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Witness: Edward A. Davis and Kimberly R. Parsons
Request from: UCONN

Question:

(Rate Design & Tariff Structure) Refer to Exhibit CLP-RATES-1 at p. 34 which states that by providing a reduced rate for incremental usage related to heat pumps, the Company believes it can help drive adoption of heat pump technology and achieve better system utilization during winter months. Eversource goes on to state that this will help drive better system utilization as the Company is currently a summer peak system.

a. Does Eversource believe that this outcome can also be achieved if intermediate and large commercial customers consume additional electricity in the winter months?
b. Does Eversource believe that DER adoption and operation by intermediate and large commercial customers can improve system utilization if a DER is operated to reduce a customer's grid demand during hours of peak demand on Eversource's transmission and distribution system?
c. Please explain why Eversource has not proposed seasonal differentiation in its distribution rates for intermediate and large commercial customers on Rates 55, 56, 57, or 58.

Response:

a. The referenced outcome is attributable to incremental monthly kWh usage from heat pump adoption for space heating during winter months. The incremental usage characteristics were derived from the difference between the residential non-space heating class, as a baseline, and residential electric space heating. The Company did not conduct a comparison assuming greater usage in the winter season by intermediate or large commercial customers.

b. From a distribution system operator perspective, DER adoption and operation by an intermediate or large commercial customer that reduces the respective customer's grid demand during hours of peak demand does not help the system, unless the system is relieved of any capacity requirements for that respective customer during the peak – meaning that the customer would have no back-up source of power on peak. The distribution system is constructed to meet the requirements of localized peak demands and if one or more customers is able to take their load off-line, it benefits that customer. It benefits other customers, only if the Company is actually able to avoid the need for capacity on the system, which can only occur if the customer benefitting from DER is willing to relieve the system of an obligation to provide firm service upon demand for the single

customer. From an ISO-NE perspective, reduced demand is a benefit in a supply-constrained market.

DERs have, to some extent, the ability to improve grid utilization. There are, however, significant limitations to such statements that cannot be ignored.

- DERs, if not properly and centrally managed, can decrease grid utilization as shifting of load can very easily create new peaks. Given that the infrastructure will be needed or is already installed (unless customers actually agree to forgo even the ability to rely on the grid), costs remain present and will then be allocated to other customers creating a downward arms race leaving the less well equipped customers holding the costs and creating an equitably questionable environment of cost shifting.
- All equipment ratings on the Company's system are developed under the technical assumptions of lower load periods to allow equipment cool down. If utilization is driven up, such ratings would need to be recalculated to lower set points as equipment no longer is afforded cool down (e.g. if load becomes flatter) which will negatively impact the system's ability to serve load and potentially offset benefits from higher utilization.

c. The Company is at an early stage in its evaluation of time-varying load, cost of service and other characteristics associated with the many different components of the distribution system and facilities involved in provided distribution service. The marginal distribution cost analysis conducted and submitted as part of the Company's rate application is the first such study of this nature performed since restructuring. The insights from this and further analysis of this type are expected to provide new insights for future rate design, including more advanced structures that may be time-of-use (TOU) based pricing. A seasonal distribution rate structure represents one subset of future distribution rate structures that could be considered.

Although the Company has developed and currently offers time-of-day rates for certain components of rates, its plan is to develop and propose more advanced rate design, including time-varying rate structures that will be enabled by AMI metering. More extensive and granular usage and cost of service data, and the ability to implement more advanced rate design options, including seasonal rates if appropriate, is anticipated to be available from the deployment of AMI meters. Meanwhile, early approaches to TOU rate design using the marginal cost of service study as applied to current rate structures have been applied in the Company's proposed updates to its TOU EV rates, and in proposed Rate 6.