COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

Petition of NSTAR Electric Company d/b/a Eversource Energy Seeking Approval to offer Optional Electric Vehicle Time-of-Use Rates	)	D.P.U. 23-84

DIRECT TESTIMONY OF

RICHARD D. CHIN
AND
JARED A. LAWRENCE

Electric Vehicle Time-of-Use Rates

On behalf of

NSTAR Electric Company
d/b/a Eversource Energy

August 11, 2023

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF PUBLIC UTILITIES

DIRECT TESTIMONY OF

RICHARD D. CHIN
AND
JARED A. LAWRENCE

Table of Contents

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES

DIRECT TESTIMONY OF

RICHARD D. CHIN
AND
JARED A. LAWRENCE

I. INTRODUCTION

Q. Mr. Chin, please state your name and business address.

A. My name is Richard D. Chin. My business address is 247 Station Drive, Westwood, Massachusetts 02090.

Q. By whom are you employed and in what capacity?

A. I am Manager of Rates for the Massachusetts regulated operating companies of Eversource Energy, which includes NSTAR Electric Company ("NSTAR Electric" or "the Company"), NSTAR Gas Company ("NSTAR Gas"), and Eversource Gas Company of Massachusetts ("EGMA").

Q. Please describe your education and professional background.

A. I graduated from Yale University in 1994 with a Bachelor of Arts degree in History. Upon graduation, I worked for two years as a corporate legal assistant at the law firm of Fried, Frank, Harris, Shriver & Jacobson. I subsequently enrolled in Columbia University's School of International and Public Affairs, completing a Master of Public Administration degree in May 1999. In July 1999, I took a position as a consultant with London Economics, LLC, an economic consulting

firm specializing in energy and utilities. My primary responsibilities were to model energy markets across the U.S. and Canada for both regulatory bodies and independent power producers. In January 2005, I joined NSTAR Electric & Gas as a Senior Regulatory Policy and Rate Analyst. In September 2012, I was named to my current position.

Q. Please describe your present responsibilities.

A. As Manager of Rates, I am responsible for the design of rates and the preparation of rate schedules for NSTAR Electric, NSTAR Gas, and EGMA. I am also responsible for preparing and submitting various regulatory filings before the Department of Public Utilities (the "Department") on behalf of NSTAR Electric, NSTAR Gas, and EGMA.

Q. Have you previously testified in any formal hearings before regulatory bodies?

A. Yes, I have presented testimony before the Department numerous times including the most recent base distribution rate cases for NSTAR Electric and NSTAR Gas, in D.P.U. 22-22 and D.P.U. 19-120, respectively. I also presented testimony before the Department in D.P.U. 21-90 where the Company's electric vehicle ("EV") demand charge alternative rate was approved.

Q. Mr. Lawrence, please state your name and business address.

A. My name is Jared A. Lawrence. My business address is 247 Station Drive Westwood, MA 02090.

Q. By whom are you employed and in what capacity?

A. I am Senior Vice President, Customers Operations, Digital Strategy, Chief Customer Officer.

Q. Please describe your education and professional background.

A. I earned a Bachelor of Science degree in Civil Engineering from Johns Hopkins University in 1996, and a Master of Business Administration degree from Duke University's Fuqua School of Business in 2002. I have over 21 years of utility experience, having joined Eversource Energy from Duke Energy, where I served in a variety of leadership roles, including as Vice President of meter-to-cash operations and other customer operations and strategy departments.

Q. Please describe your present responsibilities.

A. As the Senior Vice President of Customer Operations and Digital Strategy and Chief Customer Officer for all Eversource Energy affiliates, I oversee call centers, billing, payment processing, credit and collections, and customer assistance programs for all Eversource Energy affiliates. I am also responsible for digital customer channel strategy, voice-of-the-customer research and customer experience design. I also oversee operations-side project management for the Company's CIS modernization project. I joined Eversource Energy in my current role in January of 2022.

Q. Have you previously testified in any formal hearings before regulatory bodies?

A. I testified in Massachusetts before the Department in D.P.U. 22-22, the most recent

base distribution rate proceeding for NSTAR Electric. I have also filed testimony with the New Hampshire Public Utilities Commission.

II. PURPOSE OF TESTIMONY

Q. Please describe the purpose of your testimony.

A. Our testimony, offered in support of the Company's filing in compliance with Chapter 179 of the Acts of 2022, An Act Driving Clean Energy and Offshore Wind ("Clean Energy Act"), describes the Company's proposal for an optional electric vehicle time-of-use ("TOU") rate available to residential customers. Our testimony also discusses an implementation timeline that considers the technical challenges facing the Company as it transitions to more advanced metering and billing systems.

Q. Please provide some background on the Clean Energy Act as it relates to the proposal herein.

A. On August 11, 2022, Governor Baker signed into law Chapter 179 of the Acts of 2022, An Act Driving Clean Energy and Offshore Wind. Section 90 of the Clean Energy Act ("Section 90") requires each electric distribution company ("EDC") to file a proposal for a TOU rate that is designed to reflect the cost of providing electricity to a consumer charging an electric vehicle at an electric vehicle charging station or EVSE (Electric Vehicle Supply Equipment) at different times of the day. The proposal should not include additional demand charges and must be made available on an opt-in basis. In evaluating the proposals, the Department must

consider the effect of the proposal on (i) energy conservation; (ii) optimal and efficient use of a distribution company's facilities and resources; (iii) benefits to transmission and distribution systems; (iv) equitable rates for electric consumers; and (v) greenhouse gas emissions reductions.

Pursuant to Section 90, Eversource proposes to offer a new rate option for customers seeking to charge an electric vehicle, designed to incentivize these customers to charge electric vehicles at their homes or small charging stations outside of peak hours in the day, saving them costs and, to enhance the reliability of the Company's distribution system.

Q. How are these proposed rates different than Eversource's Demand Charge Alternative rates approved in D.P.U. 21-90?

A. In D.P.U. 21-90, the Company proposed and received approval for Rate EV-2 which is a rate that employs a sliding scale of demand charges. Rate EV-2 is available only to electric vehicle charging stations greater than 100 kW and therefore appropriate for public or commercial sites, not residential sites. Rate EV-2 was designed to eliminate the impact of demand charges in circumstances where they may be uneconomic to customers seeking to install EV charging stations at public or commercial sites.

Q. Are you providing any exhibits in support of your testimony?

A. Yes. In this proceeding, we are sponsoring the following exhibits in support of the Company's proposal:

Table 1. List of Exhibits

Exhibit	Description
Exhibit ES-TOU-1	Testimony of Richard D. Chin and Jared A. Lawrence
Exhibit ES-TOU-2	Proposed TOU Delivery Rate Design
Exhibit ES-TOU-3	Proposed TOU Basic Service Rate Design
Exhibit ES-TOU-4	Small EV Load Profile
Exhibit ES-TOU-5	Bill Impacts
Exhibit ES-TOU-6	Proposed Tariff

III. PROPOSED RATE EV-1

Q. Please summarize the Company's proposal in response to Section 90.

A. The Company is proposing to introduce Rate EV-1 at an appropriate time in the future which would employ a TOU rate design, would not include a demand charge, and be available on an opt-in basis. The rate is designed to encourage customers to shift electric load to off-peak hours when the Company's electric system may be less constrained. In doing so, customers may be able to take advantage of bill savings.

Q. When does the Company envision it will implement Rate EV-1?

A. Availability of the rate will be dependent on the availability of AMI meters and the ability of the Company's back-office systems to process the data. As noted later in our testimony, Eversource plans to wait at least one year after the first AMI meters are installed before offering any approved TOU rates to customers to ensure AMI network stability and a suitable penetration of AMI meter installations.

Q. Please summarize the proposed Rate EV-1.

A. Rate EV-1 would be available to separately metered, electric vehicle charging sites only, including separately metered charging stations in a residential home garage and public charging stations that are less than or equal to 100 kW (e.g., at a housing complex). The rate is designed to include a customer charge, Distribution energy rate, and TOU energy rates for Transmission and Basic Service. No changes are proposed to reconciling rates.

Q. Please discuss the illustrative pricing for Rate EV-1.

A. Exhibit ES-TOU-2, Page 1, shows illustrative pricing for Rate EV-1. The illustrative Distribution, Transmission and Basic Service prices are also shown below and compared to the otherwise applicable Rate R-1 for residential customers.

Table 2. Illustrative Rate EV-1 vs. Rate R-1 (7/1/23)

Description	Rate R-1	Rate EV-1
Customer	$10.00/month	$15.00/month
Distribution (Base)	$0.05243/kWh (All hours)	$0.04351/kWh (All hours)
Transmission	$0.03812/kWh (All hours)	$0.07845/kWh (12 noon – 8 pm weekdays) $0.00710/kWh (All other hours plus weekends)
Basic Service	$0.16078/kWh (All hours)	$0.21645/kWh (12 noon – 8 pm weekdays) $0.13709/kWh (All other hours plus weekends)

Reconciling rates (not included in table above) would remain as currently structured and applicable to proposed Rate EV-1 based on the small general service group.

Q. What is the proposed TOU period for Rate EV-1?

A. The Company proposes a peak period of 12 noon to 8 pm weekdays for Rate EV-1. All other hours would be deemed off-peak, including weekend hours.

Q. How did the Company arrive at its definition of a peak period for proposed Rate EV-1?

A. For Rate EV-1, the Company reviewed the load curves for a series of EV charging stations in its Connecticut service territory for which the Company has interval data. The average load shape can be found on Page 2 of Exhibit ES-TOU-4. Public charging stations peak earlier than the typical residential customer and fall within the proposed 12 noon to 8 pm peak period. This is expected given that public charging stations will avail themselves to all users and traffic is greatest during the mid-day hours.

The Company opted to create a peak period definition consistent with this profile for both residential and commercial customers electing the rate. Since electric vehicle charging is at a nascent stage of development, any load taking service under Rate EV-1 is likely to be incremental load to the distribution system. Consequently, the peak hours are proposed to begin at 12 noon to discourage incremental load during a high load period for the distribution system.

Q. Is the Company proposing seasonal TOU definitions?

A. Not at this time. Customer load shapes indicate that mid-day usage is significantly higher during the months of June through September, but the pattern of usage is generally the same. In order to reduce the level of usage, the Company would have to employ higher pricing rather than a different peak period definition. Such seasonal pricing, however, would complicate the rate structure. Moreover, the Company has limited information regarding residential electric vehicle charging behavior among its customers. Given that this is a new offering that is more complex than the currently available residential rate, it would be better to begin with a simpler rate structure that is easier for customers to accept.

The appropriate TOU definition may also evolve over time as a variety of variables result in a complex set of dynamics for the electric distribution system. These variables include solar penetration, electrification, and the growth of electric vehicle charging stations. Moreover, TOU rates can result in load shifting that may prove to be non-optimal in the future depending on the location. Given the potential impact these scenarios may have on the appropriate TOU definition, the Company reserves the option to reset its TOU definitions and rates as may be necessary subject to approval by the Department. Approved TOU periods would be in effect for a minimum of three years to give customers some rate stability.

Q. Please describe the construction of the base distribution rate for Rate EV-1.

A. The Company is proposing to collect base distribution revenue through a customer

charge and energy rate that is available to customers in each legacy territory. The Company has four small general service rate classes, each named Rate G-1, with distinct pricing across four legacy service areas: Boston, Cambridge, South/Cape, and Western MA ("WMA"). Target revenue was aggregated across these rate classes to create a consolidated revenue target for Rate EV-1. The customer charge was held to the $15/month currently in effect for the majority of small general service customers[1]. The distribution energy rate was calculated by taking total distribution revenue minus customer charge revenue to establish an energy revenue target. An energy rate applicable to all hours was then calculated to meet this revenue target. Designing the base distribution rate to meet this revenue target means that the rate is intended to be revenue neutral to Rate G-1, the otherwise applicable rate class, on a consolidated basis.

Q. Is the Company proposing a TOU energy rate for distribution?

A. No. The distribution system is capacity-based which means that the volume of energy is not the cost driver. Therefore, the Company is not proposing a TOU energy rate for distribution. From the perspective of the Company, an energy TOU rate design is an inefficient method of reducing peak hour demand. The distribution system is constructed to have sufficient capacity to meet customer demand. An energy-based rate is based on the duration of energy consumption which is largely irrelevant to the distribution system. From the perspective of the customer, an

[1] The exception is WMA Rate G-1 which has a $30 customer charge.

energy-based TOU rate is less exacting because a customer may be able to reduce usage for a period of time, but still maintain usage of their equipment. This may make it more appealing to the customer, but less effective in achieving system goals.

For example, an EV owner may charge their vehicle at a work location or at home for eight hours (9 am to 5 pm). If the EV owner was subject to higher volumetric rates from 12 pm to 8 pm, the car owner may opt to charge from 9 am to 1 pm. However, the full demand of the EVSE is still placed on the system during a peak hour (i.e. after 12 noon) for the distribution system. The customer will not be aware of this because the price signal is weak, and the distribution system will need to have sufficient capacity to handle the charging load regardless of duration.

Q. Would the proposed Rate EV-1 base distribution rates be subject to applicable PBR adjustments?

A. Yes. Since proposed Rate EV-1 is intended to be revenue neutral to the Company, it will serve to contribute to the target distribution revenue requirement as approved by the Department. The Company would increase the Rate EV-1 revenue target by the approved PBR percentage increase and increase the energy rate to meet any new target. This calculation would be done for rate design purposes only and would not increase the Company's base distribution revenue target.

Q. Please describe how you developed the TOU Transmission rate.

A. A peak to off-peak transmission price differential was established for Rate EV-1 based on a time-differentiated marginal transmission cost analysis using the

Company's 2023 ISO-NE monthly Regional Network Service (RNS) and Local Network Service (LNS) rate[2]. The RNS rate serves to collect the Company´s annual regional transmission obligation across twelve months and is assessed to all transmission customers based on their average monthly 12CP, i.e., the average of the customer's hourly load coincident with the regional monthly transmission system peak load. The LNS rate collects local transmission costs across twelve months separately from the Company's Eastern Massachusetts and Western Massachusetts service territories. The LNS rate is assessed to all transmission customers based on the customer's hourly load coincident with the corresponding state's monthly system peak load. Evaluating the monthly peak hours on the transmission system is important because future additions of EV charging loads occurring at the time of each month´s peak hour increases the Company's transmission obligation and costs in the form of a higher transmission-related bill.

In order to calculate a time-based transmission cost differential, the RNS/LNS rates were allocated on an hourly basis through an analysis of the Company's hourly transmission load profiles including all load zones in the Company's territory and associated wholesale loads. One twelfth of the RNS/LNS rate, adjusted by marginal losses to secondary voltage level, was allocated to each hour of each day type (weekday and weekend) within a month, based on each hour's estimated

[2] NSTAR Electric's transmission system is divided between Eastern MA and Western MA resulting in two LNS rates, unique to each legacy territory. For this analysis, the Company calculated a weighted average LNS rate across the two legacy territories.

probability of being the Company's transmission system monthly peak hour, using recent load data from January 2020 through December 2022.[3]

The resulting peak to off-peak price differentials for Rate EV-1 can be found in Exhibit ES-TOU-2, Schedule 2, Line 31. The price differential was calculated at $0.07135/kWh. Transmission pricing for the peak and off-peak periods was then calculated to achieve this price differential while maintaining the consolidated revenue requirement for the otherwise applicable rate class (i.e. Rate G-1).

Q. How did you arrive at the peak and off-peak energy sales underlying the Rate EV-1 Transmission rate?

A. Transmission rates are developed in the Company's annual reconciliation filing where a forecast of sales is used. Rate EV-1 Transmission rates would be modeled on the same sales forecast with sales allocated to peak and off-peak hours based on the peak (37%) to off-peak (63%) split shown in Exhibit ES-TOU-4.

Q. How would TOU Transmission rates for Rate EV-1 be adjusted as part of the annual reconciliation?

A. The marginal price differential, if approved, would be fixed thereafter. Any filed update to the target transmission revenue requirement would be reflected in the Transmission rate while preserving the marginal cost differential consistent with the calculations shown in Exhibit ES-TOU-2, Schedule 2, Line 28.

[3] This hourly allocation cost approach is equivalent to that used by Eversource in the allocation of distribution costs to hours in their 2019 rate case in New Hampshire, except that this is a monthly peak analysis as opposed to annual peak. See Amparo Nieto´s direct testimony, "Marginal Cost of Distribution Service Study and Implications for Rate Design", Docket No. DE 19-057.

Q. Please describe the methodology the Company is proposing for TOU Basic Service rates.

A. The Company is proposing to time differentiate Basic Service prices by first allocating its forecast of Basic Service energy using the shares of peak and off-peak energy observed at ISO-NE. Peak and off-peak definitions would be the same as those proposed for Rate EV-1. The Basic Service price is multiplied by the energy in each period to establish a preliminary revenue target. The average ISO-NE energy price for the proposed hours is then applied to the forecast hours to derive the wholesale cost. The Forward Capacity Market ("FCM") cost is then added to the peak hour wholesale market cost. A rate for each TOU period is then calculated by scaling up the wholesale market cost to the Basic Service revenue requirement and dividing it by the forecast energy. Please see Exhibit ES-TOU-3 for the proposed calculations.

Q. Why did the Company add all of the FCM cost to the peak period?

A. The FCM is a wholesale electricity market designed to ensure sufficient capacity is available to meet system demand. Capacity resources bid into an auction which sets a clearing price. All load is assigned an Installed Capacity Tag ("ICAP") based on their demand during the ISO-NE annual system peak hour. The ISO-NE system typically occurs in the late afternoon and falls within the window of the Company's proposed peak period. By loading FCM costs into the peak hours, the Company is able to create a sharper price differential between peak and off-peak rates that is reflective of the energy supply market.

Q. How would you establish the Rate EV-1 Basic Service price in each supply procurement?

A. The Company would proceed with its Basic Service procurement for small general service customers as approved by the Department. However, the Company would include an additional exhibit or attachment that would detail the calculation of the Rate EV-1 Basic Service price as shown in Exhibit ES-TOU-3. The Company would update the ISO-NE hourly data used in the calculation once a year in its procurement of Basic Service supply.[4]

IV. POLICY OBJECTIVES

Q. Does the Company's rate proposal meet the requirements of Section 90?

A. Yes. The Company's proposal for Rate EV-1 complies with Section 90 of the Clean Energy Act and the Department's directives in D.P.U. 21-90. The Clean Energy Act requires the Company to submit to the Department for approval to offer a separate, opt-in residential time-of-use rate for electric vehicle owners or lessees, that does not include demand charges. Rate EV-1, as proposed by the Company, fulfills this requirement as it is a non-demand TOU rate restricted to electric vehicle charging stations and available to residential customers, as well as small general service customers.

[4] This update would likely take place in the mid-year procurement because prior year calendar data for ISO-NE would not be available at the time of the Basic Service filing for rates effective January 1st.

Q. Please summarize what the Department must consider in evaluating the Company's proposal per Section 90.

A. The Department shall consider the effect of the proposal on (i) energy conservation; (ii) optimal and efficient use of a distribution company's facilities and resources; (iii) benefits to transmission and distribution systems; (iv) equitable rates for electric consumers; and (v) greenhouse gas emissions reductions.

Q. What is the effect of the proposal on energy conservation?

A. Rate EV-1 has been constructed with higher pricing during peak hours which should make customers more conscious of their use of the electric power system during different times of the day and conserve during peak hours. Moreover, maintaining a uniform distribution rate across all hours sends the signal to customers that distribution impacts can be created across all hours. Thus, the proposed rate signals that conservation should be attempted across all hours.

Q. What is the effect of the proposal on the optimal and efficient use of Eversource's facilities and resources?

A. As discussed earlier, the Company established time-of-use periods in consideration of system load curves and EV charging behavior. Rate EV-1 is designed with a 12 pm to 8 pm peak period. EV charging load is expected to be primarily new load given that the EV marketplace is in its early stages. Consequently, the proposed peak period covers the range of potential system peaks across the Company's territory. Figure 3 through Figure 5 are load shapes for Rate G-1 in May 2022. This illustrates that while residential customers may peak later in the day, residential customers in small commercial areas may need to conform to the

characteristics of their location. The proposed noon to 8 pm peak is intended to cover the diversity of load on the distribution system and encourages customers to use the system during less constrained hours.

Figure 1. Boston Rate G-1 Load Shape

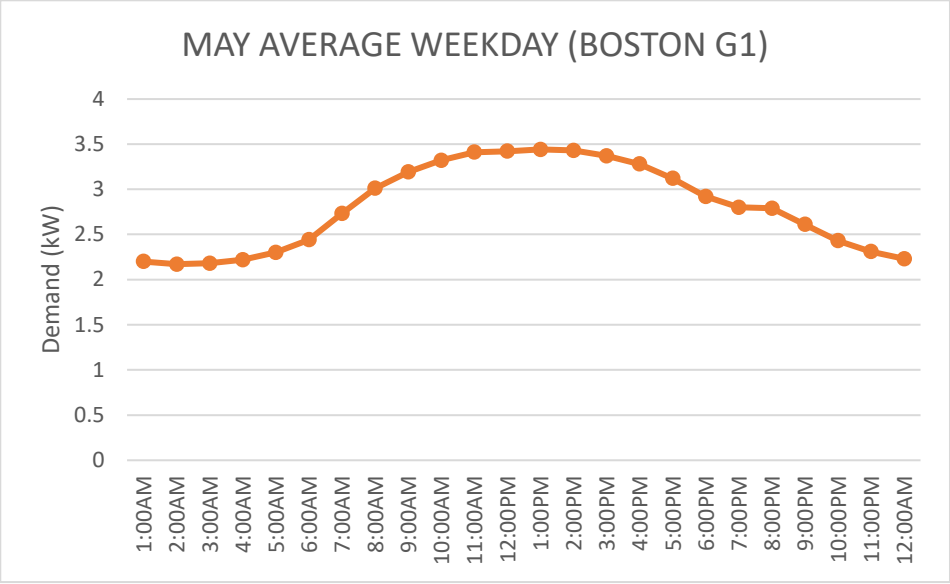


Figure 2. South Rate G-1 Load Shape

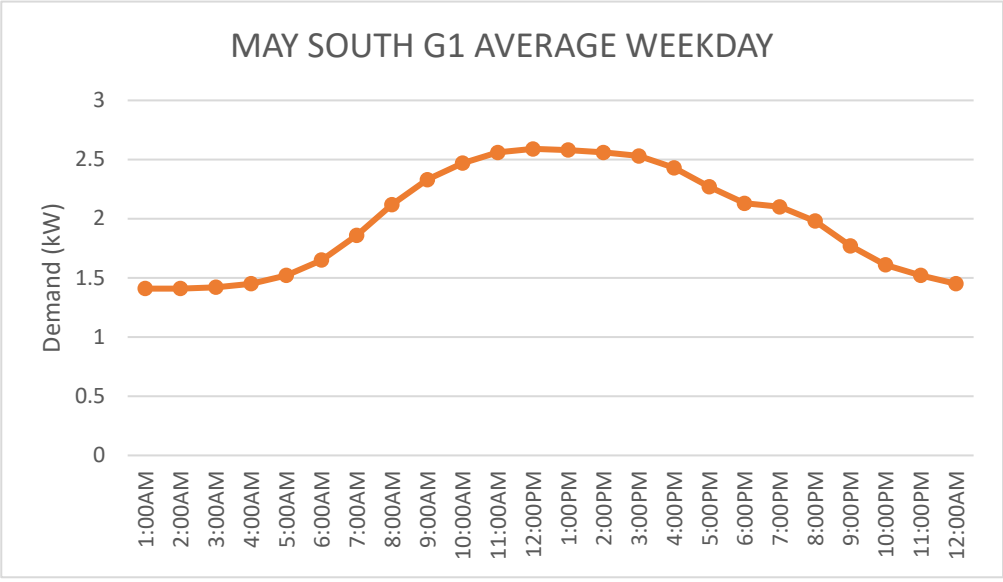
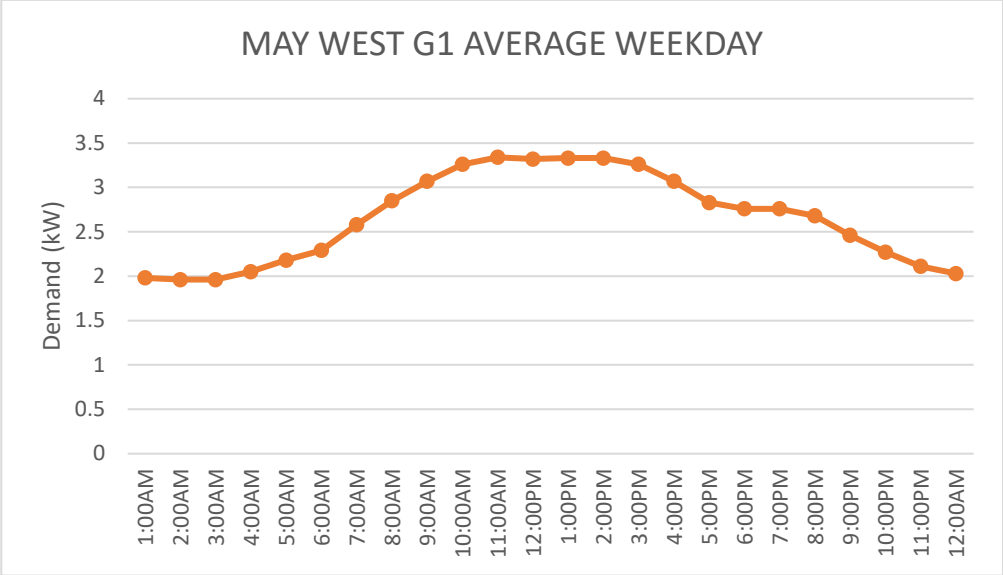


Figure 3. West Rate G-1 Load Shape



Q. What is the effect of the proposal on the transmission and distribution system?

A. Congruent with the discussion of time-of-use periods above, the Company's proposed peak period encourages more optimal use of the both the transmission and distribution system. Transmission and Basic Service rates are time differentiated which reflects the timing of wholesale energy markets. Transmission rates during peak and off-peak hours are based on a marginal cost differential. Additionally, Basic Service pricing reflects hourly pricing differentials at ISO-NE including the cost of capacity which better aligns the cost of energy supply with energy markets. For the distribution system, impacts can be created across all hours, so a uniform energy rate is applied. The proposed rate design serves to strengthen overall price signals to customers.

Q. What is the effect of the proposal on equitable rates for customers?

A. Equity or fairness in rate design means that no class of consumers should pay more than the costs of serving that rate class. The Company developed Rate EV-1 on a revenue neutral basis to the otherwise applicable rate class using the same sales basis. Therefore, the costs being collected under the proposed rates are no greater or less than those that have been approved by the Department for this group of customers.

Q. What is the effect of the proposal on greenhouse gas emissions reduction?

A. The Company's proposal will have a modest direct impact by shifting the incremental EV load to off-peak hours thereby avoiding the use of higher emitting "peaker" generation units to serve load. Rate EV-1 will also, in combination with other existing policy incentives, facilitate adoption of more EVs in its service area and thus reduce the number of internal combustion engine vehicles that emit greenhouse gas.

V. CUSTOMER IMPACTS

Q. Please describe the rate options available to residential customers today for EV charging.

A. Today, residential customers have two choices in regard to billing for electric service to an EV charging station. Residential customers may install an EV charging station behind the existing house meter which would result in billing on the residential rate (R-1/R-2 or R-3/R-4). Alternatively, the customer may choose to separately wire and meter their EV charging station in a garage or outbuilding.

This would result in assignment to Rate G-1 for small general service. The optimal decision will vary by customer. Some customers may not wish to pay for the cost of separately wiring their charging station. While Rate G-1 offers a lower energy rate than Rate R-1, the customer charge is higher, and the customer would have to overcome that difference. Service under the house meter would avoid the incremental customer charge.

Q. How does the Company's proposal change the available options?

A. Rate EV-1 introduces an alternative to Rate G-1. Residential customers who wish to have a separately metered charging station would have two rate options. They could elect Rate G-1, as they can today, or elect Rate EV-1. Rate EV-1 offers a lower total off-peak energy rate than either Rate R-1 or Rate G-1. However, Rate EV-1 may require some load shifting to maximize benefits and also subjects the customer to greater price volatility as the dynamics of energy market pricing will dictate the extent that a customer may save.

Exhibit ES-TOU-5 contains bill impacts that illustrate the options to customers and how they may save. Bill impacts are shown for residential customers opting to separately meter their EVSE under Rate EV-1. The impact of separately metering under Rate G-1 (a currently available option) is also shown to allow for a comparison with Rate EV-1. Since Rate EV-1 is purely volumetric in design (excluding the customer charge), savings is wholly dependent on usage. The more usage that passes through the charging station, the greater the potential savings if

the customer adheres to an off-peak charging profile. Customers under Rate EV-1 could see monthly savings ranging from $3.00 to $146.96 per month when compared to metering the EVSE under Rate R-1. The amount of savings depends on the volume of energy used and assumes that all EV charging is conducted during off-peak hours. This rate allows for greater savings than can be achieved under Rate G-1 when charging entirely off-peak, which can range from $2.79 to $86.38 per month, depending on the volume of energy used and the service area.

VI. PROPOSED TARIFF AND TERMS OF ENROLLMENT

Q. Please describe the terms of Rate EV-1.

A. The terms of Rate EV-1 are listed in the Company's proposed tariff, M.D.P.U. No. 82. Rate EV-1 would be available to small general service electric vehicle charging sites (metered demand is less than or equal to 100 kW) including separately metered charging stations in a residential garage. To take service under this rate, the metered load must be attributable solely to electric vehicle charging. The rate is optional which means a customer who prefers to remain on the otherwise applicable general service rate may do so.

Q. What Basic Service prices would apply to Rate EV-1?

A. The Company proposes to apply a TOU variant of the six-month fixed price Basic Service rate applicable to small general service customers.

Q. Will Rate EV-1 be available to both existing and new customers?

A. Yes. Rate EV-1 would be available exclusively for charging use at all separately metered charging sites including those sites that are in current operation. The metered account under Rate EV-1 must consist of electric vehicle charging load only. For example, an on-site convenience store could not utilize the same rate. In such a situation, the customer should take service under one of the currently available general service rates.

Q. Will reconciling rate provisions and Basic Service apply?

A. All reconciling rate provisions will apply. The effective Rate EV-1 TOU Basic Service would apply if the customer has not chosen to receive their electric supply from a competitive supplier. Customers may not opt out of the Rate EV-1 TOU Basic Service price for the conventional all hours fixed Basic Service rate.

Q. Would a customer be able to opt out of TOU pricing for energy supply by electing an alternate supplier?

A. Yes. The Company has no authority over the customer's choice of pricing from an alternate supplier. Allowing a customer to elect flat rate pricing from an alternate supplier has the effect of diluting the Company's rate design. Customers may have less opportunity to save by doing so but will limit the risk of incurring higher on-peak charges.

Q. Is enrollment in Rate EV-1 limited?

A. As noted earlier, availability of the rate will be dependent on the availability of AMI meters and the ability of the Company's back-office systems to process the

data. Unlike Rate EV-2 as approved in D.P.U. 21-90, the Company is not proposing to transition customers enrolling in Rate EV-1 to the otherwise applicable rate because the TOU design is unique to these options. However, the Company proposes to reserve the right to change TOU definitions and pricing on a revenue neutral basis after a period of three years from the last change in TOU definitions.

Q. Why would the Company want to change the definition for TOU periods?

A. The time period in which the distribution system faces the greatest demand and constraint will vary over time. TOU definitions can become outdated over time as technology, the industry, and load characteristics evolve. This has already been borne out by the impact of solar which has resulted in peak hours later in the day. The emergence of electric vehicles and the push towards electrification are further examples of technological and industry events that will impact the distribution system. These are dynamic events and thus the appropriate TOU definition from a system planning perspective may change over time.

VI. COST RECOVERY AND IMPLEMENTATION

Q. Does the Company's rate proposal have a cost to all customers?

A. Yes. TOU rates incentivize customers to reduce load during higher price peak hours. If total load is reduced, or on-peak load is shifted to lower priced off-peak hours, the Company will not reach its approved transmission and distribution revenue targets. This is the nature of a TOU rate as customers who can alter their behavior will save, but the Company's fixed costs will ultimately need to be

recovered to maintain efficient operation of the electric grid. Customers are also subject to a host of reconciling rates – many of which fund public policy programs. Reduced usage would result in under-collections and a true-up the following year. Basic Service reconciliations would also be impacted by changes in the pattern of usage. While there is no fixed revenue target for Basic Service, the Company procures energy on a fixed price basis. Customer deviation from the underlying ISO-NE hourly profile used to develop TOU Basic Service prices will serve to create an over or under recovery of costs.

Q. How does the Company plan to recover these various costs?

A. Target revenue shortfalls associated with base distribution costs and transmission costs would be recovered through the Revenue Decoupling Adjustment Factor ("RDAF") and the Transmission rate, respectively. Base distribution revenue collection is reconciled annually to the base distribution revenue target and collected in the following year through the RDAF. Similarly, transmission costs are reconciled annually and collected as part of the Transmission rate in the following year. Both mechanisms are in place today. Basic Service costs are reconciled through the Basic Service True Up charge and would apply to TOU related variances as well. All other revenue requirement shortfalls would be recovered through existing provisions per tariff.

Q. Please summarize the Company's timeline for implementation of proposed TOU rates.

A. The Company would not have the capability to offer TOU rates until the

Company's new billing system (CIS SAP or "OMNI") is implemented as well as a new Meter Data Management System ("MDMS") and AMI network. Work is currently underway to expand OMNI to serve all Eversource customers in Massachusetts. This work is expected to be completed by June 2024. Implementation will occur in two phases:

- Western Massachusetts (WMA) - Phase 1 implementation (February 2024)
- Eastern Massachusetts (EMA) - Phase 2 implementation (June 2024)

Implementation of a new MDMS and AMI network is expected to be completed in the first half of 2025. At that point, the Company will begin a three-year roll-out of AMI meter installations. Eversource plans to wait at least one year after the first AMI meters are installed before offering any approved TOU rates to customers to ensure AMI network stability and a suitable penetration of AMI meter installations.

Q. Does this conclude your testimony?

A. Yes, it does.