EVERSOURCE

UI
An Avangrid company

Forecast Framework

Connecticut

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Forecast Methodology Summary

Eversource and UI apply an advanced forecasting methodology to ensure accurate load projections, maintaining system reliability and guiding infrastructure investments.

1) Forecast Components
   a) **Baseload:** Underlying customer demand before DER impacts and demand side modifiers. Uses historical demand, weather, and economic indicators at 50th and 90th percentile scenarios.
   b) **DER Adjustment:** Integrates DER and demand modifier impacts at localized levels (e.g., feeders) while following overall adoption trends at system level (includes policy impacts).
   c) **Load and Generation Profiles**: technology specific data to model DER behavior e.g. PV generation, EV charging, etc.

2) Forecast Granularity Level:
   a) **System Level**: Policy driven trends for state and regional DER adoption macro-economic indicators
   b) **Bulk Distribution Substation Level**: Informed by system level DER trends, adoption spatially allocated based on lower-level data (e.g. customer propensity factors, census tract). Aggregated to station level.
   c) **Distribution Feeder Level**: Localized DER impacts, e.g. in-queue solar projects.

3) DERs and Demand Side Modifiers Evaluated:
   a) **Solar (PV)**: Modeled using historical generation profiles, weather data, and installed capacity trends.
   b) **Energy Storage**: Adoption trends modeled, peak shaving impact not explicitly considered in forecast as it is a solution.
   c) **Electric Vehicles**: Forecasted using adoption scenarios, traffic patterns and charging behavior.
   d) **Demand Response**: not explicitly considered in forecast as it is a solution.

4) Future Improvements
   a) **Increased Granularity**: Eversource and UI are planning to incorporate real-time data from smart meters. As DER adoption grows, forecasts will require finer temporal and spatial resolution,
   b) **Scenario Analysis**: For long term demand assessment, there are various scenarios for DER growth under different policy impacts, technology adoption rates, and grid modernization initiatives. Data inputs are updated for each annual forecast
   c) **Dynamic Load Shapes**: Customer behaviors and technology use is evolving and as more data becomes available it necessitated continuous updates to load profiles.