



# REPORT ON DEMAND RESPONSE AND ELECTRIC VEHICLE CHARGING PROGRAMS

State of New Hampshire  
Public Utilities Commission  
Staff



# Introduction

## A. Federal Legislation

On November 15, 2022, the Commission issued an Order of Notice announcing the commencement of an investigation pursuant to recent amendments to Section 111(d) of the Public Utility Regulatory Policies Act of 1978 (16 U.S.C. § 2621(d)) (Federal Jobs Act) (November 15, 2021). Section 111(d) of the Act was amended by the Infrastructure Investment and Jobs Act of 2021. The amendments directed all state electric ratemaking regulators, including the Commission, to consider establishing rate mechanisms and standards related to promoting electric utility demand response practices and electric vehicle charging programs.

Specifically, the Federal Jobs Act requires the Commission to consider whether to adopt rate mechanisms or standards concerning:

### (20) Demand Response Practices

(A) In general, Each electric utility shall promote the use of demand-response and demand flexibility practices by commercial, residential, and industrial customers to reduce electricity consumption during periods of unusually high demand

### (B) Rate recovery

i. In general, Each State regulatory authority shall consider establishing rate mechanisms allowing an electric utility with respect to which the State regulatory authority has ratemaking authority to timely recover the costs of promoting demand-response and demand flexibility practices in accordance with subparagraph (A).

ii. Nonregulated Electric Utilities A nonregulated electric utility may establish rate mechanisms for the timely recovery of the costs of promoting demand-response and demand flexibility practices in accordance with subparagraph (A).

### (21) Electric Vehicle Charging Programs

Each State shall consider measures to promote greater electrification of the transportation sector, including the establishment of rates that,

(A) promote affordable and equitable charging options for residential commercial and public electric vehicle charging infrastructure;

(B) improve the customer experience associated with electric vehicle charging including, by reducing charging times for light, medium, and heavy-duty vehicles;

(C) accelerate third-party investment in electric vehicle charging for light-, medium-, and heavy-duty vehicles; and

(D) appropriately recover the marginal costs of delivering electricity to electric vehicles and electric vehicle charging infrastructure.”

## B. Participants

The three New Hampshire electric distribution utilities, Public Service Company of New Hampshire d/b/a Eversource Energy (Eversource), Unitil Energy Systems, Inc. (Unitil), and Liberty Utilities (Granite State Electric) Corp. d/b/a Liberty (Liberty) (collectively the Electric Utilities), were mandatory participants in this investigation.

In addition, Community Power Coalition of New Hampshire (CPCNH), Clean Energy New Hampshire (CENH), Revision Energy, Inc (Revision), Town of Peterborough Energy Committee, FreeWire Technologies, Charge Ahead Partnership, Weave Grid, Inc., Conservation Law Foundation (CLF), NH Dept. of Environmental Services (DES), NE Convenience Store and Energy Marketers Assoc., Town of Derry, ChargePoint, Inc., Fermata Energy, Best Ford, Ski New Hampshire, Inc., Vehicle Grid Integration Council (VGIC), the Office of Consumer Advocate (OCA), and the New Hampshire Department of Energy (DOE) participated in this investigation.

Participants submitted three rounds of written comments concerning the status of demand response, electric vehicle charging and electronic data interfaces with electric utilities. Participants also included comments on the need for future development in each of the topical areas. This report summarizes those comments and recommendations.

# Executive Summary

## A. DEMAND RESPONSE

### DR Topic 1: Rate Mechanisms for Demand Response

Participants agree that demand response (DR) is needed to reduce system peak demand. Participants recognize that the primary rate design to promote DR is some form of time varied or time of use (TOU) rates. Making rates higher during periods of high demand and low when the system has excess capacity causes customers to reduce their usage during high demand periods. Participants disagree concerning the optimal design of TOU rates, specifically the level of demand charges, and whether TOU rates should be offered as opt in or opt out for customers. Due to metering and billing system constraints, the utilities prefer to add managed demand response programs to TOU offerings to promote DR.

### DR Topic 2: Standards and Systems for DR and Transactive Electricity Market

Participants agree that the Commission should clarify what a transactive electricity market would entail. Participants also agreed that standards need to be adopted to enable retail customers to manage their electric demand on a real time or dynamic basis. The utilities caution that cybersecurity, interoperability, and consistent data format, are important considerations in adopting such standards. CPCNH identified existing standards developed by the International Electrotechnical Commission as a model to consider in developing standards for New Hampshire.

### DR Topic 3: Electronic Data Interchange (EDI) standards

Participant comments regarding the current EDI system administered by the electric distribution utilities diverged. The utilities claim that the current EDI system is not capable of sharing real time data due to metering and billing software limitations. The other participants assert that the current EDI system could be updated to accommodate advanced metering and more dynamic usage data and pricing. The utilities counter that modifying the EDI would take considerable time and expense. Some participants note that the current EDI system limitations hamper meaningful competition and retain too much utility control over data and billing.

## DR Topic 4: Current Programs, Services and Rate Mechanisms

The utilities described their incentives for C&I load shifting and utility control of thermostat and other remote control of household devices for residential customers. The utilities presented these offerings as successful DR programs. Although the utilities referenced TOU rates, the utilities did not describe those TOU rates as successful in accomplishing DR.

## DR Topic 5: Commission Decisions, State Statutes, and Federal Laws Supporting DR

Participants cited RSA 374-F:3, X and RSA 362-A:2-b as New Hampshire Legislative support for expanded DR and a more transactive energy market in New Hampshire. Participants also referenced numerous Commission orders on grid modernization, battery storage and TOU rates as examples of decisions supporting DR.

## DR Topic 6: New Programs and Opportunities for DR

Participants agreed that demand response programs need to increase including both active and passive demand response programs. Multiple participants recommended a combination of up-front incentives, pay for performance, and TOU rate designs, to promote demand response. DOE suggested that all demand response programs should be evaluated by establishing clear goals, providing for cost recovery, ensuring cost effectiveness, requiring benefit/cost sharing, and establishing clear cost incentives.

## DR Topic 7: Technologies for DR and TE

Participants identified the Distributed Energy Resource Management System (DERMs) as a platform that allows a company to enroll, connect to, control, and receive data from customers' devices. Participants claimed that this capability is critical to executing the DR program and achieving load reductions. Participants also suggested that a DERMS would be more effective in conjunction with advanced metering infrastructure (AMI) and an advanced Distribution Management System (ADMS). New systems like meter data management systems (MDMS), and field area networks (FAN) could also support DR. An MDMS enables a company to deliver demand response programs such as time-based rates and various load control solutions, and a FAN provides two-way communications to all field devices. Electric vehicle-to-grid (V2G) charging could also be effective in DR and transactive energy (TE) solutions.

## DR Topic 8: Market Barriers for DR

The non-utility participants identified the lack of AMI, and appropriate price signals to customers, as market barriers to DR. The utilities focused on the lack of proper incentives, pay-for-performance, and managed DR, as barriers to increased customer participation in DR.

## DR Topic 9: Reforms for a Competitive Retail Electricity Market

Utility participants maintained that DR is not a function of a competitive market, and instead, is a policy decision. The utilities suggested that DR can be rapidly increased through more funding of utility provided DR offerings. Non-utility participants promoted the use of submetering devices in connection with DR to allow customers to measure their load shifting on a dynamic basis. Non-utility participants also recommended that the state leverage the advanced monitoring and control technologies embedded in EVs and EV supply equipment (EVSE), coupled with time-varying price signals, to maximize price responsive demand flexibility and lower system costs for all ratepayers.

## B. ELECTRIC VEHICLE CHARGING

### EV Topic 1: Funding for EV charging Infrastructure

Non-utility participants supported ratepayer funded development of EV charging infrastructure and recommended increased support of customer or private sector development of EV infrastructure, instead of utility owned EV infrastructure. The non-utilities cautioned against utility ownership of EV infrastructure due to potential anti-competitive behavior by utilities. Non-utility participants suggested that EV infrastructure should be owned by separate unregulated utility affiliates if utilities were to be involved in EV infrastructure development and ownership. Utility participants supported ratepayer funded utility owned EV infrastructure.

### EV Topic 2: EV Charging as a tool to reduce peaking demand.

Participants agreed that with increased electrification, EV charging, through TOU rates and managed charging, could be an important tool in reducing peak demand.

## EV Topic 3: EV Metering Standards

Participants agreed that EV metering standards are not fully developed but noted that several utilities commissions around the country are in the process of developing standards with an eye to allowing EV usage to be measured by internal metering devices. There was broad support for the Commission to pursue EV and EVSE metering pilots in New Hampshire.

## EV Topic 4: Current programs and services

Utility participants referenced make-ready programs for charging facilities and TOU tariffs as examples of existing programs and tariffs supporting EV. The non-utility participants noted that current demand charges make EV charging too expensive and proposed lowering demand charges, using a sliding scale demand charge, or eliminating demand charges, to promote EV charging.

## EV Topic 5: Commission decisions, state statutes, and federal laws relating to EV charging.

Participants referenced SB 517 passed in 2018 and SB 131 passed in 2021. Both bills find a certain degree of necessity for developing EV infrastructure throughout the state, including utility EV infrastructure and make-ready programs. SB 517 also created the Electric Vehicle Charging Stations Infrastructure Commission (EV Commission). The EV Commission found that utility-make-ready programs are particularly well-suited for enabling the advancement of EVSE deployment and recommended the adoption of such programs.

## EV Topic 6: New programs or opportunities

Participants identified several potential programs to support increased EV charging:

- DR for EV charging managed through EVSE
- Collocated battery storage with EV charging equipment
- V2G use of EVs to add power during times of high demand
- Management of multiple EV chargers to optimize power usage
- Use of EV chargers with overall building energy management systems
- Establishing TOU rates to encourage EV charging during lower cost periods.
- Encouraging more universal public infrastructure/chargers, including multi-unit residential units.
- Utilizing meters on EVs and/or chargers for alternative metering.

## EV Topic 7: Available EV charging infrastructure technologies

Participants identified behind the meter EVSE installations on the same service drop which could qualify for customer-side make ready programs, as well as allow low-power DC chargers (<50kW) to qualify for make-ready, technology-neutral battery programs. Participants also mentioned pay for performance, dual participation and value stacking, and other innovative incentive programs and rates. Value stacking is the bundling of grid applications, creating multiple value streams, which can improve the economics of distributed energy resources.

## EV Topic 8: Funding sources and utility practices of make-ready EV charging

Beyond the \$2.1 million Eversource make-ready program approved in Docket No. DE 21-078 and funded through the Volkswagen settlement, participants noted that federal funding is available through the Infrastructure Investment and Jobs Act, (IIJA) approved in 2021. The IIJA includes \$5 billion for light-duty EV charging infrastructure to be allocated across all states through the National Electric Vehicle Infrastructure (NEVI) program. Of that \$5 billion, approximately \$17 million has been earmarked for New Hampshire over the next five years, through a process administered by the New Hampshire Department of Environmental Services. Other federal grants totaling \$2.5 billion nationally through the NEVI program will be available for application through a competitive bidding process.

## C. PARTICIPANT RECOMMENDATIONS FOR FUTURE ACTION

- 1. Reinstate working group on EDI to determine changes needed to accommodate DR, EV charging and other competitive offerings.**
- 2. Reconsider TOU rates with higher rate differentials and lower demand charges.**
- 3. Develop metering standards for behind the meter sub-meters and enable broader use of submeters**
- 4. Explore funding and installation of EV charging infrastructure**
- 5. Develop tariffs and programs to incentivize use of battery storage with EV charging equipment**
- 6. Open a proceeding to consider proposals for EV-managed charging programs**
- 7. Increase demand response through a combination of upfront incentives, pay for performance and TOU rates.**
- 8. Develop EV and EVSE metering pilots in New Hampshire.**
- 9. V2G is an emerging technology worthy of further consideration in an investigative docket.**



# I. SUMMARY OF COMMENTS RECEIVED ON EACH TOPIC

## A. TOPICS ON DEMAND RESPONSE

### DR Topic 1. Rate Mechanisms for Demand Response

**How can demand response reduce electricity consumption during periods of unusually high demand, and what rate mechanisms should be developed to compensate ratepayers for their retail electricity market participation in demand response programs?**

**Eversource** stated that no legislative authority explicitly prioritizes demand response (DR) programming over any other form of utility investment. Referring to RSA 374-F:3, X which supports an expansion of existing demand response programs, Eversource suggested that the Commission has the authority to do so. Regarding rate DR mechanisms, currently, Eversource's DR programs are incentive-based, so no rate mechanism is used. Eversource recognized that Rate design can be used in conjunction with DR but maintained that incentive-based programs have been popular and effective in reducing peak demand as compared with time-varying rates.

**CLF** supported the widespread adoption of time-of-use (TOU) rates and recommended the Commission consider ways to encourage and/or compel the utilities to increase TOU rate adoption, particularly prioritizing three-period TOU rates. CFL also advocated for increased use of active demand response programs (manual or auto dispatch) for both residential and C&I customers.

**CPCNH** asserted that DR can reduce load during periods of high demand by accessing appropriate price signals to the cost of power during periods of high demand, such as through time-varying rates (TVR). CPCNH, claimed that with proper commercially available load control technologies, and communication, prices can be provided to devices to automate demand response, particularly appliances such as, vehicle charging equipment, consumers and building control systems, and related devices.

**Unitil** believes that making TOU rates "opt-out", as suggested by CLF, has the potential to create customer confusion, and in some cases may result in a customer paying more for energy than the customer would pay on a non-TOU rate. Regarding CLF's recommendation that the Commission explore the increased use of active demand response (ADR) programs for both residential and C&I customers, Unitil noted that it is already operating ADR pilot programs in New Hampshire. The Company intends to propose implementation of these pilots as full programs in connection with

the next three-year energy efficiency plan. Like Eversource, Unitil believes that the winter demand response programs, suggested by CLF, have very limited ability to influence pricing and provide little to no system or ratepayer benefit because the ISO New England system is summer peaking.

## DR Topic 2: Standards and Systems for DR and Transactive Electricity Market

### **What standards and systems are needed to enable demand response and a transactive retail electricity market in New Hampshire that includes real-time data transfer?**

**Eversource** emphasized further examination and consensus on the meaning of transactive energy (in the DR program context), objectives, and options, which would be helpful prior to considering transactive energy in the docket. A consensus on the meaning of “transactive energy” would allow stakeholders to have a common understanding of transactive energy (TE) market concepts and how they might potentially be relevant in the context of DR programming. Eversource suggested that the existence of a competitive market or TE mechanisms does not mean that the great majority of customers will have the means or the motivation to participate. DR, demand management, and managed charging programs all but eliminate active daily participation for the customer, and still enable the utility to manage loads benefiting the participating customers and the system as a whole.

**Unitil** also pointed out that the overall vision for TE is not clearly defined within the scope of this docket (or even nationally), so further discussion amongst stakeholders is necessary to define a vision of a TE market and determine a roadmap to achieve this vision. Unitil stated that the US Department of Energy’s GridWise® Architecture Council framework could be a reasonable guide to ensure the stakeholders have a common set of references for TE definitions, principles, potential markets, and power system considerations.

**Unitil** emphasized the need for a robust consideration of cyber and physical security since the TE market will expose power systems operation to a broader range of endpoints and new and diverse attack vectors. The integration of information technology and telecommunications with the traditional electric delivery infrastructure can introduce new vulnerabilities which need be addressed. Unitil observed that the standards for this level of data sharing and security have not been fully developed, vetted, or adopted by the potential distributed energy resources (DER) that may participate in a future TE market and utilities will likely have to consider security enhancements to both the electrical networks and communications networks in addition to the software systems utilized.

**Unitil** raised the issue of the lack of standards and interoperability. Different standards exist for sharing data between utilities and customers, between EVs and customers, and between control systems and endpoints. These systems do not all work together in a seamless and secure manner. Unitil concluded that there are a

number of foundational technologies/capabilities that are needed to facilitate the development and adoption of a TE market a two-way, real-time data transfer standard would be the focus at this time.

**Fermata** pointed out that the Vehicle-to-everything V2X Case Studies, particularly New Hampshire Electric Cooperative (NHEC) Transactive Energy Rate (TER), and V2X Earnings from the Connected Solutions Demand Response Program in Rhode Island and Massachusetts could be helpful in relation to the standard needed for a TE market.

**CPCNH** pointed out that the International Electrotechnical Commission (IEC) standards and other standards support demand response and the transactive retail electricity market. It referred to the testimony of Dr. Amro Farid on behalf of the Local Government Coalition in DE 19-197, Exhibit 9 in this context.

## DR Topic 3: Electronic Data Interchange (EDI) standards

### **Should New Hampshire continue to leverage the current Electronic Data Interchange (EDI) paradigm, or should a new standard be used?**

- **Do standards exist that enable an interoperable two-way data exchange among the utility, community aggregators, and ratepayers?**
- **How can the EDI standards be updated to enable a transactive retail electricity market in New Hampshire?**

**Eversource** stipulated that EDI in the electric utility context is designed to serve as a mechanism for data-sharing between competitive suppliers and utilities, (and now municipal aggregations and utilities as well), but it is not designed for the exchange of real-time metering or system operational data, and therefore it is not useful for any type of control or dispatch in real-time of distributed energy resources, such as those related to existing DR programs. The Company does not know of any modified EDI systems that could provide real-time data exchange which might be needed to facilitate transactive energy retail market transactions.

**Unitil** expressed a similar opinion about the EDI and pointed out that the discussions and foundational efforts are underway in New Hampshire, with a broad range of stakeholders in DE 19-197, towards the development of a programmatically accessible statewide data-sharing platform that could provide a better option for TE.

**CPCNH** believes that the EDI system could be an option for TE as it has the capability of making hourly load data available for competitive suppliers. It raised the concern that the inability of EDI to show the negative usage data would make it difficult to be useful in the context of a customer-generator or battery storage device, including vehicle-to-grid systems, which export power to the grid. Like Unitil, CPCNH stated that the idea of developing the state-wide energy data platform as the system to succeed EDI would enable secure sharing of meter, customer, market/financial, and system

data in support of demand response, integration of DERs, and a retail transactive energy market across New Hampshire. It also pointed out that EDI can be updated to support a transactive retail electricity market. The Coalition suggested focusing on developing the basic elements of a transactive retail electricity market including a) the ability to opt-in to AMI interval metering; b) the option to pay for transmission services c) suppliers' option of settling load at 5-minute intervals.

**Eversource** observed that EDI is well-designed to accomplish the end purposes for which it was intended with all its functionality and adaptability limitations. To provide interval meter data, the Company would first have to modify the billing systems to obtain and store the raw data, and to do that would require reconfiguration of the systems, the degree of which is currently unknown. The company also stated that modifications could be made to EDI to provide the negative usage data as long as the data is available.

**Eversource** has concerns about CPCNH's suggestion that, to enable a "transactive retail electricity market," suppliers and customers should have the ability to opt-in to advanced metering infrastructure ("AMI") where the suppliers and customers would pay "the incremental cost over the type of new meter the utilities are currently buying for new and replacement AMR meters." It would reduce the stranded cost, but the Company argued that it would still require additional metering and billing system infrastructure modifications with a significant commitment of resources and related expenses.

**Eversource** finally recommended a more detailed examination and analysis of the current and possible future functionality of EDI and the processes necessary to harness those capabilities, as those capabilities are considerable, but entail a good deal of complexity.

**CPCNH** explained that EDI limitations prevented it from matching the level of customer service available on utility-administered default supply services, offering rates that vary by time-of-use (TOU) period, and compensating/crediting net metering customer-generators for the supply component of their excess generation. It rebuffed Eversource's assertion regarding a competitive market, market barriers for DR, and opportunities for DR expansion under existing market structure. It stated that Eversource's arguments are entirely designed to elevate utility-administered programs as the sole mechanism available to expand retail services.

**CPCNH** Cited Unutil's observations and stated that Eversource attempts to misdirect the relevance of the utility's EDI system. CPCNH concurs with Unutil that more modern modes of data exchange are warranted to support a TE future. CPCNH suggested that the Commission identify and remove barriers to retail market innovation due to the current anti-competitive practices of NH's investor-owned utilities, including their administration of EDI systems and related data and billing services they are supposed to be enabling for CEPS and CPAs to serve retail customers.

**Unutil** stated, in response to CPCNH, that it does not have 5-minute interval data in its metering systems, or systems to process such data. The company indicated that it

would require significant time and investment to be able to implement such capabilities.

**CPCNH** found that reply comments by Eversource and Unitil regarding consideration of issues relating to EDI and related services fall short of providing the Commission with sufficient context.

**CPCNH, OCA and CENH** also urged the Commission to reconvene the NH EDI Working Group. CPCNH believes that TE Rates could be deployed over the relatively near-term to broadly incentivize demand flexibility on a year-round basis across New Hampshire.

**CPCNH** agrees with OCA, CLF and Unitil, that the Commission should adopt standards to address the Federal Jobs Act related to “promote the use of demand-response and demand flexibility practices by commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand” and to “establish rate mechanisms allowing an electric utility subject to the Commission’s ratemaking authority to timely recover the costs of promoting demand response and demand flexibility practices.”

## DR Topic 4: Current Programs, Services and Rate Mechanisms

### **What programs or services are currently offered by the utilities that support customer demand response activities to reduce peak demand, and what are the associated rate mechanisms?**

**Eversource** stated that existing DR programs (bring-your-own-device, pay-for-performance) are offered to provide customers with incentives for their participation in helping to reduce the load on the ISO-NE grid during system peaks. The programs are conducted on an opt-out basis with no penalty per se for opting out of an event, but any opt-outs are factored into the customers’ performance for the program period and their incentives are calculated or reduced accordingly. Large commercial & industrial customers execute customized plans to reduce energy consumption in their facilities that they have developed with curtailment service providers (CSPs) in addition to allowing Eversource to draw power from their batteries and thermal storage systems. Eversource stated that DR can be a significant driver for getting more storage on the grid, particularly for large C&I battery projects. The potential to earn ongoing incentives from the DR programs can be the deciding factor in the financial viability of a battery project for a developer. On the residential side, the current program involves adjusting customers’ thermostat settings, pausing their EV charging, and discharging their batteries by the Company.

**Unitil** provides two “bring-your-own device” offerings in New Hampshire for customers. They are both offered under the Connected Solutions name. The C&I load curtailment offering provides electric customers an incentive for verifiable shifting and shedding of load in response to a communication from the utility or a curtailment service provider (“CSP”). The Residential Wi-Fi thermostat direct load control offering enrolls electric customers who own a qualified, wirelessly communicating thermostat that controls a central A/C system (including but not limited to heat pump technology). Participants receive an incentive in exchange for allowing their utility to

make a brief (three-hour), limited adjustments to their Wi-Fi thermostats during periods of peak electric demand (referred to as “events”). Unitil also offers whole-house and EV charging Time of Use (“TOU”) Rates.

**CLF** identified Eversource’s and Unitil’s active demand response offerings described by the utilities.

**CPCNH** added Liberty’s battery pilot with its 3-part time-of-use rates and the corresponding TOU EV rate options as an active program in the DR context.

## DR Topic 5: Commission Decisions, State Statutes, and Federal Laws Supporting DR

### **What are the relevant Commission decisions, state statutes, and federal laws relating to demand response?**

**Eversource** reiterated in its response that RSA 374-F:3, X supports an expansion of existing demand response programs. It identified the recent amendments to RSA 362-A:2-b, the Limited Electrical Energy Producers Act as a potential model for transactive energy.

**CPCNH** also referred to RSA 374-F:3 X, and relevant Commission decisions including Docket on Investigation into Implementation of the Energy Policy Act of 2005 (DE 06-061), Order No. 24,763, Order No. 24,785, and Order No 24,819. It also recognized more recent relevant orders in IR 15-296, Investigation into Grid Modernization, Liberty’s Battery and TOU rate docket (DE 17-189), and orders in the various EV rate and Unitil TOU rate dockets.

**WaveGrid** reported that in Docket No. IR 20-004, the Commission investigated certain rate design standards for EV charging stations, specifically, “cost of service, prohibition of declining block rates, time of day rates, seasonal rates, interruptible rates, load management techniques, and demand charges.” Pursuant to SB 575, the Commission additionally investigated the potential implementation of EV time-of-day rates for residential and commercial customers. In Order No. 26,394, the Commission made numerous findings related to EV rates and opened Docket No. DE 20-170 to facilitate the development and review of the utility-specific EV TOU rate proposals.

## DR Topic 6: New Programs and Opportunities for DR

### **What new programs or opportunities could be implemented to further promote demand response practices and reduce consumption during unusually high demand periods?**

**Eversource** observed that as rates of adoption increase for electric vehicles, heat pumps, and other electrification measures, the need for managing demand on the transmission and distribution systems will become imperative. Electric vehicles make



a significant impact on the demand for that circuit which ripple through the distribution and into the transmission system. The increased electrification will make demand management, an easily implementable option, a necessity to maintain and operate the grid safely, reliably, and at a reasonable cost. It noted that New Hampshire runs the risk of seeing its share of overall transmission network charges increase as the other states' policies more aggressively promote DR programs in targeting summer peaks compared to New Hampshire. Eversource suggested combining the upfront incentive with the pay-for-performance DR incentives to clear barriers as was done in the newly launched Energy Storage Solutions battery program in Connecticut. It is a customer-funded DR program that offers both an upfront incentive in addition to ongoing pay-for-performance incentive for the purpose of motivating developers to pursue battery installations and get more storage online.

**Unitil** believes that utilities can use rate designs, bill credits, or other incentives to control demand on the electric grid during periods when the demand for electricity is at its highest and/or threatens to outpace the electricity supply. In New Hampshire Active Demand Reduction (ADR) strategies, can positively influence the price of capacity in the ISO-NE forward capacity market and provide immediate benefits to all customers in the form of suppressing wholesale power prices during times of high demand and mitigating the challenge to the electric system that will arise from additional electrification loads. There is an additional opportunity to employ demand response to shift load away from peak periods with the continuing growth of EV charging in New Hampshire.

**CLF** also advocated to expand active demand response programs for both residential and C&I customers expanding the types of pilots offered as part of NH Saves to more electric customers throughout New Hampshire. It recommended exploring ways for battery storage programs to promote demand response. It observed that with increased heating electrification, the regional grid will begin experiencing its highest system load in the winter by 2035 as forecasted by ISO-NE. CLF strongly recommended the adoption of winter demand response programs.

**CPCNH** stated that it would like to implement Recurve's Demand Flex Market product prepared by Calpine Energy Solutions if the needed interval metering and access to avoided cost values in transmission, energy, and capacity markets is available.

**DOE** in its final comments, pointed out that the Federal Jobs Act requires the Commission to consider establishing rate mechanisms allowing the three regulated electric utilities to recover the costs of promoting demand response and demand flexibility practices. DOE noted that the Commission has considered various forms of demand response programs in several dockets, including DE 17-189 (Liberty Battery Storage Pilot Program); DE 17-136, and DE 20-092 (Energy Efficiency, including active demand response pilot programs); DE 19-057 (Eversource Energy's distribution rate case, including time of use (TOU) rate designs, e.g. a two-period rate structure consisting of peak and off-peak periods); and DE 21-030 (Unitil's distribution rate case, including TOU rate designs with a Whole House TOU rate). Additionally, the Commission assessed demand-side energy management programs as a part of its review of the utilities' least-cost integrated resource plans.

**DOE** recommended that several key elements be considered when developing demand response programs and practices:

- Goals – The purpose of the program and practices must be clearly defined.
- Cost Recovery –The rate mechanism for cost recovery should be aligned with the goals of the program.
- Cost-Effectiveness – The programs/practices should consider the benefits and costs, with emphasis on the most cost-effective approaches.
- Benefit/Cost Sharing – If the programs/practices result in cost reductions or payments to the utility, then the utility should share any benefits/savings with ratepayers.
- Program Incentives – The program incentives should be clear and easily understood while ensuring alignment with the goals of the programs/practices.

**Eversource** observed, in response to multiple party comments, near-consensus support for increased investment in DR using EV-managed charging<sup>1</sup>. It believes that an adjudicative docket should be established to consider such proposals. It also pointed out that there is an urgent need to address stressors on the distribution system related to increasing electrification, with EV adoption. The EV-managed charging programs, an easily implementable, effective, relatively inexpensive, and cost-effective method would address the need for relief on existing distribution grid infrastructure.

**Eversource** recommended that, at the conclusion of this investigation, the Commission open a new adjudicative proceeding docket to consider proposals for EV managed charging programs.

## DR Topic 7: Technologies for DR and TE

**What technologies are available today or could be available within a utility’s planning horizon to enable support of demand response and transactive energy?**

Both **Eversource and Until** identified the Distributed Energy Resource Management System (DERMs) which addresses all DR programmatic needs, as a prime candidate for implementation. The DERMs platform allows the

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<sup>1</sup> Conservation Law Foundation Initial Comments at 7; Vehicle Grid Integration Council Initial Comments at page 1; Weave Grid Initial comments at 6-8; Until Energy Systems, Inc. Initial Comments at 10, 12.



company to enroll, connect to, control, and receive data from customers' devices which is critical to executing the DR program and achieving load reductions. In conjunction with advanced metering infrastructure (AMI) and an advanced Distribution Management System (ADMS), a DERMS would be more effective.

**Unitil** implemented or is in the process of implementing new systems like meter data management system (MDMS), and field area network (FAN). MDMS enables the Company to deliver demand response programs such as time-based rates and various load control solutions, and FAN provides two-way communications to all field devices. The Company mentioned Electric vehicle-to-grid (V2G) charging could be effective in DR and TE solutions. V2G allows vehicles to input electricity into the grid, smart appliances that are interoperable with demand response systems, using smart meters and energy management systems, and virtual power plants (VPPs), aggregate and control DERs to optimize their use.

**Unitil** also promoted its vision of an intuitive “one-stop” self-service portal offering personalized customer experiences and opportunities that calibrate potential energy-related recommendations for customers. The Company planned to deploy customer-facing tools within the next three years to support demand response and transactive energy including access to current energy marketplace offerings, energy efficiency initiatives, Energy/Usage Alert Notifications, promotions or assistance offerings, available dynamic rate options, and integrated rate comparison tools, demand response, behind-the-meter products or services, recommended contractors or installers, and educational opportunities focused on improving customer energy behaviors.

**CLF** recommended considering the potential for bring-your-own-device (BYOD) technology to enable the adoption of demand response programs, widespread implementation of advanced metering infrastructure (AMI) to take advantage of demand response programs by customers,

**Fermata** lauded New Hampshire Electric Cooperative (NHEC) Transactive Energy Rate (TER). It also mentioned V2X Earnings from the Connected Solutions Demand Response Program in Rhode Island and Massachusetts as some possible technologies to consider.

**CPCNH** opined that Eversource and Liberty could enable customers, or their CPA or CEPS on their behalf, to opt-in to AMI and enable near-real-time streaming of meter data through a cloud-based data collection using existing cellular data networks at low cost. It pointed out that **Liberty and Eversource** use MDMSs which offer solutions that include enabling the utility to provide secure API access to meter data in near real-time.

**OCA** agreed with the Initial Comments of Unitil and CFL that the Commission has not yet expressly adopted standards related to promoting electric utility demand response practices, as required by the Federal Jobs Act related to “promote the use of demand-response and demand flexibility practices by commercial, residential, and industrial consumers to reduce electricity consumption during periods of unusually high demand” and to “establish rate mechanisms allowing an electric utility subject to the Commission’s ratemaking authority to timely recover the costs of promoting demand-response and demand flexibility practices.”

The **OCA** stated that it is important for the Commission to include the expansion of the demand-response programs by the utilities in its investigation. It also agreed with Eversource that there is nothing preventing the Commission from expanding demand response programs. The OCA recommended that a mechanism outside of the NHSaves program options be explored as part of this investigation, This investigation could consider utilizing existing statutory mechanisms and regulatory authority to encourage and allow for utilities to seek cost-recovery for investment in incremental demand response programs.

## DR Topic 8: Market Barriers for DR

### **What market barriers exist that, to date, have prevented greater demand response management?**

**Eversource** believes that through DR incentives market barriers for projects like storage and EV adoption can be improved. It reiterated that combining the upfront incentive with the ongoing pay-for-performance DR incentives could eliminate barriers for larger battery storage projects and enable the development of assets that can contribute to the mitigation of demand peaks.

**CLF** identified the lack of AMI in the three utilities’ service territories, the cost of BYOD devices, and information asymmetries between the utility and customers as the main barriers preventing DRM.

**CPCNH** found that the absence of appropriate price signals to customers, access to fundamental billing determinants for competitive suppliers, and CPAs, and the cost of accessing hourly usage data create the biggest drawbacks for DR implementation.

In the reply comment, **Fermata** agreed with CLF, Eversource, and other parties that DR programs, such as Connected Solutions, should be expanded throughout NH. On the issue of the need for access to dynamic pricing for distributed energy resources (DERs), it agreed with the CPCNH, and VGIC. It supports the position of CLF on the need for widespread advanced metering infrastructure and bring-your-own-device (BYOD) technology. It observed a growing recognition of the potential of V2G

technology to provide grid benefits for NH ratepayers - out of the ten parties that submitted initial comments, a total of five parties (**Unitil, CPCNH, VGIC, CLF, and Fermata Energy**) specifically mentioned V2G as an emerging technology worthy of further consideration. Fermata Energy suggested an Investigative Docket consider the V2G issues.

**CLF** Supported the Commission's approach to the IR docket and found relative consensus in several areas under consideration in this investigatory docket which could form the basis of the scope of the subsequent adjudicative phase. Referring to Eversource and Unitil, it suggested that the Commission should scale the Utilities' existing demand response programs. CFL reiterated its support for the winter DR program, Utility Make-Ready Programs, V2G programs, and EV Managed Charging Program which are supported by Eversource, Until, Weave Grid, and Vehicle Grid Integration Council. CLF encouraged the Commission to reconsider the utilities' development of alternative metering feasibility pilots citing Weave Grid, and Unitil's initial comments.

Referring to CPCNH and CLF's position on the potential for using time-of-use (TOU) rate structures to manage customer demand, **Eversource** believes that incentive programs can achieve the same objective, and likely be more effective at achieving that objective in a shorter period of time, without the need for costly infrastructure or billing system upgrades.

**Eversource** made a similar argument regarding CLF's suggestion that TOU rates be offered on an opt-out basis. It also pointed out the low enrollment of customers in the available TOU rates thus far in New Hampshire and questioned the rationale of such an investment. Eversource also argued that CLF's idea of bring-your-own-device (BYOD) programs using AMI does not allow the utility to do any load management for DR since the utility cannot communicate with the AMI, so the benefit of AMI to DR would be purely informational and after-the-fact, where a customer's performance and participation would be analyzed after the event with appropriate baselining, etc., as is currently done for large commercial and industrial (C&I) customers with AMI. Regarding CLF's winter DR programs proposal, **Eversource** believes that winter programs would provide little to no system or ratepayer benefit in the near term. Eversource lauded CLF's point regarding incentive programs to encourage co-locating battery storage with EV DCFC infrastructure, which allows managing DCFC during system peaks with minimal customer impacts.

**CENH** encouraged the Commission to consider electric rate design and utility programs to address critical economic gaps in the current public EV charging and support residential time of use rates as they have the potential to improve the all-around load factor. CENH disagreed with Eversource regarding time-of-use (TOU) rates. It recommended studying the full economic impact of a more comprehensive and uniform public EV charging make-ready program and evaluating the corresponding benefit to the entire New Hampshire economy, all ratepayers, and residents. CENH reiterated its suggestion to explore alternatives to demand charges. It also recommended building on the experience of the Liberty Battery Storage Pilot (DE 17189) and enabling the utility to expand the program and encourage the development of vehicle-to-grid (V2G) programs.

**CLF** clarified that the winter load reductions might have a limited effect on capacity requirements under current incentive programs as ISO-NE remains a summer-peaking system—winter load reductions would provide significant benefits like energy cost savings, emissions reductions, and improved reliability benefits. In support of its position, CLF referred to FERC’s recognition of the benefit of demand response programs to New England’s winter system reliability in approving a NEPOOL proposal on winter reliability. In relation to Eversource and Unitil’s criticism of opt-out TOU rates proposal, CLF suggested extensive and robust customer education and marketing including (1) dual or shadow billing, where customers initially remain on traditional billing but are provided information on potential savings on monthly bills; (2) guarantees to customers that they will be charged on the tariff that provides them with the lowest annual bill during the transition period; and (3) multi-year data that compares bills across traditional and TOU rates. CLF also observed the consensus in this docket on the need for EV-managed charging programs and recommended opening a new adjudicative docket to consider proposals from the utilities on EV-managed charging programs but limited to residential and fleet EV customers only.

## DR Topic 9: Reforms for a Competitive Retail Electricity Market

### **What structural reforms could enable a more competitive retail electricity market in New Hampshire and within ISO-NE?**

**Eversource** implied that DR is not a function of the competitive market, instead, it is a policy-driven, regulatory market intervention intended to achieve the policy objective of leveling off-peak demand on the grid. Eversource believes regulatory-initiated programs that authorize utilities to provide greater DR programming are required for growth in DR. According to Eversource, the load serving entities, (LSEs) (CEPS, a wholesale supplier for utility default service, or a CPA acting as an LSE), are responsible for the related Load Asset in the wholesale market settlement system administered by ISO New England (ISO-NE) under its tariff and market rules. The state regulators lack the authority to direct or approve changes to ISO-NE competitive wholesale market designs, procedures, participation requirements, settlement processes, and related rates and charges. Eversource thinks there are meaningful achievable opportunities for DR program expansion through initiatives adopted at the retail regulatory level, as may be approved by the Commission, and without changes to existing competitive retail electricity market structures or to FERC-jurisdictional wholesale power market structures. According to Eversource, the expansion of DR programming in New Hampshire could happen relatively quickly and with only a modest effort (e.g., expanded funding for new enrollments in DR).

**CPCNH** believes that the implementation and expansion of RSA 362-A:2-b pilots would be one good starting point. Simply enabling “bill” ready use of consolidated billing as required by Puc 2205.16, would be a big step forward which will enable an option to use coincident peak demand charges instead of customer individual demand, pass-through transmission costs based on the share of coincident peak demand, and to get credit for avoided capacity costs for export to the distribution grid at the hour of annual system coincident peak demand.

**CPCNH** concurred with OCA’s recommendation that the state should leverage the advanced monitoring and control technologies embedded in EVs and EV supply equipment (EVSE), coupled with time-varying price signals, to maximize price responsive demand flexibility to lower system costs for all ratepayers. It praised New Hampshire Electric Co-op (NHEC) for its recently deployed a Transactive Energy Rate (TER) pilot program, which offers a number of compelling advantages in terms of capital efficiency, and from a market design perspective.

**CPCNH** recommended that an adjudicative docket after this investigation on the submetering and communication protocols that NHEC has adopted for its Transactive Energy Rate program be adopted for other utilities or an alternative protocol be developed to enable device-level submetering; and a mechanism for CPAs and CEPS to realize the actual avoided costs at customer devices as net load reducers. CPCNH also recommended a timeline by which Eversource, Unitil, and Liberty Utilities would be required to implement the changes required to enable the market mechanisms provided for under RSA 362-A:2-b.

## A. TOPICS ON ELECTRIC VEHICLE CHARGING

### EV Topic 1: Funding for EV Charging Infrastructure

**What are the current policies around customer-funded versus ratepayer-funded interconnections of EV charging infrastructure?**

**CLF** referred, in its initial comments, to Order No. 26,738 in Docket No. DE 21-078, where the Commission approved Eversource’s expenditure of up to \$2.1 million in ratepayer funds on EV charging infrastructure interconnections as an example of a funding model. As discussed in that docket CFL pointed out that the infrastructure costs associated with connecting EV charging stations to the grid are one of the largest cost categories of installing and hosting EV charging stations, and the lack of public funding for EV interconnection costs has hampered the development of EV charging stations in New Hampshire.

**Charge Ahead Partnership (CAP)** recommended developing strategies to support increased consumer choices and private capital investment in EV charging stations in which utility-owned make-ready programs support customer-owned investments. CAP believes that requiring electric utilities to coordinate with the private sector and National Electric Vehicle Infrastructure (NEVI) formula planning would catalyze a competitive EV charging market in New Hampshire. In the context of any electric utilities that choose to own EV charging stations, CAP suggests that EV charging stations be owned by a separate, unregulated entity to eliminate any cross-subsidization with the utilities’ regulated business. Further, CAP asserts that ownership by a separate unregulated company will also mitigate the inherent anti-



competitive risks associated with regulated utilities participating in private markets based on fair competition. CAP believes that the threat of electric utilities investing ratepayer funds in EV charging stations without market or competitive forces at play is a major barrier to private businesses investing in DCFC stations.

CAP recommended comprehensive lists of issues for the Commission to address consistent with the directives laid out in the Infrastructure Investment and Jobs Act (IIJA) for EV charging.

**Ski New Hampshire** emphasized the importance of the development of sound policies related to electric vehicle charging infrastructure and demand response programs in NH and deemed it as a critical component to maintaining a competitive edge with the neighboring states and other travel destinations, as well as an economic development imperative.

**Unitil** agreed with CLF’s statement that “EV charging station development will result in significant benefits for New Hampshire’s economy,” and that “there is justification for using ratepayer funding for EV charging infrastructure.” Unitil is open to exploring such technology with the participants in this investigation.

**Unitil** advocated for utility-owned or funded Electric Vehicle Supply Equipment (EVSE), EVSE Make-Ready Programs, providing new electric service connections for new EV charging service locations, new infrastructure both in front of and behind the meter to support the acquisition and/or deployment of outside funding for EV charging infrastructure development. Unitil supported Curbside Charging and multi-unit Dwelling (MUD) infrastructure incentives for under-served communities too. Unitil agrees with Eversource that EV-managed charging merits consideration by the Commission.

**Liberty** also supported opening a new proceeding to consider proposals for EV managed charging programs. Liberty asked the Commission to review the proposals in Liberty’s recently filed distribution rate case, Docket No. DE 23-039, in determining whether current tariffs and programs are sufficient to support demand response and EV charging.

## EV Topic 2: EV Charging as a tool to reduce peaking demand.

### **Can the development of EV charging infrastructure be structured to cost-effectively reduce electricity consumption during periods of unusually high demand?**

**Eversource** stated that there is nothing inherent about EV charging infrastructure itself that enables cost-effective reduction of electricity consumption during periods of unusually high demand, however, solutions have been and are being developed to address this. Eversource believes that utility load management programs such as managed charging have been the efficient and cost-effective solution for changing charging behavior to achieve peak demand reduction.

**Unitil** believes that large-scale transportation electrification has the potential to add a significant, flexible electric load to the power system which could result in considerable system costs if not managed properly. Load management and managed charging technologies and programs are essential to ensuring that transportation electrification does not lead to unnecessary and costly power system impacts and rate pressure.

**CLF** asserts that the use of TOU rates for EV charging can be employed to provide a price signal to customers to shift consumption relating to EV charging away from peak periods and into lower cost periods. In that context CLF agreed that managed charging programs for EV charging could reduce electricity consumption during periods of unusually high demand<sup>2</sup>.

## EV Topic 3: EV Metering Standards

### **Can electric metering and EV metering standards be changed to cost-effectively and fairly increase EV and expand EV charging infrastructure in New Hampshire?**

**Unitil** commented that metering accuracy and data security standards limit the electric company's ability to accept metering data that does not meet those. Unitil is open to considering using EV charger data as opposed to requiring a separate meter as the accuracy of integrated metering within EV chargers improves and common standards for securely sharing data are adopted.

**WaveGrid** pointed out Order 26,604 where the Commission required Eversource to propose an alternative metering pilot program, and similarly in Docket No. 21-030 conditionally approved a proposed alternative metering feasibility assessment by Unitil.

**ChargePoint** cited Baltimore Gas & Electric ("BG&E") in Maryland and Xcel Energy in Minnesota and Wisconsin as examples of utilities where alternative approaches were approved by the relevant commissions. New York is currently developing a testing process to gather data and implement standards related to the utilization of EVSE and vehicle telematics as submeters to measure EV consumption and demand during charging sessions.

## EV Topic 4: Current Programs and Services

### **What programs or services are currently offered by the utilities that support EV charging by customers at non-peak demand periods, and what are the associated rate mechanisms?**

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<sup>2</sup> CLF mentioned that Eversource's proposed a load management program for EV charging in Docket No. DE 20-170 that would have allowed it to directly control EV-owning customers' EV chargers so as to limit charging during peak load events.

**Eversource** identified Docket No. DE 21-078 that pairs with funding from the VW Trust Mitigation Fund to develop charging stations along travel corridors in New Hampshire identified by DES. Outside of New Hampshire, Eversource has deployed charging infrastructure in Massachusetts, where the Massachusetts Department of Public Utilities (“DPU”) authorized implementation of the make-ready model to install, own, and operate the infrastructure to support up to 4,200 Level 2 and DC Fast Charger charging ports at approximately 500 commercial customer sites, and with the approval of the DPU is launching a program expanding to include residential and fleet customers. the Connecticut Public Utility Regulatory Authority (“PURA”) has authorized Eversource to launch a 9-year make-ready investment program in Connecticut supporting thousands of new ports in residential and commercial locations.

**Unitil** cited DE 20-170, where the Commission approved the residential EV TOU Rate (TOU-EV-D) and two commercial EV TOU Rates (TOU-EV-G1 and TOU-EV-G2). The Company believes that the rate design options for any type of electric load should be designed to promote the efficient use of the utility’s electric system resources, reduce costs for all utility customers, provide proper price signals, and influence customer behavior in a manner that creates beneficial outcomes for the customer and for the utility. The Company contemplated that the design of the rate options should only reflect system costs that are time-varying in nature and provide customers a cost-based price signal through the rate design, which ultimately drives the desired shape of the utility’s system load curve.

**CLF** cited Eversource and Unitil’s approved EV-specific TOU rates as examples of programs or services currently offered by the utilities that support EV charging by customers at non-peak demand periods.

**ReVision Energy** finds that the current tariffs and programs are not sufficient to support electric vehicle charging programs. Specifically, demand charges throughout all utilities are the business model killer of public charging station viability. ReVision proposed the Sliding Scale Demand Charge Alternative for the Commission’s consideration.

**ReVision Energy** proposed the sliding scale demand charge alternative for EV charging for consideration in the future adjudicative docket. It also suggested that the Commission assess gaps and needs in charging infrastructure given recent announcements regarding the proliferation of North American charging standard (NACS) chargers.

## EV Topic 5: Commission decisions, state statutes, and federal laws relating to EV charging.

### **What are the relevant Commission decisions, state statutes, and federal laws relating to EV charging?**

**Eversource** mentioned SB 517 passed in 2018 and SB 131 passed in 2021 both find a certain degree of necessity for developing EV infrastructure throughout the state and



recommend utility EV infrastructure “make-ready programs” as the preferable vehicle for this development. As part of the mandate of SB 517 creating the Electric Vehicle Charging Stations Infrastructure Commission (“EV Commission”), the EV Commission was to make recommendations. The EV Commission specifically found that utility-make-ready programs are particularly well-suited for enabling the advancement of EVSE deployment and recommended the adoption of such programs. The company contemplated that the Commission could enable further EV make-ready programs consistent with the legislative support of SB 131 and the work of the SB 517 EV Commission, should such programs be proposed by the New Hampshire electric utilities for Commission review and approval<sup>3</sup>.

## EV Topic 6: New programs or opportunities

### **What new programs or opportunities could be implemented to cost-effectively reduce EV charging consumption during periods of unusually high demand?**

**Eversource** identified a list of programs that could be implemented cost-effectively during high-demand periods.

1. Power-sharing EVSE, where the combined demand across multiple EVSE is managed;
2. Co-location with battery energy storage, where the net demand on the grid is managed;
3. Co-location with other building or site loads managed as part of a Building Energy Management System;
4. Vehicle or charger timing management by the customers (e.g., customers scheduling their vehicles to charge at midnight)

In other jurisdictions, Eversource also has EV-managed charging programs to encourage EV owners to manage the timing of their charging. As a part of the Company’s ratepayer-funded infrastructure programs in those states, Eversource also requires public charging stations to be networked to facilitate future participation in utility-based load management programs.

**Unitil** also mentioned its activities in Massachusetts. FG&E recently received approval for an EV infrastructure development program. The Massachusetts Department of Public Utilities approved a five-year program that provides “Make Ready” incentives for residential customers to offset some of the cost of installing networked, smart Electric Vehicle Supply Equipment (EVSE). It will enable residential customers to easily control their charging behavior to maximize the impact of residential EV TOU rates and participate in managed charging programs. Unitil observed that some jurisdictions have designed TOU rates to create a significant peak-to-off-peak rate differential to increase the likelihood of a positive customer response without recognizing that the underlying costs of the utility are not accurately reflected by the rate design.

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<sup>3</sup> UNITIL mentioned these two laws

**CLF** recommended exploring the possibility of co-locating and integrating energy storage with direct current fast chargers, and Vehicle to Grid (V2G) technology that enables electricity to be exported back to the electric grid from the battery of an EV by EV chargers. CLF thinks that third-party metering embedded in either EVs or EVSE has the potential to assist in increasing EV-owning customers' participation in managed charging programs as well as enrollment in TOU rates.

**WaveGrid** recommended that the Commission explore future EV load management strategies, as a cost-effective method of incentivizing grid-beneficial charging behavior. Passive managed charging programs consisting of customers responding to price signals or incentives to charge during certain time periods could be considered.

The **OCA** agrees with the initial comments of Unitil that transportation electrification has the potential to add significant load to the electric system, and therefore load management technologies and programs are needed to avoid increased costs to the distribution system. On managed charging and TOU rates, the OCA does not find TOU rates to be the most effective solution for influencing customer charging behavior and instead prefers utility intervention through load management programs like managed charging. The OCA emphasized the need for customers to access both TOU rates and load management programs. As discussed by CLF, and Weave Grid, the OCA believes that electric vehicle supply equipment (EVSE) and EV telematics can support TOU rates in a more cost-effective manner.

**Eversource** agreed with Fermata Energy that a pay-for-performance program structure for vehicle-to-grid (V2G) resources is most appropriate and helps to lower the risks associated with the electric vehicle (EV) being a mobile rather than a stationary asset since it may not be available during DR events. Eversource noted that two sites with Fermata's bidirectional chargers are already participating as battery assets in Eversource's affiliate's Connected Solutions daily dispatch DR program in Massachusetts. EVs that participate effectively as a "battery" (i.e., as V2G assets) do receive greater compensation as compared to other EV resources, which only have load curtailed rather than discharging energy during events.

The **DOE** suggested reviewing the various dockets and policy documents related to electric vehicle rates and electric vehicle infrastructure, including the following: IR 20-004, DE 20-170, DE 21-078, DE 21-030, DE 19-057, and the New Hampshire State Energy Strategy. The DOE also recommended that topics to be discussed evaluated including the following:

- Rate Design – Establishing TOU rates to encourage EV charging during lower cost periods, when possible. Demand charge alternative rates should continue to be reviewed especially for public charging stations.
- Public Charging Infrastructure – Approaches for encouraging more universal public infrastructure/chargers, including multi-unit residential units.
- Alternative Metering – Utilizing meters on EVs and/or chargers for alternative metering so that customers are not required to add a separate utility meter for EV specific rates.

## EV Topic 7: Available EV charging infrastructure technologies

### **What EV charging infrastructure technologies are available today or could be available in the future?**

**Fermata Energy**<sup>4</sup> supported utility Make Ready programs that support all EV charging options and to expand the program throughout the state. It advocated for Behind the Meter EVSE installations on the same service drop to qualify for Customer-side Make Ready programs, as well as allow low-power DC chargers (<50kW) to qualify for Make Ready, technology-neutral battery programs. It also mentioned Pay for performance, dual participation and value stacking, and other innovative incentive programs and rates.

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<sup>4</sup> provider of commercially proven vehicle-to-everything(V2X) technology that enables vehicle-to-grid(V2G),vehicle-to-building (V2B),and vehicle-to-load(V2L) services,which we are operating at customer sites across the United States.

## EV Topic 8: Funding sources and utility practices of make-ready EV charging

### **What are the current funding sources and utility practices concerning make-ready costs for EV charging infrastructure?**

**Eversource** stated that beyond the \$2.1 million Eversource make-ready program approved in Docket No. DE 21-078, federal funding is available through the Infrastructure Investment and Jobs Act, (IIJA) approved in 2021. It includes \$5 billion for light-duty EV charging infrastructure to be allocated across all states through the National Electric Vehicle Infrastructure (“NEVI”) program. Of that \$5 billion, approximately \$17 million has been earmarked for New Hampshire over the next five years, through a process administered by the New Hampshire Department of Environmental Services. Other federal grants totaling \$2.5 billion nationally through the NEVI program will be available for application through a competitive bidding process.

The Company again mentioned the opportunity for further EV make-ready programs under SB 131 and SB 517 EV Commission. The Connecticut Public Utility Regulatory Authority (“PURA”) has authorized Eversource to launch a 9-year make-ready investment program in Connecticut, with experience in charging infrastructure deployment in neighboring Massachusetts, Eversource believes that utilities are uniquely positioned to enable strategic electrification as part of larger investments in grid modernization capabilities, specifically investments in EV charging infrastructure.

Similarly, **Unitil** touted its Massachusetts affiliate, FG&E, EV Program - a five-year program with a \$1 million budget consisting of: (1) a public infrastructure offering (\$0.5 million); (2) Electric Vehicle Supply Equipment (EVSE) incentives for residential customers (\$0.3 million); and (3) a marketing and outreach program (\$0.2 million).