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May 11, 2020

Debra Howland
Executive Director
New Hampshire Public Utilities Commission
21 South Fruit Street, Suite 10
Concord, NH 03301-2429

RE: Docket No. IR 20-004
Electric Distribution Utilities

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

Dear Director Howland:

Enclosed for filing, please find the comments of Public Service Company of New Hampshire d/b/a Eversource Energy in line with the Commission's April 9, 2020 secretarial letter in the above-referenced docket.

If you have any questions, please do not hesitate to contact me. Thank you for your assistance with this matter.

Very truly yours,

A handwritten signature in blue ink, appearing to read "M. Fossum", enclosed in a thin blue rectangular border.

Matthew J. Fossum
Senior Regulatory Counsel

Enclosures
CC: Service List

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 APRIL 3, 2020 STAFF RECOMMENDATION BY PUBLIC SERVICE
COMPANY OF NEW HAMPSHIRE D/B/A EVERSOURCE ENERGY**

INTRODUCTION

Following a January 10, 2020 memorandum with recommendations (“Memo”) from its staff (“Staff”), the New Hampshire Public Utilities Commission (“Commission”) issued an Order of Notice in the instant proceeding to determine “whether certain rate design standards for electric companies and public service companies should be implemented for electric vehicle charging stations.” Order of Notice at 1. The Memo and Order of Notice both sought to establish the purview and parameters by which the Commission will implement the mandate of SB 575-FN (codified at RSA 236:133) that was passed on August 11, 2018, and “requires 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.” Order of Notice at 1.

The Memo recommended numerous elements for investigation and determination for developing, planning, understanding, and implementing an Electric Vehicle (“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. Public Service Company of New Hampshire d/b/a Eversource Energy (“Eversource” or the “Company”) along with other interested stakeholders, provided responsive comments.

On April 3, 2020, the Commission Staff filed an additional recommendation which set out the Staff’s assessment of various comments received and its own proposed conclusions. Along with its recommendations, the Staff again proposed that stakeholders be given the opportunity to offer responsive comments. On April 9, 2020, the Commission issued a secretarial letter setting the

deadline for comments on the Staff's latest recommendation at May 11, 2020. Below, Eversource sets out each of the Staff's recommendations from the April 3, 2020 recommendation and provides its responsive comments to the analysis and proposed conclusions.

ELECTRIC VEHICLE RECOMMENDATIONS BY STAFF

Cost of Service: *Staff recommends the Commission issue guidance that, to the maximum extent practicable, electric vehicle charging rate designs shall reflect the marginal cost of providing electric vehicle charging services.*

Eversource Comments:

Evaluation and designing rates consistent with the cost of providing service is foundational to ratemaking for all components of service. Both marginal and total (e.g., embedded) costs of providing service have a role in the fair and equitable allocation of cost responsibility and in designing the structure and pricing of services for all customers, including those for the various types of EV charging addressed in this proceeding. The cost of service for EV charging as part of service to home or business, and for separately metered service, under existing or newly introduced rates, are all potential EV charging rate options for which cost of service has a role.

We are at an early stage of EV deployment and may have limited data from which to inform the costs of providing delivery and energy supply services to new, separate rate classes. Currently available marginal costs of distribution service, along with estimates of marginal generation and transmission costs may provide the starting point for each rate component, recognizing that separately-metered EV rates would need to be set high enough to recover the estimated class responsibility for total costs for each component of service. As services for EV charging grow, a review of the cost to provide service, including marginal costs, and the design of rates implemented for various types of EV charging should occur. Once sufficient data from any initial rate setting is collected, potential updates to rate design should be performed in the context of appropriate rate setting proceeding (e.g., distribution rate case, or transmission or energy supply rate setting).

Prohibition of Declining Block Rates: *Staff recommends the Commission issue guidance prohibiting declining block rates for any separately metered EVSE.*

Eversource Comments:

Customers should not be precluded from taking service under authorized rates, including those which currently include declining block rates. Nevertheless, the Company does not anticipate proposing declining block rates for new, separately metered EV rate offerings.

Time of Day Rates: *Staff recommends the Commission issue guidance supporting TOU rates as an appropriate rate design component for electric vehicle charging.*

Eversource Comments:

Time-varying components of rates for EV charging should reflect their associated differentiation in costs, where applicable. Not all customers will be able to respond to time-differentiated price

signals, and even those who are able may desire not to do so. Rates with TOU per kWh or demand rates are not the only form of pricing that should be considered. For example, forms of pricing such as flat volumetric rates that are offered along with peak time rebates and/or smart load control technologies may be easier to understand and effectively elicit demand response in critical peak or high cost hours.

In addition, careful consideration should be given to the make-up of the time-varying charges since not all underlying costs vary by time of day in the same way, some do not vary with time at all, or others cannot practically be applied without an added step (e.g., many of the costs of distribution service are fixed or local; public policy costs are applied on a uniform, volumetric basis; underlying costs of energy supply that the distribution utility pay on behalf of its customers are bundled or averaged over the month in consumer level pricing).

Whole House vs Separate Meter: *Staff recommends the Commission issue guidance that any electric vehicle TOU rates offered by the utilities should provide an option for customers to enroll in a separate rate class specific to their charging end use.*

Eversource Comments:

Under current rates customers may charge EVs as part of service to their home or business, or as a separately metered service. Currently available TOU rate structures and pricing, while not as advanced as some of the options recommended by Staff, may still be used for EV pricing purposes, supporting some of the objectives sought through this investigation and may serve as a stepping stone to future rate design developments for EV customers. Options and considerations for developing new, separately metered TOU rates for EV charging are addressed in many of the comments provided herein. Service provided to specific use rates, such as water heating, may provide a basis for developing separate services for EV charging. The load and service requirements specific to various types of EV charging are important for understanding relevant costs and developing appropriate rate options (e.g., larger magnitude and load characteristics; service location; additional infrastructure is required; extent of make ready support; types of metering, data collection and management and control technologies employed).

Alternatives to Secondary Meter: *Staff recommends that the Commission direct the electric distribution companies to file a feasibility assessment within 90 days relating to opportunities for offering an electric vehicle TOU rate for residential and commercial facilities that utilizes interval metering capability of devices other than a utility-owned meter. If an electric distribution company finds such an offering would not be feasible at this time, the assessment should nonetheless include a quantification of costs that would need to be incurred to deploy such a strategy, an explanation of any other barriers that may exist, and a roadmap for overcoming those barriers.*

Eversource Comments:

The Company has not evaluated alternatives to secondary meters specifically for EV charging applications but Eversource affiliates have identified numerous comparable challenges associated with alternative data sources for customer-sited distributed generation. Given the range of meters and devices that could be used by customers, the numerous protocols for each

device to collect, store, and transmit data, and the means of integrating data from those differing protocols into existing utility systems, the use of data from sources other than revenue-grade utility owned meters presents a host of issues and risks, and would be highly problematic for data collection and verification. The reliance of alternative data sources also introduces potential challenges with respect to oversight, jurisdiction and dispute resolution around third-party metering. The Company anticipates these considerations will make it imperative that metering and meter data for electric service provided to its customers, including that for an EV charging facility located within a customer's facility would be priced differently from the remainder of service to the facility, and for which all distribution services, security and consumer protections would apply, be company-owned, operated and maintained. Given the breadth of issues to consider along with the known, and as-yet-unknown, complications, conducting a feasibility study within the 90 days recommended is both premature and untenable.

Energy Supply, Transmission & Distribution: *Staff recommends the Commission issue guidance that any separately metered electric vehicle charging rates developed by the utilities should include a time-varying component for energy, transmission, and distribution. Once a utility has collected data regarding the average annual load shape of 500 electric vehicle rate customers, the Company should solicit a separate tranche for full requirements, load following energy service within its default service solicitation for the electric vehicle customers using an average annual load shape specific to that customer class.*

Eversource Comments:

It is important to note the availability and limitations of differentiating costs for these components of service on the basis of structure(s) being contemplated for separately metered electric vehicle charging rates. Not all costs vary in time, and the cost periods and duration of those periods may vary from each other, and from periods defined in a given rate structure. Further, given that costs upon which rates might be developed can be fixed, or may vary temporally on the basis of demand or volume, cost causation and the rate structure for cost recovery should align as much as possible. Pricing set on the basis of marginal costs would still need to reconcile with total cost of providing service to each type of charging service.

Regarding energy supply, it is important to note that customers have the option to procure energy from a competitive supplier or through the Company under its default service option, ES. While a solicitation for ES may be issued for those customers taking default service, there is no guarantee that a response for a separate tranche will be received, or what the offer(s) may be. In the experience of the Company's affiliates with a simple, two-part fixed TOU rate, bids may not be submitted in a given solicitation for small or highly variable loads, and peak-off-peak price differentials may be small or zero, and the Company would need a secondary option (e.g., purchase from the market) as a backstop. The price structures of qualifying bids, or any company backstop option, would need to match the rate structure(s) in effect at that time.

Consistency among Utilities: *Staff recommends the Commission issue guidance that any separately metered residential electric vehicle charging rate should: (1) be based directly on cost causation; (2) incorporate time varying energy supply, transmission, and distribution components; (3) be three part (e.g.- off peak, mid-peak, and peak); (4) be seasonably differentiated (e.g.- summer and winter); (5) have an average price differential between off-peak and peak of no less than 3:1; and (6) have a peak period no longer than four hours in duration.*

Eversource Comments:

This recommendation focuses on potential new, separately metered rate offering for residential EV charging applications. It is not clear what is meant by “directly” basing rates on cost causation. As noted in the Cost of Service comments, both marginal and total (e.g., embedded) costs are important in setting rates for each component of service. For example, for energy supply, the price to customers may equal that of the company’s wholesale supply delivered to the customer’s meter, whereas transmission costs billed to the company are allocated based on each rate class’ responsibility, and then priced and billed to customers based on the applicable demand or usage for the class. When considering these various parameters of this draft recommendation, such as for setting a given TOU period, the combined impact of all cost components would need to be evaluated, and these may vary among utilities. For a new rate offering at a given utility, the appropriateness and cost-reflectivity of the time periods, rate differential and duration may need to be estimated up front, and further evaluated once sufficient data is available. In applying a given, new TOU rate design a reconciliation of actual costs against revenues received may be needed. Actual rate setting and reconciliations would need to occur under applicable rate proceedings for each utility.

Quantification of Incremental Costs: *Staff recommends the Commission should require each utility seeking approval of an electric vehicle TOU rate to provide an assessment of incremental costs associated with that offering, including but not limited to those costs associated with billing, metering, and marketing.*

Eversource Comments:

A definition and assessment of incremental costs, along with total costs for all services would be appropriate. It is assumed that any rate implemented would be a new offering for a new set of services and for a growing load. A review of costs for both whole home/business and separately metered facilities, and of the differences between costs of providing service versus rates and revenues received, for all components of service, should be performed, and should include any upfront development and system related costs along with ongoing costs. Third party upfront or ongoing costs (e.g., submetering), may also need to be evaluated.

Seasonal Rates: *Staff recommends the Commission issue guidance expressing a preference for seasonally differentiated electric vehicle charging TOU rates consistent with the underlying cost causation of the summer and winter seasons.*

Eversource Comments:

As indicated by other commenters in this proceeding, there is an inherent form of seasonality in the energy service rates, where rates change on February 1st and August 1st each year, and remain fixed between those dates. Charges for transmission service are determined based on total

company load, overall prices change once per year (August 1st), and are based on demand. Rates for other rate components change on either January 1st, February 1st or August 1st each year. Collectively these rate changes provide one form of seasonality based on the inherent dates of their respective rate changes. For distribution rates, at least a small portion of marginal distribution costs exhibit traditional seasonality (i.e., summer vs. winter, with all marginal costs falling in the summer), and may provide a basis for development of seasonally-differentiated rates. Given the disparity of seasonality among these components, a careful review would be needed and a potential revenue reconciliation method.

Interruptible Rates: *Staff recommends the Commission issue guidance that interruptible rates are not an appropriate rate design for electric vehicle charging.*

Eversource Comments:

Relative to traditional interruptible rates, managed charging, critical peak pricing and peak time rebates are examples of rate mechanisms that may exhibit characteristics comparable to that of interruptible rates, but carry with them their own set of metering, communications and other requirements, depending on the application.

Load Management Techniques: *Staff recommends the Commission issue guidance that load management techniques may be an appropriate strategy for electric vehicle rate design but express a clear preference for delivery of such offerings in conjunction with TOU rate offerings, to the extent reasonably practicable.*

Eversource Comments:

While existing or new TOU rate offerings available to EV charging applications should be considered when applying load management techniques, TOU rate design is not the only way to encourage off peak charging or other efficient behaviors. Load management techniques do not necessarily need to be offered in conjunction with TOU rates and can be implemented while potential TOU rate options, metering, and other requirements are being addressed.

Load management techniques that utilize communicating EV charging stations present an immediate opportunity to manage EV load. EV managed charging allows the Company a degree of flexibility in when to ramp load up or down. As peaks move throughout the day, load management programs offer a surgical option to reduce load during those peaks exactly when they occur. This means we are asking a customer to only change their behavior during those times when it is most important, thereby minimizing customer interference, and leading to a better overall customer experience. Additionally, load management is not just a load reduction strategy but can also be used to communicate with an EV and tell it to start charging to provide grid benefits such as during a period when there is an overabundance of solar during normally light load conditions, which has the potential to cause grid stability issues.

Demand Charges: *Staff recommends the Commission issue guidance that demand charges may be a component of an appropriate rate design for high demand draw charging stations, but that utilities should explore alternatives to the non-coincident peak demand charges prevalent in New Hampshire, such as the use of volumetric pricing structures or demand charges which are based on peak coincidence. Demand charges are not likely warranted for most residential charging applications.*

Staff recommends that the Commission require Eversource to file for review within 90 days the results of any analysis conducted by its affiliates relating to rate design alternatives to demand charges or if it is not available, then file it when it becomes available.

Staff recommends the Commission issue guidance that demand charges may be a component of an appropriate rate design for high demand draw charging stations, but that utilities should explore alternatives to the customer peak demand charges prevalent in New Hampshire, such as the use of volumetric pricing structures or demand charges which are based on coincidence with system peak and other peaks reflective of cost causation. Demand charges are not likely warranted for most residential charging applications.

Eversource Comments:

Demand charges provide an important, cost-based price signal, which has different implications depending on the rate class, and on whether new/additional EV charging is served behind the meter to a home or business or to a standalone EV charging station. At the February 28, 2020 technical session Eversource reviewed its CT EV rate rider applicable to public charging, which provides volumetric pricing in lieu of demand based charges. This may provide a basis for consideration in NH, for comparable DCFC applications, particularly where time differentiation is not likely to be conducive to price response. There may be alternative demand-based approaches that should be reviewed and considered.

A new or modified demand charge rate design may reflect more current information, metering and technical capabilities, and other capabilities. It may be helpful to review which components of demand related costs and rates can or cannot be time differentiated, and for what elements of costs a coincident peak charge is warranted. Demand charges for residential customers are not necessarily common or well understood without customer education. The potential for measuring EV charging usage and/or developing separate EV charging rates may also provide information not previously available that would help in understanding charging patterns, when and to what extent peak charging occurs, the duration of that charging, and other key characteristics for consideration in developing new or alternate rate design approaches.

Residential and Commercial Time of Day Rates for Electric Vehicle Charging: *Staff recommends the Commission open an adjudicative proceeding and direct each electric utility to file within 120 days, consistent with the guidance above: (1) an electric vehicle time of use rate proposal for separately-metered residential and small commercial customer applications; (2) an electric vehicle time of use rate proposal for separately metered high demand draw commercial customer applications that may incorporate DCFC or clustered level 2 chargers. Both proposals should be accompanied by testimony explaining how those rates were developed, and how the rate is consistent with Commission guidance, and plans for marketing residential electric vehicle time of use rates.*

Eversource Comments:

Eversource is in the midst of a distribution rate case, which includes continued offering of TOU rates under current structures. Whether changes to these structures or new options are implemented, current rate offerings provide at least one option for either behind the meter or separately metered EV charging service. Development of new rates for EV charging applications would require an adjudicated proceeding, which may be a distribution rate case. Proposals for a new EV TOU rate offering would likely need to address all components of service, including distribution, transmission, energy supply and other rate components. The guidance anticipated as a result of this proceeding would be critical to determining the proposal for each of these applications, and the potential that not all information would be available to develop proposals based on the specifications identified in this draft recommendation.

In Eversource's assessment, it would be helpful to conduct an initial review of directives from the Commission that provide guidelines, without dates for filing or the conduct of feasibility or other studies. Rather than set a 120 day requirement as recommended by the Staff, Eversource recommends that the Commission first understand the requirements and feasibility of developing proposals, and from that to set out information requirements and a procedural schedule. It may also be important to pursue or implement advanced rate design pursuant to these comments such that an initial rate offering and/or particular metering and meter data collection can occur in support of developing information for design of more advanced rate options. Key factors such as number of time periods, duration and type of data for both customer charging and corresponding costing, are not necessarily currently known, until all components of costs of service that vary with by time of day (e.g., generation and transmission unit cost) are evaluated and estimated. Developing data measurement, collection and analysis objectives and placing meters and collecting data over a defined period of time may be of great value in defining rate design parameters, evaluating costs and usage patterns, testing the conceptual parameters discussed herein. Initial, simpler rate design proposals may be put in place to support certain charging applications in the short run, while simultaneously placing meters and gathering key information may prove beneficial in designing proposed EV charging rate design going forward. Eversource also suggests that there would be merit in addressing a number of questions and potential rates and related options raised by re-directing and pursuing the time-of-use pilot under Docket No. DE 16-576 in the context of EV charging applications.