Date Filed: September 23, 2026

Witness: Lavelle A. Freeman and Gerhard Walker
Request from: Office of Consumer Counsel

Question:

Refer to Exhibit CLP-TSP-1 at 49.

a. Provide all load forecast models supporting each proposed line and substation capacity project.
b. Provide all assumptions for EV, heat pump, solar, storage, C&I load growth, data centers, step loads, and economic development load.
c. Identify any capacity projects that could be deferred by NWA, DERMS, AMI-enabled load management, or targeted demand response.
d. For each proposed capacity project, quantify the forecast overload in MVA, MW, amperes and the number of violating hours in each year.
e. For every project passing or nearly failing NWA screening, provide the full benefit-cost analysis, all sensitivities, evaluation workpapers and comparison of the NWA with load transfer, staged construction and the traditional solution. Quantify the present value of deferral for one, three, five and ten years.

Response:

a. Please refer to OCC-591, Attachment 1 CONFIDENTIAL, for a 10-year forecast for each identified substation capacity project. Long-term load forecasts are not generated at the individual feeder level. Line capacity projects are based on actual metered data versus a forecast. Feeder level forecasts become inherently less accurate as stochastic customer behavior of just a few customers can swing forecast results wildly and cause large errors, as compared to large groups where such effects average out. In addition, unlike substation investments, feeder upgrades can be done on a short turnaround time, allowing the Company to respond to actual loading on the system rather than forecasts.

b. The individual substation forecasts are located within each worksheet in OCC-591, Attachment 1 CONFIDENTIAL, and are broken into the individual categories the Company tracks.

   For details on known, firm distribution connected data centers in the Company's forecast, this would be factored into the Step Loads category. Please refer to the Company's response to information request OCC-465[i] for details on how the Company accounts for Step Loads.

C & I load growth and economic development load is aggregated into the Trend category unless they are individual requests for interconnection that are considered step loads.

Please refer to the Company's response to CLF-SC-022[ii] request on how the Company accounts for EV, heat pumps, and solar.

c. The substation capacity projects identified in the workbooks are in various stages of the project-approval process. None of the projects have reached a stage that would have received a detailed NWA analysis to date. As these projects proceed through the solution selection and engineering stages, NWA and other alternatives will be vetted. The results will be submitted during the annual grid needs filing as part of the NWS docket.

The line capacity projects identified currently exceed the planning criteria based on metered data and NWS solutions were analyzed as alternatives to traditional line projects. No existing line capacity projects could be deferred by NWA, DERMS, AMI-enabled load management, or targeted demand response. The Company submitted all capital projects to the process monitor as part of Docket No. 25-08-08 and the ongoing Docket No. 26-08-08.

d. Please refer to OCC-591, Attachment 1, for a 10-year forecast for each identified substation capacity project. Each proposed capacity project within the attachment, shows the forecast overload in MVA. The number of violating hours in each year has not yet been analyzed but this would be conducted during the NWS program process.

Forecasting is not performed at the distribution line level as these capacity projects can be executed in a short timeframe when compared to substation capacity projects. Please refer to OCC-591, Attachment 2, for the proposed line capacity projects based on actual metered data, and circuit overloads in MVA and Amps. The number of violating hours in each year is not available.

e. As part of that PURA approved process, the complete Benefit Cost Analysis (BCA) is available only after projects advance to a competitive solicitation, as the analysis relies on pricing and solution details provided by developers through the solicitation process. Without developer-specific cost information, a comprehensive BCA cannot be completed. As noted in PURA's Final Decision in Docket No. 26-08-08, no project was ordered to proceed with a competitive solicitation.

Prior Referenced Responses:

[i] OCC-465 Question:

(Economic Development Rate Rider) Please provide the anticipated capacity of data center load additions in the Company's service territory each year for the next 10 years.

a. Provide separate estimates for load requests and firm commitments.
b. Provide any analysis the Company has conducted on the extent to which the anticipated data center load impacts system costs and customer bills. Include associated workpapers in live Excel format with all formulas intact.

OCC-465 Response:

a. There are currently no active requests or firm commitments for data center load additions within the Company's distribution system.

   With regards to "Requests," while Eversource does record requests for future customer connected loads, these include significant speculative inquiries by customers, the Company does not include them in any forecasts for substation capacity needs and has not budgeted any funds in direct support of these projects until a signed workorder is in-hand and design deposits have been made. Based on the Company's historical experience many of these projects fail to materialize and, to avoid unnecessary costs and inefficiency, the Company does not dedicate or plan capacity for these projects until such time as a firm commitment is received from the customer.

   Requests or firm commitments for data center load additions within the transmission system are excluded.

b. This is not applicable as there are currently no active requests or firm commitments for data center load additions within the Company's distribution system. Such calculations are not feasible until the project specifics are known, including costs to interconnect and revenue credits -- all off which are highly dependent on a given project.

[ii] CLF-SC-022 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:

c. 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;
d. 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

e. 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.

CLF-SC-022 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.