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Peak and Hourly Load Forecasts

Updates for *CED 2019 Preliminary*

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California Energy Commission

Purpose of Hourly Load Modeling

- Capture "peak shift" to provide more accurate peak forecasts
- Monthly peaks for Resource Adequacy
- Provide daily "ramp-ups" for hourly loads

Structure of Hourly Load Model

- Hourly "consumption" load ratios estimated for each hour for each CAISO TAC area based on weather and calendar variables

- Average hourly consumption applied to load ratios to give hourly consumption

- Hourly EV load, climate change impacts, and other consumption adjustments added; hourly PV generation subtracted to give baseline hourly sales forecasts

- Hourly AAEE subtracted to give managed sales forecasts

Updates for *CED 2019 Preliminary*

- Hourly climate change
- Hourly EV Loads

Hourly Climate Change

- Staff estimates (since 2009) *annual* additional climate change load impacts for consumption and peak, using temperature scenarios from ERDD/Scripps

- For *CEDU 2018*, staff imputed hourly heating and cooling to distribute annual climate change consumption impacts throughout the year

Hourly Climate Change

- ERDD/Scripps temperature scenarios include only daily max and min

- For CED 2019, Scripps will develop hourly temperature scenarios from daily max and min temperatures

- Scripps using historical daily (max and min) and hourly temperatures to generate likely hourly patterns given daily max and min

Hourly EV Loads

- For CED 2017 and CEDU 2018, staff used hourly EV profiles from LBNL based on National Household Travel Survey

- For CEDU 2019, ADM has developed new profiles based on vehicle charging data from ChargePoint and Joint IOU Electric Vehicle Load Research Report metered residential charging profiles

Hourly Electricity Load Model (HELM), Version 2

- Staff has traditionally used HELM to develop annual peaks, based on end use and market sector hourly load shapes

- ADM has developed updated load shapes and transferred HELM to a new platform (HELM 2.0)

- Staff in the process of testing the new model

Comments/Questions?