

STATE OF NEW HAMPSHIRE  
BEFORE THE  
PUBLIC UTILITIES COMMISSION

**DE 20-170**

**In the Matter of Electric Distribution Utilities  
Electric Vehicle Time of Use Rates**

DEPARTMENT OF ENERGY CLOSING STATEMENT

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## **SUMMARY OF RECOMMENDATIONS**

The Department of Energy (Department) recommends Commission approval of the settlement agreement. We believe that the rate development methodology described in the settlement is directly grounded in cost causation, sends price signals that will encourage electric vehicle owners to shift load to times when charging results in fewer system costs, and will result in savings for all ratepayers.

While the Department takes no position on the adoption of the load management proposal Eversource has proposed in place of the time of use rate design it was directed to develop, we do recommend that the Commission direct Eversource to adopt a two-period time-varying rate for residential customers and a manually-billed three-period time of use rate consistent with the settlement agreement methodology for commercial customers, and also to develop an alternative metering pilot that would utilize metering embedded in chargers and vehicles for the purpose of offering time-varying rates.

## **SETTLEMENT APPROVAL**

The Department recommends that the Commission approve the settlement agreement, in consideration of the innovative time-varying rate design methodology it adopts, the balanced approach to the issue of demand charges it embraces, and the commitment to alternative metering it demonstrates.<sup>1</sup>

### **Time of Use Rate Design Methodology**

The time-varying rate methodology described in the settlement has the potential to limit system-related costs caused by both residential and commercial electric vehicle charging by sending price signals to encourage charging during times when system capacity is abundant and energy costs are low, while also discouraging charging when system capacity is limited and energy costs are high. Without such price signals, electric vehicle charging has the potential to increase peak demand and the need for capacity-related investments, increasing system costs to the detriment of those ratepayers who choose not to drive, or cannot afford to purchase, an electric vehicle. In short, time-varying electric vehicle rates are meant to protect other ratepayers from the potentially adverse rate impacts associated with unconstrained electric vehicle charging and charger deployment. The settlement recognizes this, and sets forth an innovative and consistent methodology, based in cost causation principles, for the development of such time-varying rates. For these reasons, the Department recommends that the Commission approve the time of use rate design methodology set forth in the settlement agreement.

### **Commercial Customer Demand Charges**

In New Hampshire, commercial customers' revenues have primarily been collected using demand charges because such charges are the cost recovery mechanism most directly linked to the distribution costs those customers cause. The 50% demand charge reduction along with the proposed TOU rates captured in the rate design methodology strike the right balance between the objective of removing unnecessary barriers to electric vehicle deployment and the need to limit potential cross-

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<sup>1</sup> The Department of Energy supports all aspects of the settlement, but highlights the time of use rate design methodology, the approach to commercial customer demand charges, and the commitment to use of metering capabilities embedded in the customer-owned chargers or vehicles as areas deserving of particular attention by the Commission.

subsidies between electric vehicle owners and all other ratepayers. We appreciate the willingness of Unitil Energy Systems, Inc. (“Unitil”), Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty (“Liberty”), the Office of the Consumer Advocate (“OCA”), and the Department of Environmental Services (“DES”) to compromise and meet in the rational center of the debate on this often-contentious issue. While electric vehicle deployment can benefit all ratepayers if peak load growth is minimized, it is not the responsibility of New Hampshire ratepayers to ensure that rates are designed in a manner that assures the success of the electric vehicle charging station business model. Furthermore, the 50% demand charge described by the settlement is not proposed in a vacuum - it is accompanied by deployment of cost-based time of use rates which could significantly advantage stations that can limit loads during peak periods. Examples of such stations include fleet charging, workplace charging, or public chargers that experience significant loads on weekend travel days which are not designated as peak periods. Approval of the settlement would not preclude Commission consideration of other electric vehicle time-varying rates, should the Commission deem such rates just and reasonable. For those reasons, the Department recommends approval of the reduced demand charge as set forth in the settlement agreement.

### **Alternatives to the Utility Meter**

Perhaps the most substantial ratepayer victory achieved through the settlement is the firm commitment by Unitil and Liberty to explore the future use of vehicle telemetry and charger-embedded metering to offer time-varying rates.<sup>2</sup> As discussed at hearing and as described in pre-filed testimony, jurisdictions around the country have already adopted the use of these devices as a least-cost option for offering electric vehicle time of use rates. Once New Hampshire’s utilities have tested the reliability and viability of this model, such embedded meters may obviate the need for a second utility-owned interval meter dedicated to the electric vehicle rates. Avoiding the need for a second meter would reduce costs that are ultimately recoverable from New Hampshire customers. It may also allow the elimination or significant reduction of the second customer charge, which for Liberty and Unitil is based on meter carrying costs and communications costs. Eliminating the customer charge may further enhance the value proposition for electric vehicle owners, in particular for the residential sector. If the pilot moves to a full offering, it may be necessary for the Commission to amend or temporarily waive certain meter testing and security rules to keep pace with the technologies available now and in the future; it would not be the first time the Commission has provided such a waiver.<sup>3</sup> In light of the added value that alternative metering might provide for New Hampshire ratepayers, the Department recommends approval of the alternative metering pilot referenced in the settlement agreement.

### **THE EVERSOURCE PROPOSAL**

The Department takes no position on whether the Commission should consider the load management proposal of Public Service Company of New Hampshire d/b/a Eversource Energy (“Eversource”) in this proceeding. This was a proceeding opened and noticed by the Commission for consideration of electric vehicle time of use rates and not active load management strategies.<sup>4</sup> If the

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<sup>2</sup> Unitil’s commitment remains subject to Commission approval of the pilot proposal in Docket No. DE 21-030.

<sup>3</sup> See, generally, Docket No. DE 18-161, Eversource Meter Test Report and Renewed Request for Waiver of PUC 305.03. Secretarial Letter approving waiver available at: [https://www.puc.nh.gov/Regulatory/Docketbk/2018/18-162/LETTERS-MEMOS-TARIFFS/18-162\\_2018-12-05\\_SEC\\_LTR\\_APPROVING\\_WAIVER\\_REQ.PDF](https://www.puc.nh.gov/Regulatory/Docketbk/2018/18-162/LETTERS-MEMOS-TARIFFS/18-162_2018-12-05_SEC_LTR_APPROVING_WAIVER_REQ.PDF)

<sup>4</sup> Eversource admitted at hearing that the benefits of the program do not outweigh its costs.

Commission does consider Eversource's load management proposal within this proceeding, the Department recommends that the Commission only do so in conjunction with directives that require Eversource to make strides towards offering electric vehicle time of use rates. Specifically, the Department recommends that the Commission direct Eversource to: (1) develop a separately metered two-period residential electric vehicle time of use rate offering on the timeline described by the settlement; (2) develop, and use manual billing to offer three-period time of use rate offerings for commercial customers, consistent with the methodologies described in the settlement; (3) conduct a good faith evaluation of cost-saving opportunities relating to the use of vehicle telemetry and charger-embedded metering that includes a pilot of at least 50 customers, and file a report on that pilot within one year of an order in this proceeding. If Eversource's response to the record request identified as Exhibit 33 results in the two-period rate offering described in (1) above being cost-prohibitive from the Commission's perspective, the Department recommends that the Commission direct Eversource to work with the Department, OCA, and other parties in the proceeding to develop a request for proposals ("RFP") for a third party that would provide billing and metering services utilizing charger-embedded metering or vehicle telemetry.

### **Eversource Residential Electric Vehicle Time of Use Rates**

To its credit, Eversource has designed a residential rate that is generally consistent with the Commission's directives in Order No. 26,394. However, citing \$9 million of billing system upgrade costs and limited customer bill savings, Eversource recommends against implementation of those rates. Eversource's recommendation is based on several flawed assumptions and should be rejected by the Commission.

First, Eversource's \$9 million cost estimate has misinterpreted the Commission's directives in Order No. 26,394 to include offering time-varying rates to competitive suppliers, a capability that Eversource testified at hearing would represent a significant portion of the cost estimate. Notably, however, the rate it has designed has appropriately, and consistent with previous Commission directives and technical session discussions directly informed by cost implications, excluded time varying competitive supply offerings.<sup>5</sup> Fortunately, the Commission has, through the record request identified as Exhibit 33, asked Eversource to provide a more realistic cost estimate for implementing a rate similar to the rate designed by Eversource, but based on the two-period design Eversource already offers. The less complex nature of this two-period offering, plus the non-reliance on Electronic Data Interchange (EDI) system necessary to offer time-varying competitive supply, should result in a cost estimate that is much more reasonable. If it does not result in a cost estimate that is acceptable to the Commission, the Department recommends that the Commission direct Eversource to work with the Department, OCA, and other parties to the proceeding to develop and issue an RFP for a third party that would provide billing and metering services utilizing charger-embedded metering or vehicle telemetry. Notably, Eversource's load management proposal would utilize charger-embedded metering and rely on third party software as a service provider to verify customer load curtailment and provide customer incentives. The Company already uses customer-owned meters in other applications at its affiliated utilities.<sup>6</sup> There is no reason that same model should not apply to time of

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<sup>5</sup> Exhibit 3, Bates 7, stating "Another important note for the energy supply portion of rates is, while the design addresses pricing of company-provided Energy Service, it does not resolve the issue of how to set or bill prices on a TOU basis for competitive supply. The Company's proposed rate design is cost reflective for each component of service by time of day. Competitive supply rates, however, are not required to be set on a TOU basis."

<sup>6</sup> Exhibit 13, Bates 15-17.

use rates. If Eversource cannot bring itself to embrace alternative metering and third-party billing offerings, then this is a function the Commission should direct be opened to competition from private market actors.

Second, the customer monthly bill impacts described by Eversource are based on several conservative assumptions, including assumptions related to average vehicle miles traveled, given the significant number of New Hampshire commuters to the Boston area who travel more than the average distance, as well as an unnecessarily high demand charge. If the Commission were to direct Eversource to include only the carrying cost associated with the meter and meter communications in the second customer demand charge, as Unitil and Liberty have proposed, the bill savings for an electric vehicle customer that shifts its load off peak would equate to more than \$100 per year. That directive would be consistent with Eversource's customer charge for its controlled water heating offering, which similarly utilizes a split service and a separate meter to offer a second rate specific to water heating.<sup>7</sup> The monthly customer charge could be further reduced if the results of alternative metering pilots obviate the need for the secondary meter, further increasing customer bill savings. Similarly, if the customer happened to commute further than the limited number of miles assumed by Eversource, then the customer's bill savings would increase even more.

In light of the flawed assumptions upon which Eversource's billing system cost estimates and customer bill savings estimates are based, the Department recommends that the Commission direct Eversource to develop a separately-metered two-period residential electric vehicle time of use rate offering on the timeline described in the settlement agreement. If Eversource's response to the record request identified as Exhibit 33 demonstrates that two-period rate offering described above would be cost-prohibitive from the Commission's perspective, the Department recommends that the Commission direct Eversource to work with the Department, OCA, and other parties to the proceeding to develop an RFP for a third party that would provide billing and metering services utilizing charger-embedded metering or vehicle telemetry.

### **Eversource Alternative Metering Pilot**

Although Eversource developed an outline of its potential alternative metering feasibility assessment,<sup>8</sup> the outline and assessment in its testimony was entirely premised upon use of its antiquated meter communication and billing systems. Although Eversource describes the coming transition to advanced billing and metering offerings at the enterprise level, the deployment of those offerings in the near term in New Hampshire is far from assured. Eversource testified at hearing that deployment at the enterprise level is likely 5-6 years away, but it did not mention that in 2015 it had invested in an entirely new fleet of meters incapable of offering time-varying rates in New Hampshire. Those meters have an average service life of about 25 years<sup>9</sup> and would result in substantial stranded

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<sup>7</sup> Exhibit 13, Bates 11, 24-25.

<sup>8</sup> Exhibit 13, Bates 19-21.

<sup>9</sup> *Grid Modernization in New Hampshire*, Grid Modernization Working Group, Appendix B, p. 40  
Group [https://www.puc.nh.gov/Regulatory/Docketbk/2015/15-296/LETTERS-MEMOS-TARIFFS/15-296\\_2017-03-20\\_NH\\_GRID\\_MOD\\_GRP\\_APP\\_FINAL\\_RPT.PDF](https://www.puc.nh.gov/Regulatory/Docketbk/2015/15-296/LETTERS-MEMOS-TARIFFS/15-296_2017-03-20_NH_GRID_MOD_GRP_APP_FINAL_RPT.PDF).

costs if Eversource were to move to a more advanced billing, communications, and metering system.<sup>10</sup>

Even if Eversource provides a cost estimate the Commission deems reasonable for a two-period rate offering, the Department recommends that the Commission direct Eversource to conduct a good faith evaluation of cost-saving opportunities relating to the use of vehicle telemetry and charger-embedded metering that includes a pilot of at least 50 customers and that it file a report on that pilot within one year following an order in this proceeding. Eversource's sole basis for its apparent intransigence on the issue of alternative metering amounts to a phone call to its meter manufacturer to see if the antiquated meters and communications software would work with electric vehicle chargers. The Department believes the best way to remedy Eversource's 20<sup>th</sup> century approach to billing and metering, while avoiding customer lock-in to that approach, is for the Commission to open those functions to the competition of private market actors by directing Eversource to work with the Department, OCA, and other parties to the proceeding to develop an RFP for a third party that would provide billing and metering services utilizing charger-embedded metering or vehicle telemetry.

### **Eversource Commercial Electric Vehicle Time of Use Rates**

Order No. 26,394 (August 18, 2020) directed the utilities to develop and file electric vehicle time of use rates for residential and commercial customers:

Staff recommended the Commission open a new proceeding and direct each electric utility to file within 120 days, consistent with the guidance above: (1) an EV TOU rate proposal for separately-metered residential and small commercial customer applications; (2) an EV TOU rate proposal for separately-metered high demand draw commercial customer applications that may incorporate direct current fast charging or clustered level two chargers. Staff recommended that each proposal should be accompanied by testimony explaining how those rates were developed, any plans for marketing residential EV TOU rates, and how the rate is consistent with the Commission's appropriateness determinations herein. Based on our review of the record in this investigation, **we find electric vehicle time of use rates are an appropriate rate design for residential and commercial customers, and we believe a separate proceeding to adjudicate the merits of various proposals from each utility is warranted.** Any proposals filed in this future proceeding should include testimony, projected costs, and be accompanied by illustrative tariff language. We also see value in the distinction Staff has drawn regarding residential and small commercial customers and high demand draw applications that may incorporate direct current fast charging or clustered level two chargers.

Order No. 26,394 at 18 (emphasis added).

Unlike Unitil and Liberty, Eversource does not interpret the above-cited language as directing the electric distribution utilities to develop and file time-varying rates for separately-metered electric vehicle commercial customers. The DOE recommends that Eversource's misinterpretation of the Commission's directive to develop and file electric vehicle time of use

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<sup>10</sup> Note that, during the hearing, Eversource indicated that other states have not adopted electric vehicle time of use rates, but instead have opted for load management; however, the age of the meters in those other states are much older, so changing the meters in those other states for use in load management programs would not result in stranded costs.

rates for commercial customers be rejected by the Commission. There is no basis for Eversource's preferred interpretation, other than perhaps its general aversion to rates that might limit peak load growth and capacity-related investments.

The Department recommends that the Commission direct Eversource to design a commercial rate consistent with the settlement methodology, to be filed within 60 days of a Commission order on the settlement in this proceeding. That rate offering should not be limited to two periods like the residential rate, and should utilize relatively low-cost manual billing, to instead offer the slightly more complex rate design described in the settlement agreement. Eversource currently utilizes manual billing in New Hampshire for 63 large power billing accounts at a cost of approximately \$6,000 per year for all 63 customers, or less than \$100 per year per customer.<sup>11</sup> In view of the limited number of customers likely to elect such a rate,<sup>12</sup> and the likely substantial monthly bills of commercial and high demand draw commercial electric vehicle time of use rate customers, as compared to the relatively modest cost of manual billing, this appears to be the most cost-effective billing option.<sup>13</sup>

## CONCLUSION

In summary, the Department recommends Commission approval of the settlement agreement. We believe that the rate development methodology described in the settlement is directly grounded in cost causation, sends price signals that will encourage electric vehicle owners to shift load to times when charging results in fewer system costs, and will result in savings for all utility ratepayers. We particularly appreciate the time of use rate design methodology adopted by the settlement, its treatment of the commercial customer demand charge, and its commitment to study alternative metering offerings for New Hampshire customers.

While the Department takes no position on the adoption of the load management proposal Eversource has proposed in lieu of the time of use rate designs it was directed to develop, we do recommend that the Commission direct Eversource to adopt a two-period time-varying rate for residential customers and a manually-billed three-period time of use rate consistent with the settlement agreement methodology for commercial customers, and also to develop an alternative metering pilot that would utilize metering embedded in chargers and vehicles for the purposes of offering time-varying rates.

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<sup>11</sup> Exhibit 13, Bates 26-27.

<sup>12</sup> See Exhibit 13, Bates 23 for the number of New Hampshire high demand draw electric vehicle commercial customers.

<sup>13</sup> See Exhibit 13, Bates 4 for an example of monthly bills from Connecticut high demand draw electric vehicle commercial customers.

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