EVSE”) with increases in energy use exert a downward pressure on unit energy costs that can benefit all utility customers regardless of EV ownership therefore demand charge may not be necessary to recover the cost of service to that customer. The Commission cites the potential for “found revenues” and load factors improvements in the context of beneficial electrification due to the adoption of heat pumps in order No. 26-322, EV charging has the potential for similar benefits and those should be considered to develop appropriate rates and ensure utilities do not over recover costs from this type of customer.

Residential & Commercial Time of Day Rates for Electric Vehicle Charging

As discussed above, CENH supports an opt-in statewide TOU rate for electric vehicle charging. This would provide equal access for all EV drivers in Eversource, Liberty, and Unitil service territories to charge during off-peak times to both to reduce costs by shifting load to times where it is cheaper to procure energy and both generation and grid capacity are underused. The



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customer should have the option to opt-in to the TOU rate only for the EV charger or for their entire service. Current TOU offerings are not consistent, are not appropriate for EV application, or are absent entirely.

CENH supports Liberty's three-part TOU rate featuring off-peak, mid-peak, and critical-peak periods that vary not only energy but also distribution and transmission volumetric charges as proposed under the utility's battery storage pilot program in docket DE17-189. CENH finds that this proposal for a residential TOU rate is also applicable to EV charging, and should be made available to customers beyond the scope of DE17-189 as proposed in Liberty's ongoing rate case in DE 19-064.

CENH strongly believes that progress already under way on EVSE investments and EV rates in ongoing docket should in no way be slowed or interrupted because of this investigation. As a general principle, the most appropriate venue for timely review, adoption, and implementation of rates and capital investments is the utility rate case, such as the ongoing Eversource (docket DE19-057) and Liberty (docket DE19-064) rate cases. Rather than disrupting a process already underway in those dockets, CENH thinks that this investigative docket should rather focus on how and when to best align the utilities EV rate offerings so that all customers have equal access to EV appropriate rates regardless of their utility. This docket should therefore determine if a docket process for the timely review and approval of EV rates or other EV related investments outside of rate cases is necessary for certain utilities and if so what that process should be.

Customer Engagement

CENH recommends the Commission, utilities, and stakeholders investigate various methods of customer engagement strategies throughout IR20-004. These strategies may include, but are not limited to: educational partnerships & information sharing with EV buyers through automobile dealers to promote switching to TOU rates at the point of sale; rebate programs for installation of home level 2 chargers or charging management tools, to enable the utility to identify new EV drivers and load growth on circuits in neighborhoods with multiple EVs; partnering with EV advocates including Plug-in America and Drive Electric NH to promote TOU through online platforms and events; and utility marketing strategies and direct customer outreach. In a study completed by the Smart Electric Power Association (SEPA) "Residential Electric Vehicle Time-Varying Rates that Work: Attributes that Increase Enrollment"^{vi}, "70% of the enrolled residential EV participants heard about their time-varying rate through least-cost marketing efforts. In addition, 72% of non-enrolled customers were willing and able to charge their EV during off-peak hours if the rate resulted in savings and was convenient to use."

EV Supply Equipment Investments

CENH also finds it appropriate for broad discussion of the role of the utility in deployment of supply equipment, also known as "make ready" investments, to be discussed in this docket. Utilities are well and uniquely-positioned to assist with the buildout of EV charging



infrastructure, particularly DC fast-charging, as they have access to extensive expertise building and managing grid infrastructure, have access to necessary capital, and other resources. Facilitating this buildout makes charging more accessible to a wide range of drivers, including those who do not have the ability to charge at home.

CENH would support utilities making available system information indicating locations where significant capacity is available without significant infrastructure upgrades to connect and serve level 3 chargers. Just as CENH has been advocating for comprehensive hosting capacity analysis and data sharing for Distributed Energy Resources, so should utility system information for the hosting of DCFC be made available to inform the least cost location of such chargers.

However, CENH feels the most suitable place for this topic to be addressed is through the utility rate case, where any investments in make ready infrastructure would be determined to be eligible or not for recovery through base rates. CENH does not feel it is in the best interest of the state to hamper proposed investments in make ready infrastructure, as NH is already far behind neighboring states when it comes to the buildout of charging infrastructure. Recently, Eversource received regulatory approval to invest approximately \$45 million to build 4,000 chargers in Massachusetts. This approval was received through the utility's rate case. Currently, Eversource has proposed a smaller scale make-ready type investment in NH under the utility's rate case, docket DE19-057. Therefore, if discussions surrounding make ready investments are to be included under this docket, they should in no way slow other proceedings already in progress involving make ready investments.

Additional Considerations

CENH recognizes that some utility meters currently in use are not adequate to deliver, record, and bill a TOU rate appropriately designed for EV charging. The need to recover the cost of upgrading the customer's meter or installing a second meter for the charger should be evaluated as the benefits of the TOU rate and change in customer usage behavior may outweigh the new meter cost.

CENH thinks that careful consideration should be given to the potential interaction of new EV rates and existing net metering rates. There is likely considerable overlap between customer-generator early adopters and EV early adopters so the potential for interactions, conflicts, or possible unintended consequences should be evaluated. CENH wants to ensure that opting into a EV rate would in no way jeopardize the participation and eligibility of a customer in a grandfathered net metering rate. Further, participating in a EV specific rate should not prevent customer-generators for supplying electricity to their charger from their own generated electricity or behind-the-meter energy storage, in fact this should be encouraged.

Sincerely,



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ⁱ Regulatory Assistance Project's Beneficial Electrification of Transportation (January 2019). Available at: <https://www.raonline.org/wp-content/uploads/2019/01/rap-farnsworth-shiplee-sliger-lazar-beneficial-electrification-transportation-2019-january-final.pdf>

ⁱⁱ NH Electric Cooperative, Available at: <https://www.nhec.com/take-charge-save/>

ⁱⁱⁱ Evaluating Electric Vehicle Infrastructure in New Hampshire (July 2019). Available at: <https://www.nh.gov/osi/resource-library/documents/nh-ev-infrastructure-analysis.pdf>

^{iv} Rocky Mountain Institute/Chris Nelder's Rate Design Best Practices for Public Electric Vehicle Chargers & EVgo Fleet and Tariff Analysis (2017). Available at: <https://rmi.org/rate-design-best-practices-public-electric-vehicle-chargers/>

^v See, e.g., E3, *Cost-Benefit Analysis of Plug-in Electric Vehicle Adoption in the AEP Ohio Service Territory*, April 2017. https://www.ethree.com/wp-content/uploads/2017/10/E3-AEP-EV-Final-Report-4_28.pdf.

^{vi} Smart Electric Power Association's Residential Time Varying Rates that Work: Attributes that Increase Enrollment. Available at: <https://sepapower.org/resource/residential-electric-vehicle-time-varying-rates-that-work-attributes-that-increase-enrollment/>
See, e.g., E3, *Cost-Benefit Analysis of Plug-in Electric Vehicle Adoption in the AEP Ohio Service Territory*, April 2017. https://www.ethree.com/wp-content/uploads/2017/10/E3-AEP-EV-Final-Report-4_28.pdf.