THE STATE OF NEW HAMPSHIRE
before the
PUBLIC UTILITIES COMMISSION

ELECTRIC DISTRIBUTION UTILITIES

Investigation into Rate Design Standards for Electric Vehicle Charging Stations and Electric Vehicle Time of Day Rates

Docket No. IR 20-004

COMMENTS ON STAFF RECOMMENDATION BY PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE D/B/A EVERSOURCE ENERGY

INTRODUCTION

Public Service Company of New Hampshire, d/b/a Eversource Energy ("Eversource" or the "Company") submits the following policy and practical considerations to further develop sound Electric Vehicle ("EV") rate design both responsive to needs of residents and capable of advancing New Hampshire's energy objectives. These comments build upon previous input from the Company in the instant docket and respond specifically to inquiries posited to the Company by the New Hampshire Public Utilities Commission ("Commission") during the public hearing held on July 14th, 2020. Prompted by January 10th recommendations ("Memo") from commission staff ("Staff") the Commission issued an Order of Notice in this docket to determine "whether certain rate design standards for electric companies and public service companies should be implemented for electric vehicle charging stations." by initiating an exploration into EV rate design. Order of Notice at 1.

The Memo and Order of Notice both seek to implement the mandate of SB 575-FN (codified at RSA 236:133) "requir[ing] the Commission to determine, within two years of its effective date, whether certain rate design standards for electric companies and public service companies should be implemented for electric vehicle charging stations. . . .[and] whether to implement electric vehicle time of day rates for residential and commercial customers." should such measures create EV rate design that advances "energy conservation, optimal and efficient use of facilities and resources by [utilities], and equitable rates for electric customers." Order of Notice at 1. At the time of its submission, Staff also recommended that stakeholders provide written comments responding to the issues enumerated in the Memo, and the Commission granted that request in the Order of Notice for this docket. Eversource and several interested stakeholders provided responsive comments. On April 3, 2020, the Commission Staff filed an additional recommendation informed by stakeholder comments and offering proposed courses of action and again welcomed input. After Eversource and other stakeholders filed comments on Staff's recommendation on May 11, 2020, the Commission subsequently determined that a public

hearing was warranted to supplement the record in the docket, and it is issues raised in that hearing to which Eversource now responds.

The Company supports exploring opportunities to advance the efficient use of the electric power system by a growing number of customers who seek to charge electric vehicles at homes, businesses and public charging facilities. The Company also supports long-held standards that rates should be based on principles of cost causation and provide proper price signals. Because of these principles, Eversource cautions against near-term implementation of more advanced time-of-use ("TOU") rate structures without the benefit of thorough analysis of robust historical data on EV customer usage. Hasty adoption of advanced rate design elements entails risks that could likely create avoidable costs and complications of metering and billing processes. Eversource encourages the Commission to consider a more gradual approach to serving a growing EV customer segment that can still provide for the evolution of more advanced cost-based rates based on acquired knowledge and information gained from reliable and methodical EV rate implementation. The Company also encourages the Commission to consider alternative, low-cost approaches to serving EV customers that can be implemented quickly while still encouraging the efficient use of the electric power system on an equitable basis.

FEASIBILITY OF 3RD PARTY METERING AND ALTERNATIVES

The first issue Eversource examines here is the use of third-party data sources, including metering, for TOU rates, as well as more general uses. Eversource has made this a priority: continuously exploring opportunities to better serve customers through the use alternative technologies and data sources. During the July 14th hearing, the Consumer Advocate correctly noted that Eversource affiliates in Connecticut and Massachusetts have utilized such alternatives to implement successful performance-based demand management programs. Company affiliates have provided incentives to customers through these programs based on the on the utilization of 3rd party devices such as smart thermostats, including through utility control of such devices. The Company acknowledges the merits of these options and continues to examine opportunities to expand these offerings to customers, including customers with EV chargers.

However, the demand management programs mentioned above are critically different from the TOU rate structures proposed by Staff in this investigation with respect to the role of 3rd party alternatives to utility-owned meters. It is important to draw a distinction between the methodologies and technologies necessary to calculate usage for billing purposes and methodologies used for calculating incentives that do not impact a customer's bill. Incentive development and payment in demand management programs use methods that do not necessarily need to rely on utility meters. Specifically, in the EV load management program in Massachusetts, incentives are paid based on whether EVs are charging during certain time periods. It is a binary condition: the vehicle is either charging or it is not. The program and development of incentives is not reliant on measuring actual energy consumption. Relying on the charger to tell the Company if the vehicle is charging is exponentially simpler than relying on equipment to measure energy consumption accurately enough to be used for billing purposes.

Customers are paid through cash rebates or gift cards; incentives for these programs are not even dispersed through the utility bill.

Demand management techniques advance multiple goals of the instant docket, as they: promote energy conservation, reduce peak loads, and better employ utility facilities and resources. The Company is well suited to develop an EV load management program that can achieve these objectives through its deep understanding of system conditions and experience administering conservation programs. Demand management programs provide the added benefit of flexibility to reduce load when it is necessary, regardless of the time of day. As the timing of peaks fluctuate and change over time, demand management programs provide flexibility to quickly evolve so that they are continually geared towards meeting program and Commission objectives.

It is worth considering a program for EV chargers or EVs directly integrated into the utility's distributed energy resource management system (DERMS) that can be developed as a lower cost alternative to creating a full TOU rate. Once the integration between the EV charger or EV manufacturer with the DERMS is complete, the utility has the ability to gather all the information it needs to control the charging behavior and pay incentives. No further metering or billing system integrations are required. Integrating EVs and EV chargers into the DERMS incorporates these loads as part of a more holistic energy management strategy where electric vehicles and vehicle chargers can be controlled in conjunction with other customer devices to achieve beneficial system outcomes. This enables EVs to be part of a larger portfolio of flexible load that is deployed to help alleviate ISO, transmission, and distribution level issues: an integrated component that furthers New Hampshire's energy objectives.

The success of TOU rates depend on customers making rational economic decisions and requires customers to take affirmative actions to take advantage of the price differentials embedded in TOU rates. No such requirements exist with load management to successfully generate the beneifts. All the customer must do is opt-in to the load management program. Once a customer opts-in to the program, the utility, with its EV charging partners, can directly control the charging activity, taking that burden off of the customer. Within a load management program, the utility can ramp down charging levels during times of acute system need or push a schedule to the car or charger to tell it when to start charging. In either scenario, a customer can come home, plug in the car, and not worry about taking any other actions. The load management program will optimize the charging behavior to achieve the program's objectives.

Eversource is currently running an EV load management project within its Massachusetts service territory[1] that is being used to reduce peak loads. The Company is working with charger manufacturers to send a signal to enrolled chargers to reduce charging during times of peak demand. This program covers chargers located both at private residences and commercial locations. Customers or charging station owners are paid an incentive to opt-in to the program and in return the utility may temporarily ramp down vehicle rate of charge during times of system need. This offering is designed to surgically reduce EV charging loads only when needed.

[1] https://www.eversource.com/content/ema-c/residential/save-money-energy/explore-alternatives/electric-vehicles/ev-charger-demand-response

It provides the Company with flexibility to change when demand management events are called to maximize the value of the load reduction while also minimizing customer interference. Through its work in Massachusetts, Eversource has the software platform and vendor relationships in place to quickly execute on an extension of this offering in New Hampshire.

In contrast, alternatives to utility owned metering to support of TOU rate structures not only comes with greater complexity, but also introduces considerable risk and cost due to the highly integrated requirements of the Company's metering, data management and billing operations. Eversource provides integrated turnkey, full product-cycle metering services to customers that includes meter purchasing, testing, reading, troubleshooting and end-of-life replacement. The Company has numerous operational requirements and controls to ensure accurate, timely and secure billing of Commission-approved rates to customers for which it remains accountable pursuant to the puc 300 rules:

- Meters must be compatible with Company meter programming, testing, and asset record keeping systems.
- Eversource meter systems support specific meter types, introducing new meters requires end-to-end testing.
- The meters are tested in the lab, installed, read, data captured in the meter data collection system, billing determinants sent to the billing system, bill calculation, bill print and load services when required.
- Processes are in place to assess security controls of vendors developing meters to reduce the risk of a supply chain attack on the manufacturer.
- A secured and encrypted communication path ensures data protection, quality, and prevents unauthorized access to systems. Without resilient end-to-end security there is an increased risk of malicious cyber activity impacting normal operations of Eversource meter systems.

A complete assessment of the feasibility of introducing alternative data sources to the Company's integrated metering and billing processes would likely require development of an end-to-end solution based upon specific requirements that have not been articulated in this docket's investigation. In addition to rate structure, such an evaluation would need to be based upon specific technologies, terms and conditions, and other design criteria for an end-to-end solution, and each of those elements contain significant complexity. It is for these reasons that the Company finds Staff's recommendation that the utilities file feasibility assessments within 90 days relating to opportunities for offering TOU rates that utilizes metering capability of devices other than a utility-owned meter to be premature at this time.

Limited experience of the Company's affiliates in other jurisdictions has also shown that customer ownership of meters, and the obligations that come with it, can be frustrating and time consuming for customers. Meters can last more than 15 years, and communications can become problematic for in a number of ways. For example when networks change—such as from 3G to 4G—meter exchanges are required. These challenges further underscore the need to comprehensively assess the complexities, risks and costs of utilizing data sources other than utility-owned meters to support a TOU EV rate structure.

The security of the Company's integrated data operations must be preserved as well. Nation states continuously look for opportunities to compromise Internet of Things (IoT), devices, and electric grid operations. Numerous examples exist where unregulated entities such as wind, solar farms, and water companies have been compromised because devices were directly connected to the Internet or not properly secured. While no organization can eliminate all risk of a compromise, Eversource has sophisticated programs to minimize risk and to swiftly and decisively respond to any unusual events.

The Company is happy to continue to work with the Commission and stakeholders to assess opportunities to serve EV customers using a range of technological approaches, including, to the extent desired by the Commission, studying the feasibility of introducing alternative data sources to the Company's integrated metering and billing process. However, for the reasons enumerated above, completing such a comprehensive study is not possible within 90 days, and the Company respectfully requests that more definition should be given to the scope and specific objectives of such a study before mandating that the utilities complete such a study within a prescribed timeframe. Further evaluation should also consider alternatives to advanced TOU rate structures that may be better aligned with the use of alternative data sources. Such approaches have enabled the Company's affiliates to realize benefits of increased demand reduction at lower cost and within a nearer-term time frame than likely would have been possible through approaches that required additional metering and billing system changes.

GOALS & OBJECTIVES

Eversource indicated during the July 14th hearing that it would benefit from more specific direction on the goals and objectives related to assessing the feasibility of alternative data sources and development of TOU rate structures. Consistent with its recommendations above, the Company would encourage the Commission to work with both utilities and stakeholders to evaluate the full range of customer offerings that may be consistent with the stated objectives of SB 575 to encourage:

- Energy conservation
- Optimal and efficient use of facilities and resources by an electric utility, and;
- Equitable rates for customers

The Company stresses that existing ratemaking standards and approved rates reflect these same objectives, as do the Company's activities to serve customers through the successful administration of its energy efficiency programs. As noted in prior comments, TOU rates and the ability to establish new, dedicated service for EV charging are options available to Eversource customers today. While not as advanced as some options recommended by Staff, existing Commission-approved rate structures are an appropriate starting point for serving customers with EVs, providing an effective and reliable foundation from which to build.

There are a range of options that have the potential to further advance the stated objectives of SB 575 with respect to EV charging, but they also entail varying degrees of cost, complexity and risk. The Company has already indicated how the costs and complexities of supporting new TOU rate structures may be more significant than non-rate approaches which utilize existing

Company and customer technologies. The design of more advanced rate structures based on the marginal cost of service to EV customers would also be present challenges in the absence of significant data on actual EV load profiles and customer behavior. Risk exists for inappropriate rate design which may inadvertently encourage inefficient use of facilities and resources, particularly on localized portions of the electric power system. Consequently, such maladies would have to be remedied, costing customers more in implementation, correction, and subsequent corrected implementation. A methodical data-informed and driven approach is more deliberate, and while not immediately as advanced, it creates a more sure path to advancement without cost of correction.

Given the costs and risks involved in implementing new offerings for EV customers, the Company recommends the Commission develop more detailed guidance on the specific outcomes it seeks to achieve with new rate structures or other EV customer offerings, as well as how the intended benefits associated with those outcomes should be balanced against the costs and risks of pursuing them. The Company recommends that such guidance apply to a range of possible approaches to EV rate structures and programs that may be implemented within both near-term and long-term timeframes.

RECOMMENDED NEXT STEPS

In addition to preparing a feasibility study on metering alternatives, Staff has also recommended that the utilities be directed to file, within 120 days: (1) an electric vehicle TOU rate proposal for separately metered residential and small commercial customer applications; and (2) an electric vehicle TOU rate proposal for separately metered high-demand draw commercial customer applications.

For the reasons identified above, the Company continues to encourage the Commission to consider an alternative approach that provides opportunity for TOU rate structures to be informed by more detailed consideration of technical capabilities and data analysis. The technological and behavioral considerations are paramount to TOU rates for separately-metered residential and small commercial customer applications since a high volume of customers could perform most charging activity under such rates – making the costs and risks associated with rate changes for those customers most significant. Fortunately, such customers can currently be served under existing rate structures that may be supplemented with non-rate offerings as low-cost, near-term solutions.

The Company recommends that a gradual introduction of programs and rate options for EV customers may be an appropriate and cost-effective approach to serve a customer group that is likely to grow over time and which the Company and the Commission will gain further understanding of as EV adoption expands in New Hampshire. Development of managed charging programs and rate proposals for separately metered high-demand draw applications are viable near-term steps that can safeguard against adverse charging activity and mitigate potential barriers or setbacks to development of public charging infrastructure. These initial EV customer offerings would simultaneously provide the opportunity to gather key information that would likely prove beneficial to the future design of more advanced EV charging rate structures going

forward. Rate structures that will be enabled by taking moderate and adaptable steps now, setting the stage for growth in EV rate design policy and practice.

CONCLUSION

Eversource appreciates this opportunity to provide further comment on how utilities may effectively serve their customers as more New Hampshire residents and businesses become EV owners and drivers. Eversource is committed to providing its customers the tools to efficiently and economically charge electric vehicles; the Company expects this is best accomplished through a range of approaches that it designs and deploys through thoughtful and balanced implementation. The Company looks forward to the continued engagement of the Commission and stakeholders as all parties seek to accomplish these goals.