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Witness: Amparo Nieto
Request from: UCONN

Question:

(Marginal Cost of Service Study) Refer to the direct testimony of Amparo Nieto, Exhibit CLP-MCOS-1 at p. 3, which identifies "fostering economically-efficient energy usage decisions that lead to a more efficient expansion of the distribution grid" as one of three major ratemaking objectives.

a. Confirm that the quoted language is accurate and complete. If not, provide the accurate language.
b. Define "economically-efficient energy usage decisions" and "more efficient expansion of the distribution grid."
c. Explain how the proposed rates for intermediate and large commercial customers advance this objective and identify all supporting analyses and workpapers.
d. Does reducing customer demand during Eversource's monthly or annual transmission-system peak provide a benefit to other customers? Explain.

Response:

a. The quoted language is accurate and complete. It implicitly refers to the merits of rates that incorporate marginal cost information relative to rates that are set based solely on embedded costs.

b. In economic theory jargon, economic efficiency is defined in three dimensions: *allocative efficiency* —resources are allocated (used) to produce the level of output that maximizes total social welfare, meaning the sum of consumer and producer surplus. This is achieved when the price for the next unit of consumption (kW) reflects the marginal cost of producing/delivering that unit. At that point, we know that customers' willingness to pay is equal or higher than the price they pay, and at the same time the revenue received by the utility exactly covers the costs of providing the additional unit of electricity, thereby not creating a net revenue loss or incentivizing overproduction or over-investment; the second dimension is called *productive efficiency* — the level of electricity service is such that it allows the utility to utilize its existing resources optimally, leading to the lowest feasible average unit cost; and the third dimension is dynamic efficiency — price supports efficient longer-term decisions regarding innovation in investment and technology progress.

Ms. Nieto's statement in her testimony refers primarily to the first and second dimensions of efficiency. If the rate includes price signals that reflect the marginal unit cost of meeting incremental usage on the grid, the customer is likely to make "economically-efficient energy usage decisions" including how much electricity to use at a given hour, and efficient decisions regarding use and acquisition of new equipment such as air source heat pump, if justified based on that price. This level of additional consumption patterns and levels also ultimately lead to a "more efficient expansion of the distribution grid" relative to other pricing approaches, because utilities expand the grid when the customers responsible for the cumulative demand that drives the capacity constraint face (and are willing to pay) the incremental cost, i.e., including the estimated per-unit cost of expansion. Resource allocation is therefore socially optimal. Alternatively, if the price is set higher than the prevalent marginal costs, customers may be discouraged to demand additional electricity that would have been provided at an incremental cost lower than the customer's willingness to pay. And when price is below marginal cost, customers may demand more electricity than optimal leading to accelerated expansion at times of higher utilization, and the expansion cost needs to be socialized across all customers in the long term.

c. The proposed rates for intermediate and large commercial customers are overall consistent with the results of the MCOS study in these three aspects:

- The monthly fixed charges are above the estimated monthly marginal customer costs, which allows keeping these costs -which do not change with usage—outside of the usage-related or demand charges.

- Rates for these customers do not include volumetric charges, only demand charges. The demand charges are set to recover the respective class revenue requirement which includes allocated upstream distribution grid and local distribution facilities costs. These customers are more heterogeneous compared to the residential and small commercial classes, which justifies recovering facilities costs on a size basis. The demand charges recover not only marginal costs but also sunk costs allocated to this class through the ACOS study.

- The rates do not time-differentiate distribution charges. The Company decided not to use TOU distribution rates for the intermediate and large commercial customers, and in this regard it is not strictly following the system-wide marginal cost responsibility across hours of the day. These customers tend to be the dominant load on the circuit and transformer and therefore driving local capacity needs or the expansion of the distribution facilities serving them. This in many cases includes the upstream distribution substation.

d. From a theoretical point of view, if the customer reduces demand during Eversource's monthly transmission-system peak, in the near term it reduces the financial transmission bill that the Company as a distribution business must pay for RNS to the ISO-NE. The net effect may be a benefit to other customers. On the one hand, from a financial point of view, the RNS revenue requirement allocated to Eversource would be divided by a lower amount of peak load, increasing the unit rate at the next rate revision. On the other hand, other transmission-provider transmission costs allocated to Eversource RNS would decrease. The longer-term benefit to other customers is clearly associated with load reductions that coincide with transmission system's annual peak since this lower peak load may defer investment planned on the transmission to meet annual peak load growth, i.e., long-term capacity expansion needs.