Date Filed: September 18, 2026

Witness: Gerhard Walker
Request from: CLF and Sierra Club

Question:

If the Company cannot provide the item requested immediately above in CLF-SC-20 please explain the methodology the Company would use if required to isolate the heat-pump-specific contribution to winter and summer peak forecasts, if required to do so.

Response:

As outlined in CLF-SC-20[i] the Company is currently in the process of developing winter peak forecasts; however, these forecasts have not been fully completed. Under the current unreleased forecast only a preliminary substation level could be created. Feeder and transformer level forecasts will be available for the 2028 forecast.

Using the Company's internal customer demographic data, a model will be trained to predict whether a given customer has adopted a heat pump, serving as a proxy for adoption likelihood that can be applied to known non-adopters. Through GIS mapping, each customer will be assigned to a feeder, transformer, and substation, allowing the forecast to be aggregated to any level.

State-level adoption forecasts will be developed in similar fashion to previous forecast cycles, informed by historical adoption data and other state-level projections, such as the ISO-NE annual heat pump forecast. These state-level adoptions per year will then be allocated across the state to current non-adopters in order of each customer's individual propensity to adopt, until that forecasted year's level of adoption is reached. The result will be customer-level adoption status for each forecasted year that can then be aggregated to each level in the system.

These forecasted adoption levels will then be translated to winter and summer peak loads by multiplying the number of adopters by the corresponding load shapes generated for residential and commercial buildings.

Prior Referenced Response:

[i] CLF-SC-020 Question:

For each feeder and substation transformer identified in response to CLF-SC-12 through CLF-SC-19 to the extent the Company's feeder- and substation transformer-level load forecasts separately model, or can isolate, the incremental contribution of heat pump adoption to forecasted summer and winter peak demand, please provide that incremental

heat-pump contribution (in the same units used in response to CLF-SC-13 and/or CLF-SC-17, as applicable) by feeder / substation transformer, by year, for each year of the Company's long-term forecast horizon. If the Company does not possess the information to model or isolate the yearly contribution of heat pump adoption to forecasted summer and winter peaks at either the feeder and/or substation transformer levels, explain in detail why not, and describe in detail how heat pump adoption impacts are incorporated into the forecasts, if at all.

CLF-SC-020 Response:

The Company currently does not use a heat pump forecast to inform its substation capacity projects as the system remains summer peaking. Without more detailed data, such as AMI, the Company can currently make no detailed determination if heat pumps increase, keep flat, or decrease summer peaks. While they can be more efficient than central HVAC or window units, they can also introduce new cooling capabilities into houses that did not have any, or only partial, creating a wash.

The Company is currently in the progress of developing a winter peak load forecast but has not completed or released such a forecast and is currently not using it to trigger capacity projects. The methodology is currently being reviewed and further refined and will be implemented in future forecast applications.

Date Filed: September 18, 2026

Witness: Gerhard Walker and Nina A. Paim
Request from: CLF and Sierra Club

Question:

Please provide the Company's current internal technical documentation, however titled, that describes in detail the methodology the Company uses to develop the feeder-, substation transformer-, and (if applicable) substation-level load forecasts described in the responses to CLF-SC-12 through CLF-SC-19, including, at a minimum:

a. the forecasting model or approach used (e.g., econometric/regression modeling, etc.), and how historical loads, weather data, economic or demographic inputs, and other data are incorporated;
b. how forecasted adoption of demand-side factors such as energy efficiency, distributed solar, electric vehicles, demand response, distributed energy storage, and heat pump adoption/electrification (individually or in combination) is developed and then spatially allocated down to the feeder or substation transformer level; and
c. the specific weather condition(s) or percentile(s) (e.g., a 50/50 normal or a 90/10 or 95/5 extreme weather scenario) assumed for feeder- and substation-transformer-level planning purposes.

If the Company does not maintain a single document of this kind, please provide all documents that collectively provide this information. If the Company contends that any portion of the requested document(s) is confidential or proprietary, please produce it subject to an appropriate protective order rather than withholding it, and identify the specific basis for confidentiality as to each such portion.

Response:

a. The information requested is detailed, comprehensive data, constituting highly confidential Critical Energy Infrastructure Information ("CEII") that qualifies for protection under PURA's requirements for CEII, which protection the Company will seek when it is submitted to the record. The Company does not currently have an executed non-disclosure agreement ("NDA") in place with the Conservation Law Foundation and Sierra Club ("CLF-SC"), although the Company is in contact with CLF-SC and is appreciative for their coordination and collaboration. In addition, the Company is in the final stages of implementation of new internal information systems and document controls for enhanced cybersecurity goals that would apply to this data production. Therefore, the Company plans to supplement this response with production for all parties having

executed a non-disclosure agreement with the Company, once an executed NDA is obtained from CLF-SC. In the interim the Company is submitting all non-confidential parts of the CLF-SC interrogatories.

b. The substation forecasting process begins by forecasting the peak demand at the Eversource system level for Connecticut. The Eversource system-level peak demand is forecasted using an econometric model that evaluates historical peak demand as a function of peak day weather conditions and the economy. The econometric model utilizes two different weather variables in forecasting summer peak demand, a three-day weighted temperature-humidity index and cooling degree days. The forecast assumes normal weather conditions based on the most recent 10-year period. Eversource produces a '50/50' and a '90/10' peak demand forecast. The '50/50' forecast is based on normal 10-year weather and has a 50 percent chance of being exceeded. The 90/10 forecast is the extreme weather scenario that only has a 10 percent chance of being exceeded. Moody's Analytics, an international economic consulting company, provides the economic history and forecast. Only the 90/10 peak demand forecast is relevant to and utilized by system planning.

   Once Eversource finalizes the system-level forecast, the substation level forecasts are developed. Substation forecasts are developed using panel data econometric models that evaluate substation historical peak demand as a function of the Eversource system peak demand history and forecast. The substation econometric models measure how each substation performed relative to the Eversource system and then project that relationship into the future. There are 11 different econometric models for the substation forecast for CT, determined by region and size of the substation.

   After a trend forecast is produced for each substation, the forecast is adjusted for energy efficiency, solar, electric vehicles, and large customer projects. Company sponsored energy efficiency reductions are proportionally applied to each substation based on historical peak demand. Electric vehicles and solar adjustments are assigned to specific substations based on historical trends, customer characteristics, the propensity for adoption, and their 24hour time of use profiles. Further explanations on the calculation of these out of model adjustments can be found in part b of this response. Specific, identified large development projects or expected changes in system operations that the econometric forecasts could not otherwise predict are added to their respective substation.

   Heating Forecast:
   Currently, the Company's heat pump forecasts have not been released. The methodology is currently being reviewed and further refined and will be implemented in future forecast applications.

Solar Forecast:
System-level installed capacity forecasts are created by fitting a logistic curve to the Company's historical installation data, where the solar installations are categorized into residential rooftop, commercial rooftop, and commercial ground mounted/canopy based on installed capacity thresholds.

The allocation of system-level installed capacity to the station level was done in Gridtwin software, where the allocation is based on customer propensity for residential projects and project economics for commercial projects on a property by property basis (e.g. anticipated interconnection costs, incentives, etc.). The resulting station level forecast is scaled to match that of the system level forecasts.

Substation-level load is estimated by using installed capacity and station-level global horizontal irradiance (GHI) data from the SolarAnywhere API.

Using hourly irradiance data from historical summer month the Company calculates percentiles for expected irradiance of each hour for the historic global horizontal irradiance which is then applied to calculate a projected solar output at each hour of the peak day. This allows an adjustment of solar output to account for potential overcast conditions during hot and humid peak loads. Using the forecasted solar output for the peak day, the impact to the peak, at time of peak, is calculated. The same is done for the winter estimate, except only winter months are chosen.

Distributed Energy Storage Forecast:
The Company does not currently forecast distributed energy storage’s impact to peak.

Energy Efficiency Forecast:
Company-sponsored EE projections are based on the most recently approved Three-Year Plan which the Company carries forward assuming stable and continuing investments into energy efficiency with comparable yields in savings, while solar projections are developed consistently with historical trends, state, and federal funding incentives. Naturally occurring EE (i.e., reduction in demand due to non-programmatic improvements in end-use efficiency) is directly captured in the trend forecast as it impacts the peaks, which in-turn informs the model.

EV Forecast:
To model such impacts as accurately as possible, the Company models electric vehicle adoption and charging through a variety of factors including consumer purchase and travel trends, existing and planned charging infrastructure, and policy. To better assess the impact of electrification in the transportation sector, the Company employs a variety of analysis methods and data sources, including:

- *System level EV adoption:* Analysis starts with historical adoption from vehicle registration. Near-term adoption forecasts are adjusted to reflect changes in state and federal policies that may accelerate or slow EV adoption. State-level decarbonization goals are used to set long-term adoption levels and inform benchmarks for the medium-term forecast trajectory.
- *Charging profiles and locations:* Using GPS tracking and mobility data, this analysis determines the flow of traffic through the state and identifies preferred regions for charging infrastructure development based on the number and length of trips terminating there, as well as the time those charging events might occur. This allows the Company to build station level specific charging profiles, as stations vary based on their customer base (i.e. daytime charging in C&I heavy substations vs evening charging at residential heavy substations). The amount and type of charging infrastructure needed to sustain the system level electric vehicle projections and likelihood of development of charging stations in certain geospatial areas are considered.
- *Charging coincidence and aggregated impacts:* While impacts of electric vehicle charging remains very high on the last mile of the system where small numbers of chargers sit behind a single asset (i.e. a pole mount transformer serving 3 houses, each with an EV, experiences a charging coincidence peak of 1), larger assets such as substations significantly benefit from coincidence factors driving down the aggregated impact. The Company utilizes mobility data to estimate the required charging duration of a vehicle arriving at a charging location and models a time series of all charging events serviced by a bulk station. This reduces the overall coincident impact of a charging location to the bulk system, depending on location, to anywhere between 1.4 kW and 2.5 kW, averaging at ~2 kW.
- *Large charge parks and hubs:* The Company tracks all large charging parks and hubs as individual out of model adjustments in its step load process. Given their singular large impact to the local system and the very likely occurring system investments based on their upgrades, the Company cannot make long-term forecasts as to when such assets transition. Step loads enter the forecast once the customer has made a commitment by opening a workorder with the Company and having made the design deposit.

c. Eversource produces a '50/50' and a '90/10' peak demand forecast. The '50/50' forecast is based on normal 10-year weather and has a 50 percent chance of being exceeded. The 90/10 forecast is the extreme weather scenario that only has a 10 percent chance of being exceeded. Only the 90/10 scenario is used to inform the Company's capacity projects.

Date Filed: September 18, 2026

Witness: Lavelle A. Freeman and Juan F. Martinez
Request from: CLF and Sierra Club

Question:

Please provide the Company's current internal technical documentation, however titled (such documentation is commonly maintained by distribution utilities under titles such as "Distribution Planning Criteria" or "Distribution Planning Guidelines," though titles vary), that establishes the distribution planning criteria used by the Company's distribution planning engineers including:

a. the specific voltage, thermal, current-imbalance, and power-factor planning criteria and numerical thresholds (e.g., normal, long-time emergency, and, if applicable, short-time emergency ratings) applicable to the Company's feeders, substation transformers, and substations;
b. the specific process, including any monitoring, review, or approval steps, by which a feeder, substation transformer, or substation is flagged as having a thermal, voltage, current-imbalance, or N-1 contingency violation or constraint;
c. the specific process and criteria by which the Company develops, prioritizes, and selects remediation solutions (including non-wires alternatives) once a constraint is identified, including any risk-scoring methodology, cost thresholds, look-ahead periods, or sequencing rules.
d. If the Company does not maintain a single document of this kind, please provide all internal engineering standards, planning manuals, procedures, or guidelines that collectively provide this information. If the Company contends that any portion of the requested document(s) is confidential or proprietary, please produce it subject to an appropriate protective order rather than withholding it, and identify the specific basis for confidentiality as to each such portion.

Response:

Please refer to CLF-SC-023, Attachment 1, for the Eversource Distribution System Planning Guide 2020 Rev.0 for latest published planning guide.