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Document Title:	Orange County Power Authority Form 4 Narrative 2023 IEPR Demand Forecast 23-IEPR-02
Description:	Orange County Power Authority Form 4 Narrative 2023 IEPR Demand Forecast 23-IEPR-02 Report on Forecast Methods and Models
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Orange County Power Authority ("OCPA") utilizes its load forecasting model/methodology for three primary purposes: (1) for portfolio management and procurement; (2) for the development of financial projections; and (3) for Resource Adequacy compliance with the California Public Utilities Commission ("CPUC") and the California Independent System Operator ("CAISO"). The adopted load forecasting methodology focuses primarily on the projected customer counts within the OCPA service territory and incorporates historical per capita usage data to derive the load forecast. The OCPA service territory currently includes the cities of Buena Park, Fullerton, Irvine, and Huntington Beach. However, notice has been provided to the CPUC and SCE that as of July 1, 2024, all Huntington Beach customers will be transitioned back into bundled SCE service and will no longer receive electric generation service from OCPA.

The load forecast is developed for each of the twelve major customer classes served by OCPA. These include the following customer classes:

Load Profile Group	**Internal Forecasting Classification**	**2023 IEPR Forecast Classification**
DOM-S/M	Domestic	Residential
DOM-MM	Domestic	Residential
GS-1	Small Commercial	Commercial
GS-2	Medium Commercial	Commercial
TOU-GS	Time-of-Use, Medium Commercial	Commercial
TOU8-SEC	Time-of-Use, Large Power (Below 2kv)	Industrial
TOU8-PRI	Time-of-Use, Large Power (2kv-50kv)	Industrial
TOU8-SUB	Time-of-Use, Large Power (Above 50kv)	Industrial
St-Ltng	Street and Area Lighting	Other
TC-1	Traffic Control	Other
TOU-PA-2	Agriculture & Pumping, Time-of-Use	Other
TOU-PA-3	Agriculture & Pumping, Time-of-Use	Other

OCPA's load forecasting process starts with a baseline-forecast of current customers by end-use classification (residential, commercial, etc.), utilizing historical usage data and customer counts. OCPA uses historical weather data and linear regression models to estimate relationships between weather variables (heating degree days, cooling degree days, and solar insolation) and customer consumption patterns. The resulting coefficients are then applied to normalized weather conditions, over a 5-year observation period, and current customer counts to derive a forecast for the existing customer base. Potential impacts of climate change are captured by utilizing the most recent 5-years of observed weather data as the benchmark for normal weather conditions. Class hourly load profiles, created by analyzing historic recorded meter data for OCPA's customer base, are applied to translate the monthly usage data into hourly values.

For load projections beyond the current year, OCPA assumes a long-term annual growth rate of 0.5%, which reflects the estimated net increase in customer consumption due to economic and demographic

factors. OCPA does not have a long-term history for its current customer base with which to compare the reasonableness of the projected long-term growth rate. However, OCPA believes that it is generally consistent with the net growth rate in the SCE service area as a whole. OCPA has not included the potential effects of incremental energy efficiency, demand response, distributed energy resources, and other behind-the-meter programs in its current long-term forecast. If and when OCPA administers demand modifying customer programs, OCPA will update its load forecast accordingly.

For OCPA's peak demand forecast, in April 2024 OCPA coordinated with SCE through a meet and confer process to address load migration and data quality issues with the historical usage data SCE provided to OCPA. Through the meet and confer process, OCPA and SCE exchanged their respective 2024 load forecasts for the OCPA area, and as a result of that process, OCPA has aligned its monthly peak demand forecast methodology with SCE's to ensure appropriate accounting between the two entities. SCE modelled its peak forecast by averaging the top three peak load days in each month of observed historic data, and compared to the average historic load, creating a load-to-peak forecast ratio for each month. In order to account for the data quality issues mentioned above, OCPA has adopted SCE's load-peak ratios for the 2024 forecast period which were applied to OCPA's internal monthly load forecast to derive its 2024 and beyond peak forecasts.

OCPA utilizes historical consumption data to calibrate and adjust its load forecast. The calibration process is run monthly and compares the most recent monthly kWh and peak kW usage data to the forecast values. The forecast is tracked relative to both the initial usage estimates (T+9) reported to the CAISO as well as the final reported usage (T+70). To the extent that the monthly forecast error exceeds a 5% threshold, OCPA evaluates the potential causes of the variance and, if such error is deemed likely to persist, adjusts the forecast going forward.