

December 9, 2020

Ms Debra A. Howland
Executive Director
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301

Re: Docket # DE 20-170
Electric Vehicle Time of Use Rates

Dear Executive Director Howland,

This letter is in response to the opportunity for intervening parties to present initial comments in docket DE 20-170, relative to electric vehicle (EV) time of use (TOU) rates and feasibility assessments. Clean Energy NH (CENH), Conservation Law Foundation (CLF), the NH Department of Environmental Services (NHDES), the City of Lebanon (CoL), and the Office of the Consumer Advocate (OCA), collectively referred to as the “Joint Stakeholders”, are pleased to submit the following comments and look forward to further dialogue and progress in this docket to ensure New Hampshire’s electric ratepayers have favorable opportunities to take part in TOU rates that benefit the grid and allow for the sustainable growth of electric transportation.

The Joint Stakeholders have been active participants in efforts to design and implement electric vehicle time of use rates, most recently through the Liberty Utilities battery storage pilot program (DE 17-189) and Liberty Utilities rate case (DE 19-064) as well as docket IR 20-004 earlier this year, which focused on Investigation of Electric Vehicle Rate Design Standards, Electric Vehicle Time of Day Rates for Residential and Commercial Customers.

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. Many of our members are EV drivers or are considering purchasing an EV, while many of our larger business and municipal members are considering EVs for their fleets.

CLF is a private, non-profit organization dedicated to protecting New England’s environment for the benefit of all people. As part of this mission, CLF represents itself and the interests of its members in encouraging the increased use of EVs and deployment of EV charging stations throughout New England and the adoption of rates that facilitate both objectives.

NHDES is the state's environmental regulatory body, charged with sustaining a high quality of life for all citizens by protecting and restoring the environment and public health. NHDES is charged with overseeing environmental quality related to air, waste, water, and climate change issues. Increasingly, the solutions to energy system reliability, energy system costs, and environmental impacts intersect. Electric vehicles, as a potential significant source of new load present an opportunity and a challenge in all of the above respects. NHDES supports the transition from internal combustion engines to EVs in order to address transportation sector emissions while taking the necessary steps to minimize impacts to the electrical grid.

The City of Lebanon seeks to achieve deep reductions in carbon emissions by 2050, including shifting transportation fueling to electric vehicles, and would like to do so in an economically efficient manner. The City has acquired its first electric vehicle and charging station and has been pursuing opportunities for public charging stations. As an intervenor in Liberty's battery storage and TOU rate pilot case, DE 17-189, the City worked closely with Liberty Utilities and the Consumer Advocate to design the 3-part TOU rate that the Commission approved in that case as well as in DE 19-064 for residential EV charging. The City would like to again volunteer the services of Asst. Mayor Below to collaborate with the utilities, other parties, and Staff to develop a transparent and publicly available cost causation based model for similar TOU rates for Liberty's non-residential EV charging customers and all of Eversource's and Unitil's EV customers following the Commission's guidance in IR 20-004.¹

The Office of the Consumer Advocate (OCA) represents the interests of residential utility customers. The OCA has long believed that expanded use of TOU rates are in the best interests of residential customers. These same customers will, increasingly over the coming years, be relying on EVs to meet their transportation needs, so OCA is committed to assuring that Granite Staters will be able to charge their EVs pursuant to rates that are innovative and customer-empowering while meeting the traditional "just and reasonable" standard.

A. Introduction

¹ The Liberty TOU rate model is described here: [Technical Statement Regarding Time-of-Use \(TOU\) Model](https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-189/LETTERS-MEMOS-TARIFES/17-189_2018-11-19_GSEC_TECH_STATEMENT_TOU.PDF), available at: https://www.puc.nh.gov/Regulatory/Docketbk/2017/17-189/LETTERS-MEMOS-TARIFES/17-189_2018-11-19_GSEC_TECH_STATEMENT_TOU.PDF. The TOU rate model is an Excel spreadsheet with data for each hour of the year for T, G & D rate components. The portion of the spreadsheet for the cost-duration curve and distribution rate calculation is primarily the intellectual property of Lon Huber who was the OCA's consultant in the case. Huber is now Vice President, Rate Design and Strategic Solutions at Duke Energy Corporation. Liberty and the CoL entered into non-disclosure agreements with Huber to retain ongoing use of the spreadsheet model, while keeping Huber's portion confidential. Staff and the OCA treat that portion of the spreadsheet as confidential proprietary commercial information. However, most of the spreadsheet was created by the CoL and Liberty, so the CoL would like to help secure public release of the full model, or in the alternative, create a new and improved public version that would be easier for all parties to understand, use, and help improve upon. The Regulatory Assistance Project's 10/20/2020 policy brief "Time-Varying Rates in New England: Opportunities for Reform" presents a nice overview of the Liberty TOU rate at 7-8 and summary of IR 20-004 at 14. (<https://www.raonline.org/knowledge-center/time-varying-rates-in-new-england-opportunities-for-reform/>).

In order for the industry to grow to maximum potential, clear market signals are of the utmost importance for all stakeholders to understand and embrace. These market signals can be found through well-structured TOU rates offered by utilities and available for EV drivers across the state, as will be discussed further in detail below.

The Joint Stakeholders strongly support (TOU) rates as an ideal rate design mechanism for EVs with many benefits to the grid. By using TOU rates, EV customers are able to: (1) make informed decisions about when to charge, (2) adapt their charging schedules in order to reduce their energy costs, and (3) provide grid benefits by shifting demand to off-peak hours.

The Joint Stakeholder's position on TOU rates remains consistent with our previously filed comments in IR20-004 and primarily focus on (1) ensuring availability for all NH ratepayers, regardless of which utility service territory they are located within, (2) promoting a three-part rate featuring off-peak, mid-peak, and peak periods, (3) an annual average price differential of at least 3:1 between peak and off-peak periods, and (4) expeditious implementation of EV TOU rate offerings to all NH ratepayers.

B. The Utilities Should File Their EV TOU Rate Proposals in this Docket

The Joint Stakeholders support the Commission's expectation as expressed in its Order of Notice that all utilities file TOU rate proposals in this docket rather than in upcoming rate cases. DE 20-170 was opened following the completion of the investigative docket IR 20-004, with the express intent to develop EV TOU rates. Because the Commission explicitly established this docket in order to facilitate the development and review of utility-specific EV TOU rate proposals, permitting the utilities to file rate proposals in separate rate proceedings would defeat the purpose of this docket and be contrary to and inconsistent with the Commission's orders governing this docket.²

Additionally, because rate cases are costly and time-consuming endeavors, permitting certain utilities to file rate proposals in separate proceedings would be prejudicial to certain intervenors. In such a case, an intervenor could be forced to intervene in a second docket and monitor and participate in those proceedings, even though EV TOU rates would only play a minor role in the second docket. Because intervenors should not be forced to participate in a second docket—and expend the time and resources to do so—where most of the matters considered would be unrelated to EV TOU rates, the Joint Stakeholders urge the Commission to deny any requests to consider EV TOU rates in other dockets (other than Liberty's already approved residential EV charging rate).

Any request to consider EV TOU rate proposals in a separate docket should also be rejected for administrative efficiency reasons. Consideration of EV TOU rate proposals in separate

² See, e.g., Commission Order No. 26,394, Docket No. IR 20-004 at 15-18. (August 18, 2020).

proceedings would likely be duplicative and redundant with respect to pleadings, testimony, and discovery. It would also create a greater likelihood of inconsistencies between the three utilities' different EV TOU rate proposals, which would be contrary to the Commission's general preference for residential EV rate offerings that are consistent across utilities.³ In sum, this docket serves as an appropriate venue for the submission, evaluation, and implementation of TOU rates for each utility.

C. EV TOU Best Practices

The Joint Stakeholders would like to call attention to the importance of an effective peak period design that offers an opportunity to adequately incentivize customers to adopt a TOU rate. As Staff and the Joint Stakeholders recommended and the Commission supported in IR 20-004 we support the inclusion of a three-part rate, including off-peak, mid-peak, and peak time periods. When compared to a two-part rate (peak and off-peak), three-part rates send more accurate price signals based on system costs and help reduce peak demand more effectively by offering more impactful changes in price in smaller segments of time. The Joint Stakeholders also support the Commission conclusion that a minimum "3:1 peak to off-peak ratio should represent an average ratio during a given year, not during any one season."⁴ We believe the 3:1 ratio achieves a balanced and motivating price signal to not only adopt the rate structure, but also to encourage customers to move their charging behaviors away from peak demand periods. The Liberty Utility three-part TOU rates for the Battery Storage Pilot and the permanent EV rates approved by the Commission currently achieve a 3.56:1 ratio for the summer period, with a 2.51:1 ratio for the winter period for an average annual ratio of 3.04:1, and were recently lauded by the Regulatory Assistance Project (RAP) as "the most advanced modern rate design in New England".⁵

The Joint Stakeholders wish to emphasize that TOU rates have the potential to maximize the efficiency of the electric grid and reduce costs for utilities, EV drivers, and all ratepayers. In general, EV drivers who charge on TOU rates pay less than customers who pay a flat rate.⁶ Moreover, where TOU rates successfully move EV load to off-peak hours, increased EV

³ See *Id.*

⁴ *Id.* at 17.

⁵ David Littell and Joni Sliger, *Rate Designs That Work for a Modern, Customer-Oriented Grid, A Look at New England Rate Design: Issue Brief #3*, at 11 (February 2020), available at <https://www.raonline.org/wp-content/uploads/2020/02/rap-littell-sliger-rate-designs-modern-customer-oriented-grid-2020-february.pdf>. See also: David Littell and Joni Sliger, *Time-Varying Rates in New England: Opportunities for Reform, A Look at New England Rate Design: Issue Brief #4*, at 7-8 (October 2020), available at <https://www.raonline.org/wp-content/uploads/2020/10/rap-littell-sliger-time-varying-rates-in-new-england-opportunities-for-reform-2020-october.pdf>.

⁶ Pat Knight, et. al, *Making Electric Vehicles Work for Utility Customers: A Policy Handbook for Consumer Advocates*, SYNAPSE, at 38 (November 25, 2019), available at <https://www.synapse-energy.com/sites/default/files/Making-Electric-Vehicles-Work-for-Utility-Customers.pdf>.

adoption can result in lower rates for *all* customers, including non-EV drivers.⁷ The Joint Stakeholders believe that well-designed TOU rates will not shift costs from EV drivers to non-EV drivers—especially low income ratepayers. The TOU rate proposals filed by the utilities should also include plans for robust customer education in order to assist customers in the transition to TOU rates.

D. Demand Charge Alternatives

In order to enable the economical operation of commercial chargers, which are vital to the successful wholesale adoption of EVs, the parties feel compelled to highlight the importance of considering demand charge alternatives in discussions of EV rates. According to a November 2020 report by the Regulatory Assistance Project:

“Traditional monthly demand charges have always provided a perverse incentive that does not reflect cost causation for shared system costs. Individual customer non-coincident peaks (NCPs) do not reflect the coincident peaks that drive shared generation and delivery capacity costs. The price signal that demand charges send — to lower individual customer NCP and to level a customer’s load over time — is substantially different than a price signal to reduce usage at the time of coincident peaks. As a result, demand charges penalize customers for usage at times that do not impose particularly high costs and encourage them to waste effort and money shifting loads off their own maximum hour (and sometimes onto high-load system hours).”⁸

With regard to EVs, demand charges can generate substantial costs to charging stations, which can result in the development of fewer public fast charging stations.⁹ Because there are still only a limited number of EVs on the road, charging stations often have low utilization rates. Although the electrical demand (kW) at these stations is high, energy use (kWh) is low.¹⁰ Therefore, demand charges can dominate the electricity bills of low utilization rate stations,

⁷ Charles Harper, Gregory McAndrews & Danielle Sass Byrnett, *Electric Vehicles: Key Trends, Issues, and Considerations for State Regulators*, NATIONAL ASSOCIATION OF REGULATORY UTILITY COMMISSIONERS, at 21, 32 (October 2019), available at <https://pubs.naruc.org/pub/32857459-0005-B8C5-95C6-1920829CABFE>; see also *Charging Ahead: Deriving Value from Electric Vehicles for All Electricity Customers*, THE CITIZENS UTILITY BOARD OF ILLINOIS, at 11-12 (March 2019), available at <https://www.citizensutilityboard.org/wp-content/uploads/2019/03/Charging-Ahead-Deriving-Value-from-Electric-Vehicles-for-All-Electricity-Customers-v6-031419.pdf>.

⁸ Mark LeBel and Frederick Weston, *Demand Charges: What Are They Good For? An Examination of Cost Causation*, November 2020, at 4, available at: <https://www.raponline.org/wp-content/uploads/2020/11/rap-lebel-weston-sandoval-demand-charges-what-are-they-good-for-2020-november.pdf>.

⁹ Pat Knight, et. al, *Making Electric Vehicles Work for Utility Customers: A Policy Handbook for Consumer Advocates*, SYNAPSE, at 23 (November 25, 2019), available at <https://www.synapse-energy.com/sites/default/files/Making-Electric-Vehicles-Work-for-Utility-Customers.pdf>.

¹⁰ *Id.* at 26, n. 34.

undermining the economic viability of such stations.¹¹ Cost causation based commercial TOU rates provide a viable alternative to demand charges.

In fact, CENH has recently learned that demand charges are creating serious negative pricing implications for fast-charging stations in New Hampshire, where charging station operators are having to pay the equivalent of several dollars per kwh due to demand charges. Electrify America has shared preliminary data that showed the company was paying an average of \$3.08/kWh for electricity delivered to vehicles charging at their New Hampshire sites during the first quarter of 2020. Of that \$3.08/kWh total, demand charges accounted for \$2.39 or 78 percent of the cost paid for electricity.¹² This New Hampshire specific data reinforced the findings of a 2019 Great Plains Institute report,

“[T]he operating cost incurred through capacity or demand charges often can far exceed the cost for energy usage. As the analysis in this white paper demonstrates, this situation can lead to operating costs that far exceed the revenue these chargers can receive from customer payments. Importantly, it is clear from the results of GPI’s analysis that demand charges are a primary factor in DCFC station economics, representing the majority of costs in most scenarios studied here.”¹³

Accordingly, we hope to work with the utilities to help design commercial TOU rates as an alternative to demand charges.

E. Alternative Metering Feasibility Assessment

The Joint Stakeholders support the inclusion of an alternative metering feasibility assessment in this docket and encourage the utilization of the newest and most advanced clean tech infrastructure available to customers. As the EV industry continues to grow, customers often have access to advanced metering functionality within a device that they already own or plan to purchase to support their EV. Using this built-in, ready-made technology provides utilities with an opportunity to provide valuable services (such as TOU rates) at a lower cost through “submetering”.

Upgrading a utility meter or installing a second utility meter are costly to both utilities and ratepayers, especially if there is an ongoing customer charge for the second meter. For example, “The Minnesota Public Utilities Commission notes that residential customers typically spend

¹¹ *Id.*; see also Chris Nelder, *Rate-Design Best Practices for Public Electric Vehicle Chargers*, ROCKY MOUNTAIN INSTITUTE (April 6, 2017), <https://rmi.org/rate-design-best-practices-public-electric-vehicle-chargers/>.

¹² Direct communication with Electrify America. Data should be considered preliminary as validated results from Q1 2020 that they are still subject to year-end audit.

¹³ Dane McFarlane, Matt Prorok, Brendan Jordan, and Tam Kemabonta (2019). Analytical White Paper: Overcoming Barriers to Expanding Fast Charging Infrastructure in the Midcontinent Region, Great Plains Institute, at 4 (July 2019), https://scripts.betterenergy.org/reports/GPI_DCFC_Analysis_July_2019.pdf.

¹⁴ Melissa Whited, Avi Allison, Rachel Wilson: Driving Transportation Electrification Forward in New York (June 2015) <http://www.synapse-energy.com/sites/default/files/NY-EV-Rate-%20Report-18-021.pdf>

between \$1,725 and \$3,525 on electrical wiring and metering costs to enroll in Xcel Energy's current EV tariff."¹⁴ This resulted in very low TOU adoption rates. A similar pilot through Dominion Energy also witnessed very low EV TOU adoption rates (less than half of the pilot's cap), even though the purchase of EVs in the utility's service territory increased dramatically in the same time period (700%). These examples showcase the very real barrier that metering can have for the adoption of TOU rates for EV charging. In order to ensure the efficient use of the grid, it is important for EV drivers to charge during off-peak hours, the signal for which is given through TOU rates. If drivers do not adopt TOU rates due to real or perceived higher costs for metering, then they will not receive the incentive to modify their charging behavior. Therefore, we believe it is important to consider other, more cost-effective, solutions.

While carrying out alternative metering feasibility assessments, the Joint Stakeholders would like to underscore the fact that many EVs and charging infrastructure options available on the market feature on-board metering capabilities that should be evaluated as an option instead of a second utility meter. These include standalone submeters, submeters integrated with the charging equipment, such as a Level 2 home charger, as well as mobile submeters in the vehicle itself.

An example of mobile submetering is through Con Edison in New York, which offered "an off-peak charging incentive program to EV customers using the FleetCarma C2 device, which is installed by plugging it into the vehicle's on-board diagnostics port. The device then collects vehicle charging and driving data by decoding signals from the vehicle's internal computer system and sends the data securely to FleetCarma servers over the cellular network."

The Joint Stakeholders understand utilities have concerns with non-utility owned metering and we do not oppose efforts to ensure alternative metering meets security and functionality requirements. However, those requirements should not be so onerous that they delay the adoption of alternative metering, which allows for enhanced competition in the space and lower costs for utilities and ratepayers alike. Especially if ratepayers are not able to convert their whole-house or facility to a TOU rate, they should have the option to utilize alternative metering instead of being forced to purchase or pay for an additional utility meter.

F. Conclusion

The Joint Stakeholders appreciate the opportunity to comment and look forward to working with the utilities, Staff, and other parties in the development of TOU rates for both residential and non-residential EV charging.

Submitted by the following Joint Stakeholders:

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