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Flexible Resource Adequacy

Amber Motley
Director, Short Term Forecasting

October 2nd, 2024

Agenda

- Flexible Resource Adequacy (Flex RA) Overview
- Hourly Profile Challenges
- Recommendations

California ISO BAA Renewables

Historical statistics and record (as of May 30, 2024)

Solar peak **NEW!**

19,650 MW

August 23, 2024 at 12:07 pm

Previous record:
19,368 MW, June 20, 2024

Wind peak

6,465 MW

May 28, 2022 at 5:39 pm

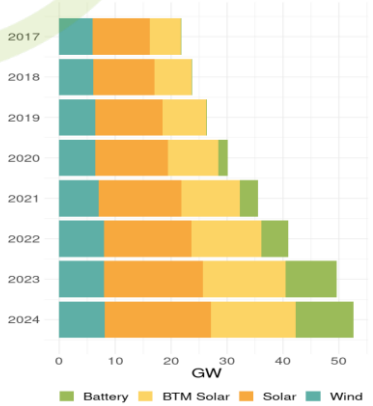
Previous record:
6,265 MW, March 4, 2022

Peak percentage of renewables compared to demand

117.3%

April 20, 2024

Previous record:
107%, June 2023



Number of Renewable Resources: **529**

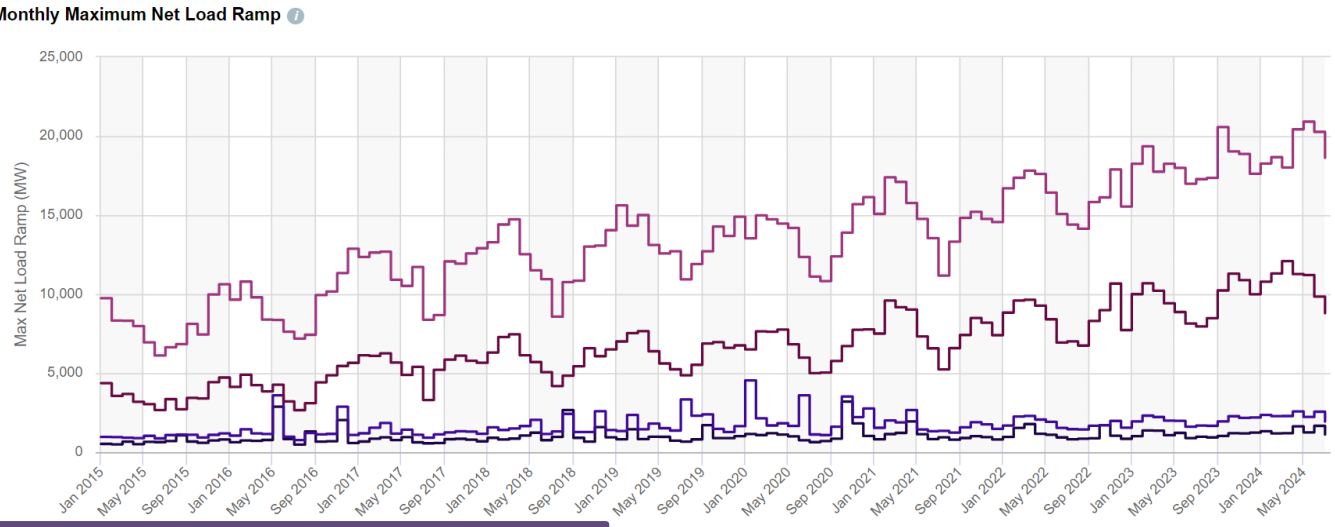
MW Forecasted Large Scale Renewables: **27,872 MWs**

MW Capacity Behind-the-Meter Solar: **16,200 MWs**

Values are approximate as of May 2024

Flex RA Process Review

- Goal: Ensure Load Serving Entities (LSEs) contract for adequate capacity to meet expected flexible needs.

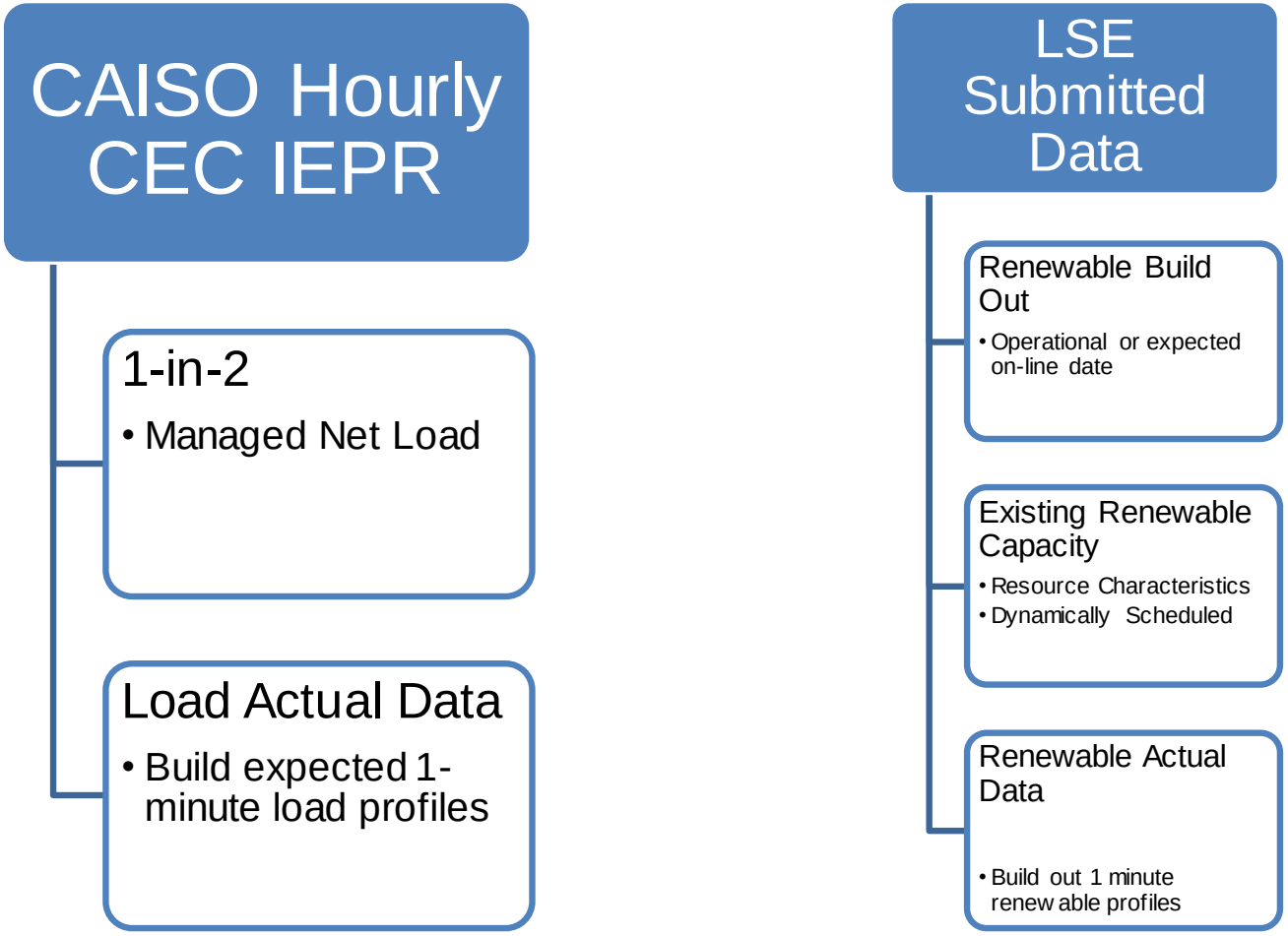


Program Design:

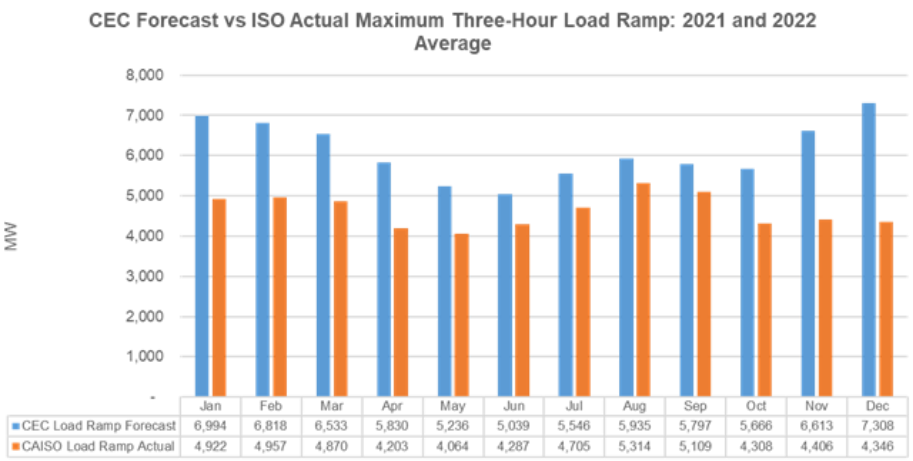
- Annual Flexible Capacity Needs Assessment
- Annual Effective Flexible Capacity (EFC) list
- Categories of Flexible RA

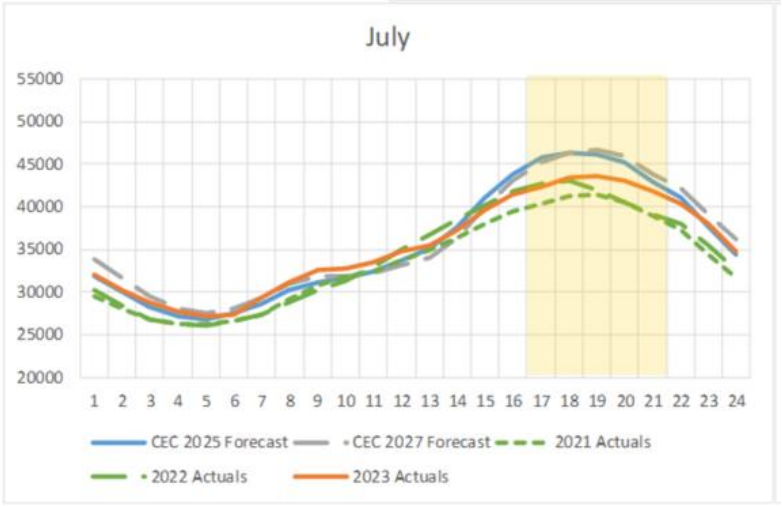
Effective Flexible Capacity (EFC): The maximum MW of flexible capacity a resource has the capability to provide based on the ISO's counting criteria.

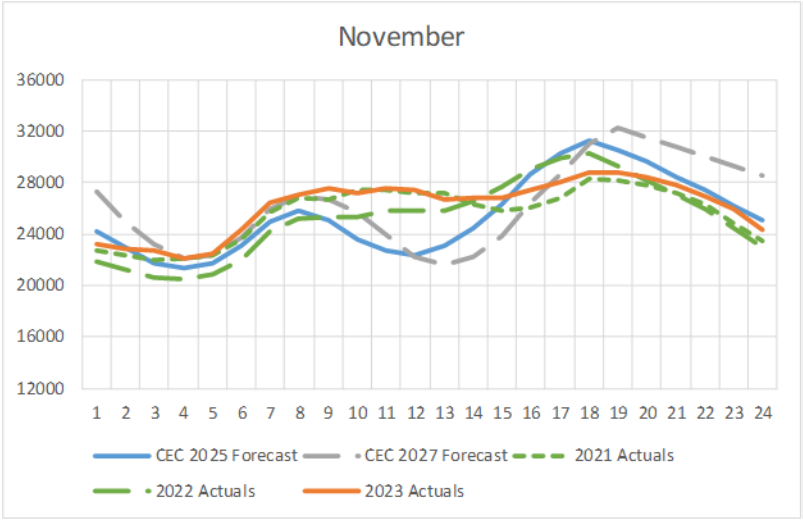
Flex RA Data Inputs

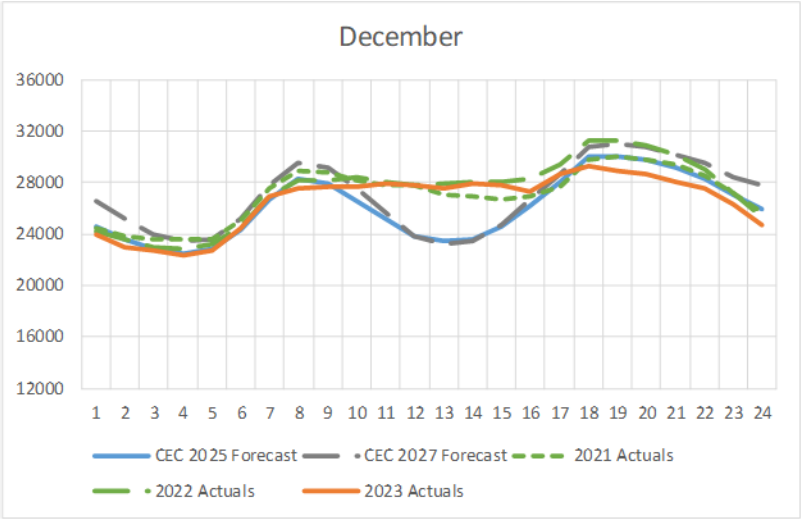


IEPR 3 hour net load ramp has trended higher than observed actuals

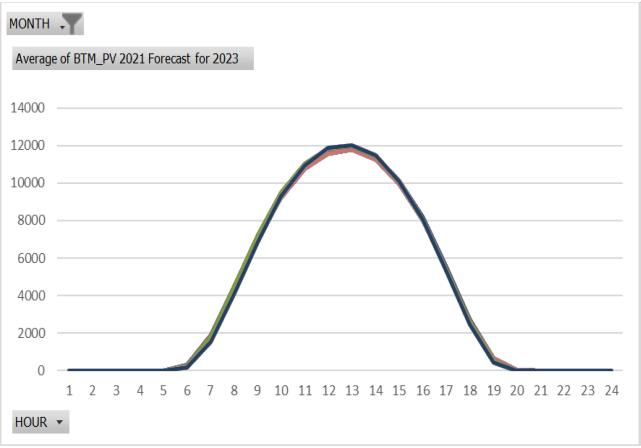




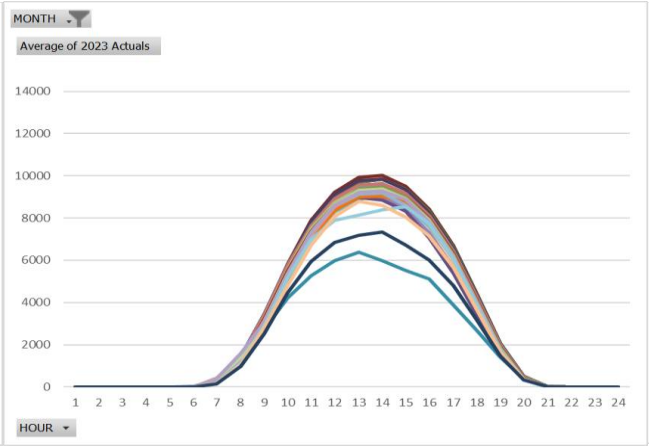




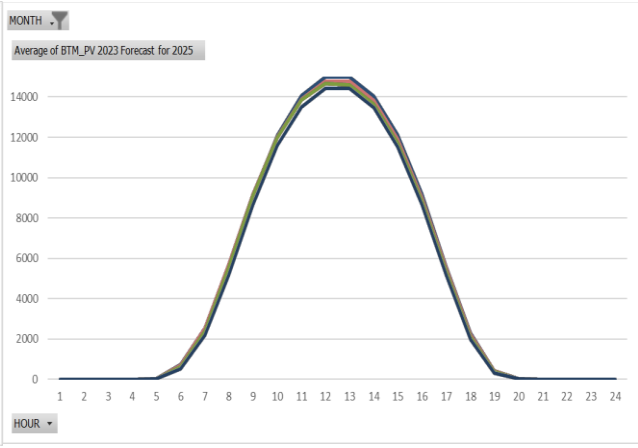
Behind the meter solar plays a key role in hourly demand shapes: July Examples



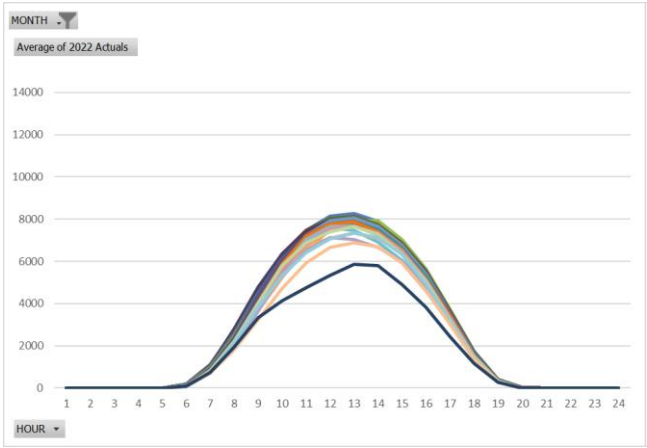
2023 CEC Forecast



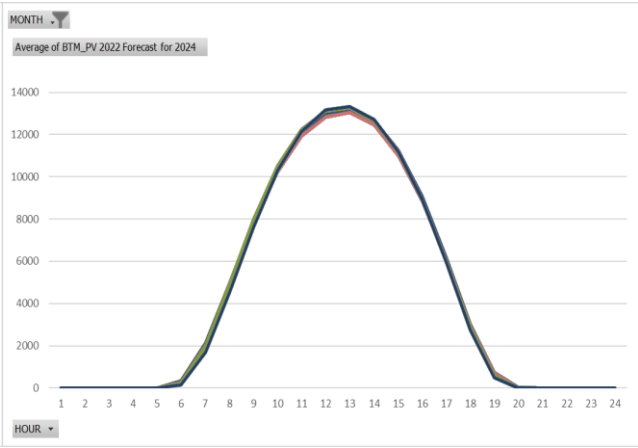
2023 CAISO Actuals



2025 CEC Forecast

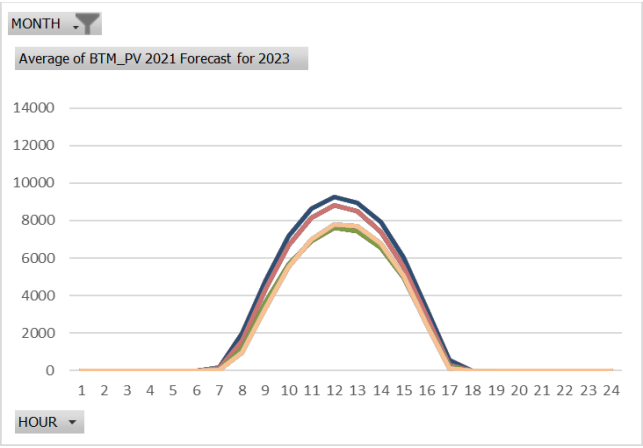


2022 CAISO Actuals

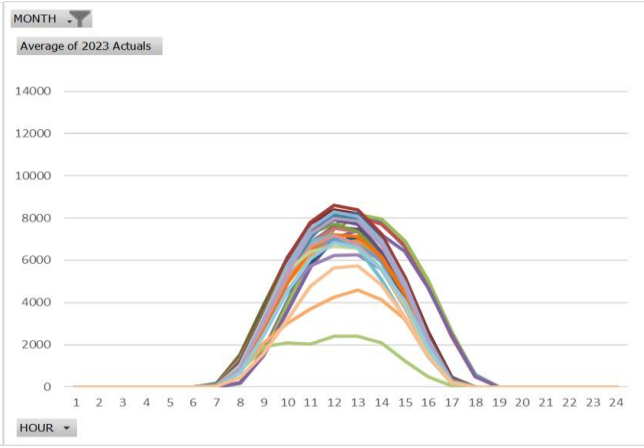


2024 CEC Forecast

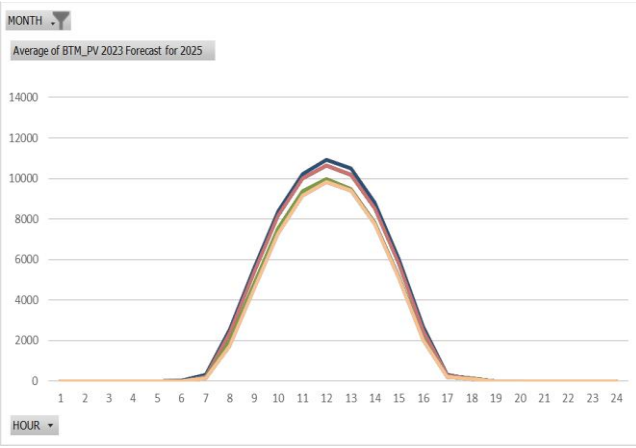
Behind the meter solar plays a key role in hourly demand shapes: November Examples



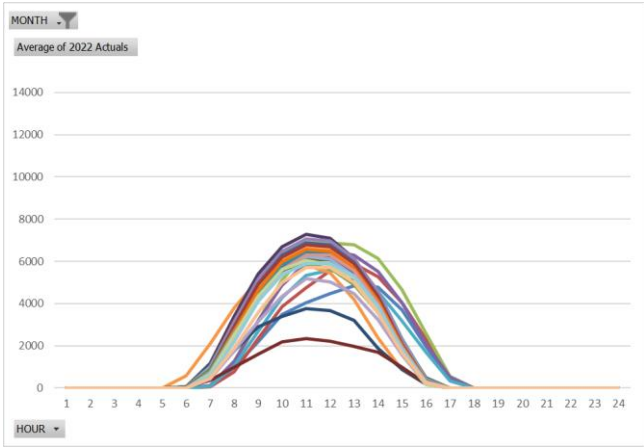
2023 CEC Forecast



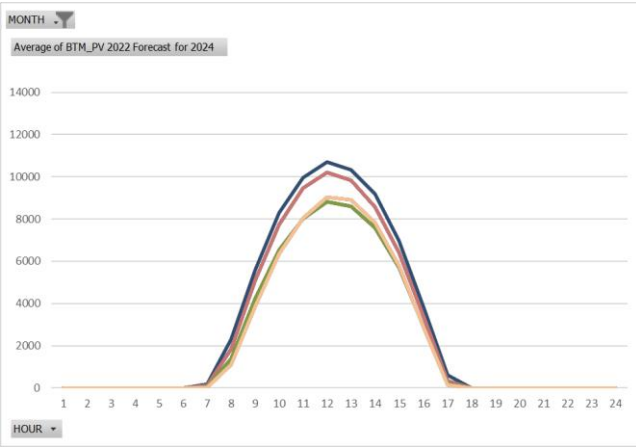
2023 CAISO Actuals



2025 CEC Forecast



2022 CAISO Actuals



2024 CEC Forecast

Future Recommendations

Continued growth in Distributed Energy Resources (DERs) plays an important role in hourly demand profiles:

- True Up profile assumptions with actual data for EV, TOU, and battery profiles.
- Further refine BTM solar capacity and actual data utilized in demand forecasts
  - Consider impact of 1 MW of BTM solar to demand throughout the months
- Further visibility of DERs and Demand Response programs outside of CAISO market.
- Treatment of battery charging demand in demand forecasting
  - Market Participating and Non Market Participating

Early stakeholder engagement in CEC forecast development helps with subsequent review of CAISO Flex RA studies