

DOCKETED

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California Energy Commission

Title: Summer 2021 Supply Stack Analysis

Presenter: Lana Wong/Senior Analyst

Date: May 4, 2021



Summer 2021 Outlook

- Outlook under average weather conditions
- Outlook under west-wide extreme heatwave



Incorporating lessons from 2020 into Summer 2021 analysis

Demand

- For average weather conditions: Used CEC's 1-in-2 hourly load
- For west wide extreme heat wave scenario: Incorporated highest demand observed in 2020 for each hour during August & September

Available Supply

- CAISO NQC list of existing resources
- All new additional procurement (includes expedited OIR) ordered by CPUC
- Reduced DR availability
- Imports limited to 5-year average RA in west-wide heat wave scenario
- Accounted for drop in solar production in the evening

Planning

- Increased Planning reserve margin for unplanned Outages



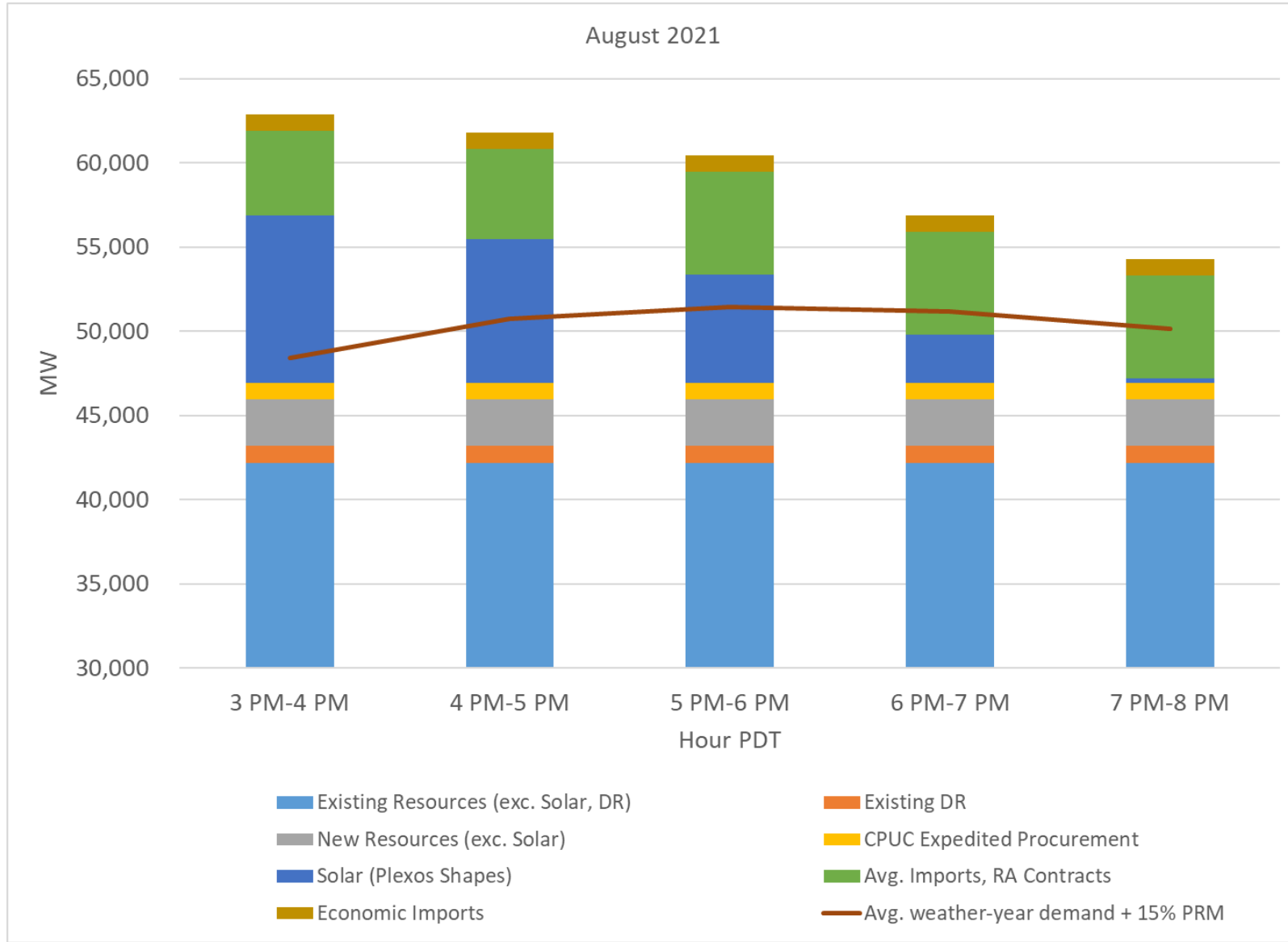
Import Assumptions

Based on the 2015-2020 RA Showings from the November 2020 CAISO Supply Stack

MW limits	May	June	July	August	September	October	Import Scenario
Maximum Import Capacity	10,805	10,805	10,805	10,805	10,805	10,805	N/A
Maximum RA Showing	3,909	4,692	6,197	6,480	8,498	5,036	Max
Minimum RA Showings	3,181	3,311	3,840	5,624	4,486	3,167	Min
Average RA Showings	3,484	3,922	5,340	6,095	5,921	4,171	Average

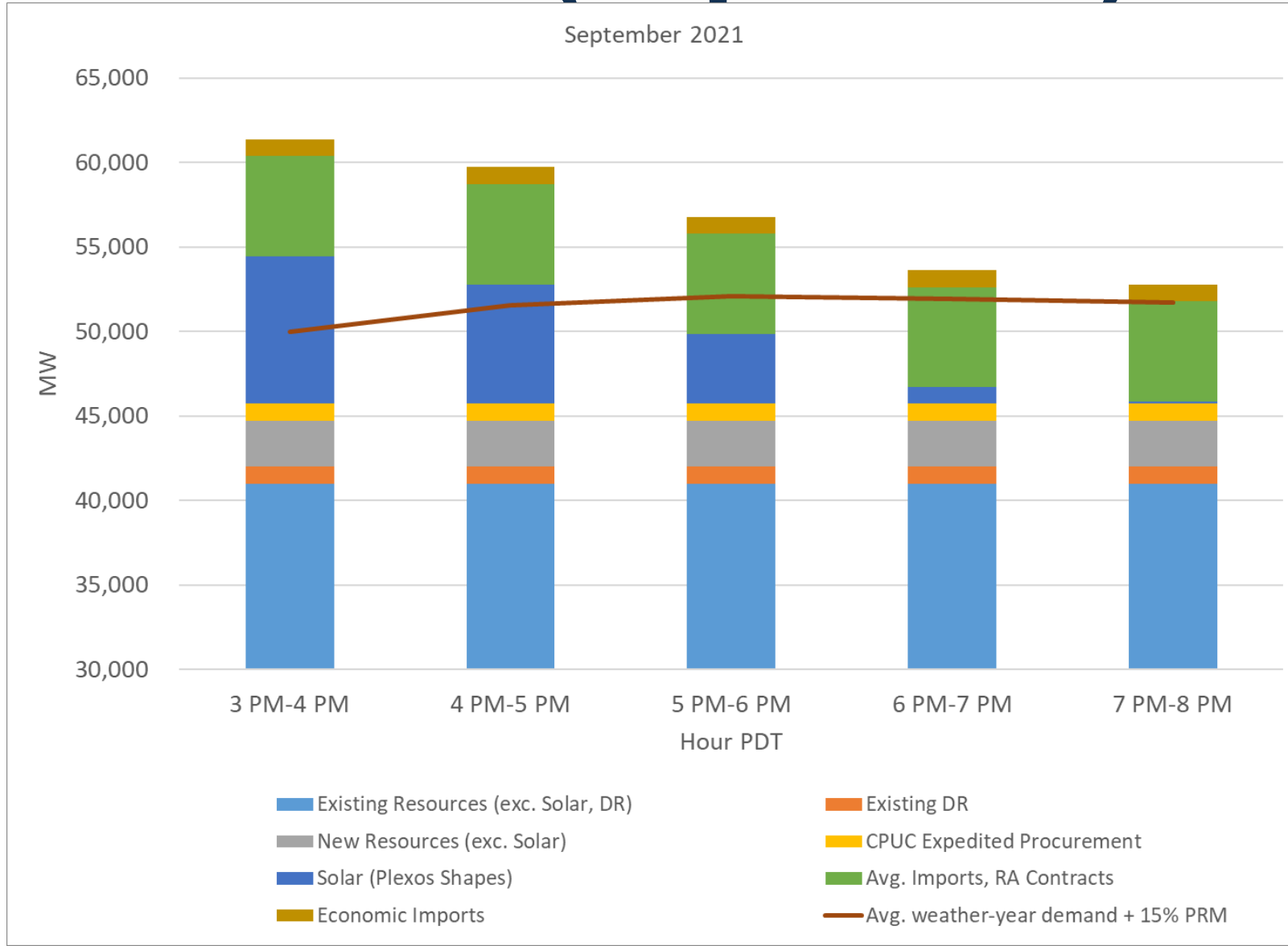


Forecast under Average Conditions (August)



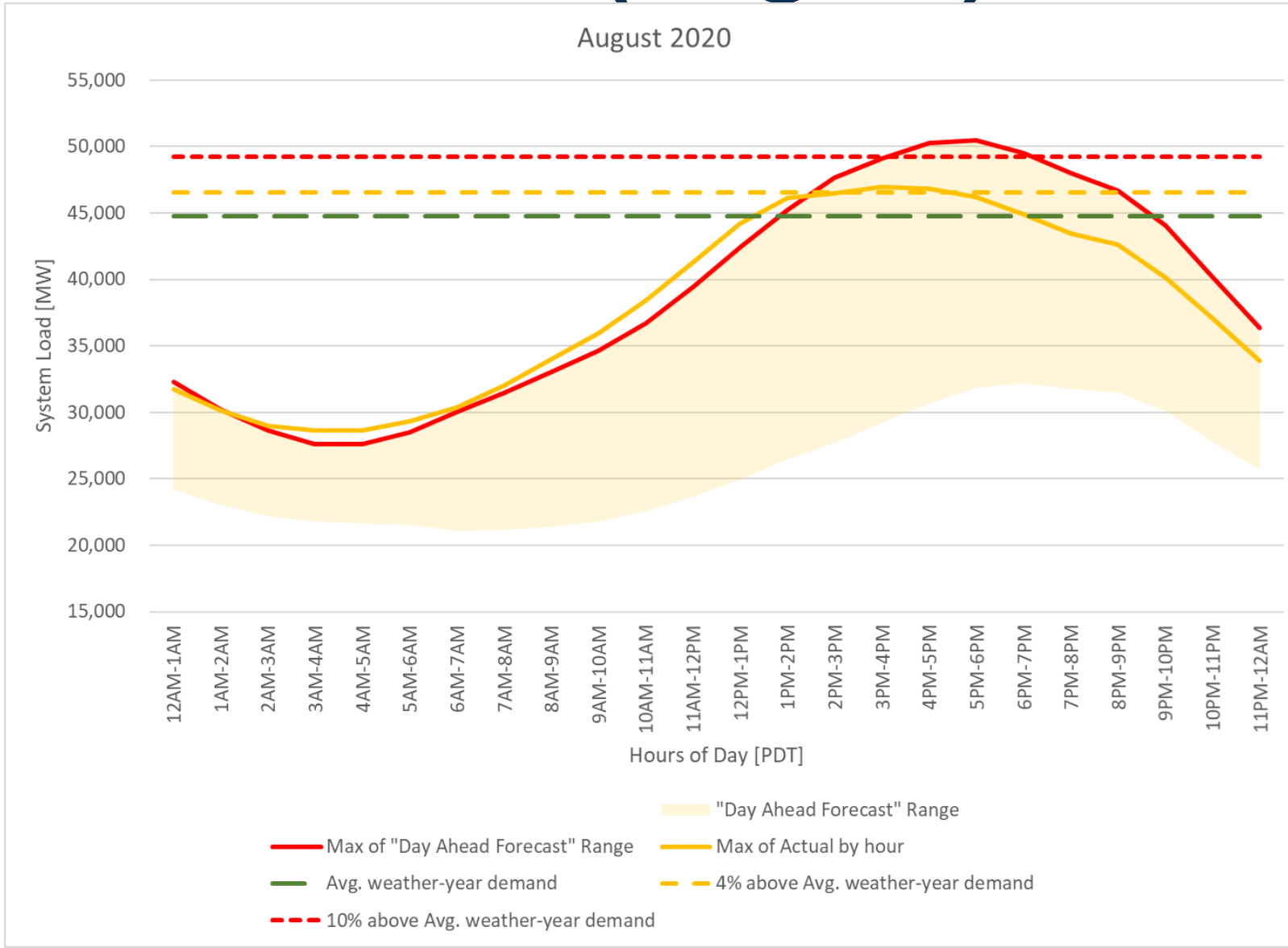


Forecast Under Average Conditions (September)





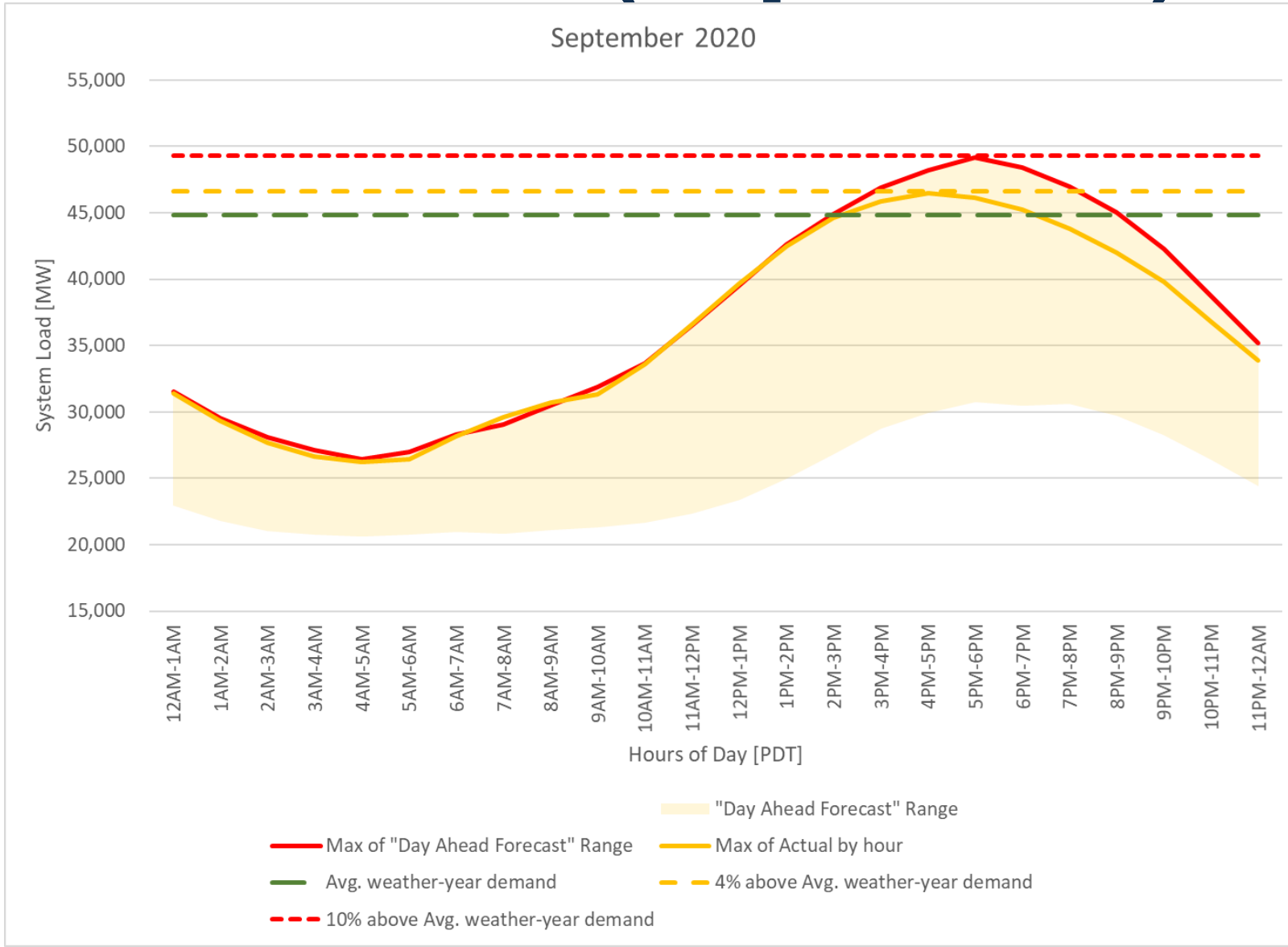
Establishing Extreme-Scenario Demand (August)



- During August 2020, the actual demand exceeded “avg. weather-year” demand forecast by almost 5% and the day ahead forecast by nearly 13%
- Key hours of focus are from 2 PM to 9 PM



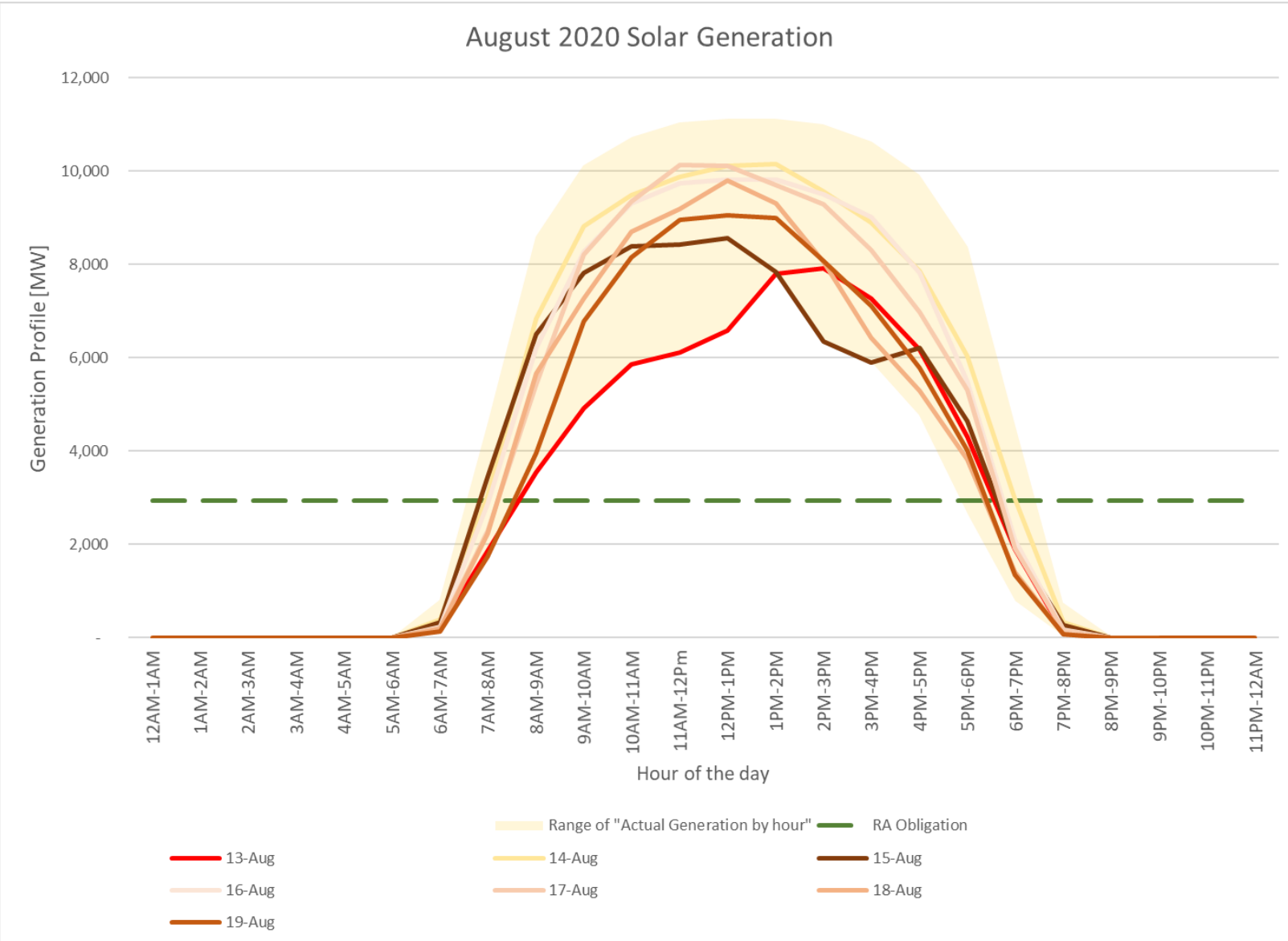
Establishing Extreme-Scenario Demand (September)



- **During September 2021, the actual demand exceeded "avg. weather-year" demand forecast by almost 4% and the day ahead forecast were at times in excess of 10%**
- **Key hours of focus are from 2 PM to 8 PM**



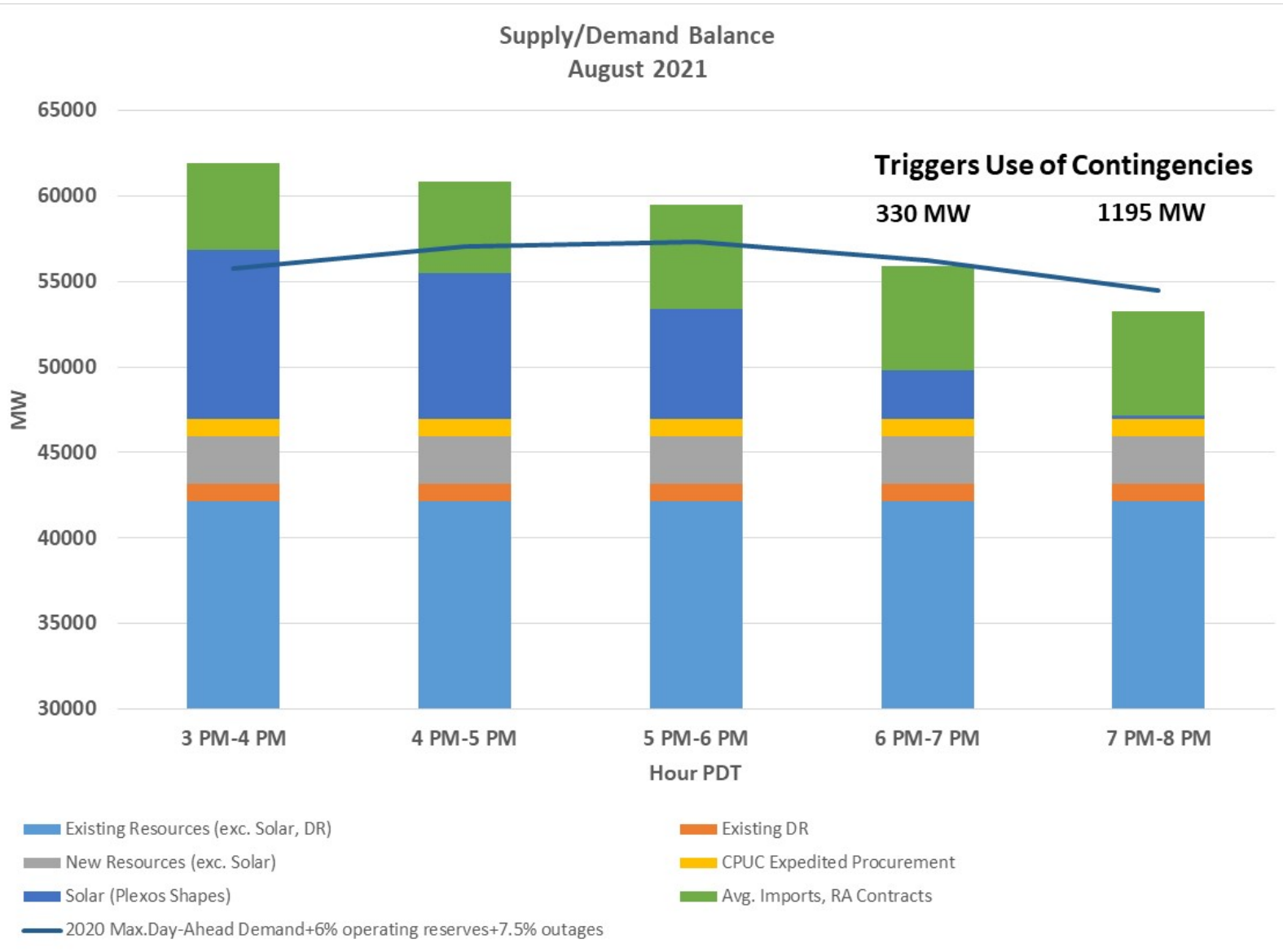
Planning for Drop in Solar Production



- August 2020 RA value for solar was approximately 2900 MW across all hours
- Solar availability precipitously drops in the evening hours. Almost 3000 MW of production vanishes over 2 hours
- Key hours of focus are from 6 PM to 8 PM



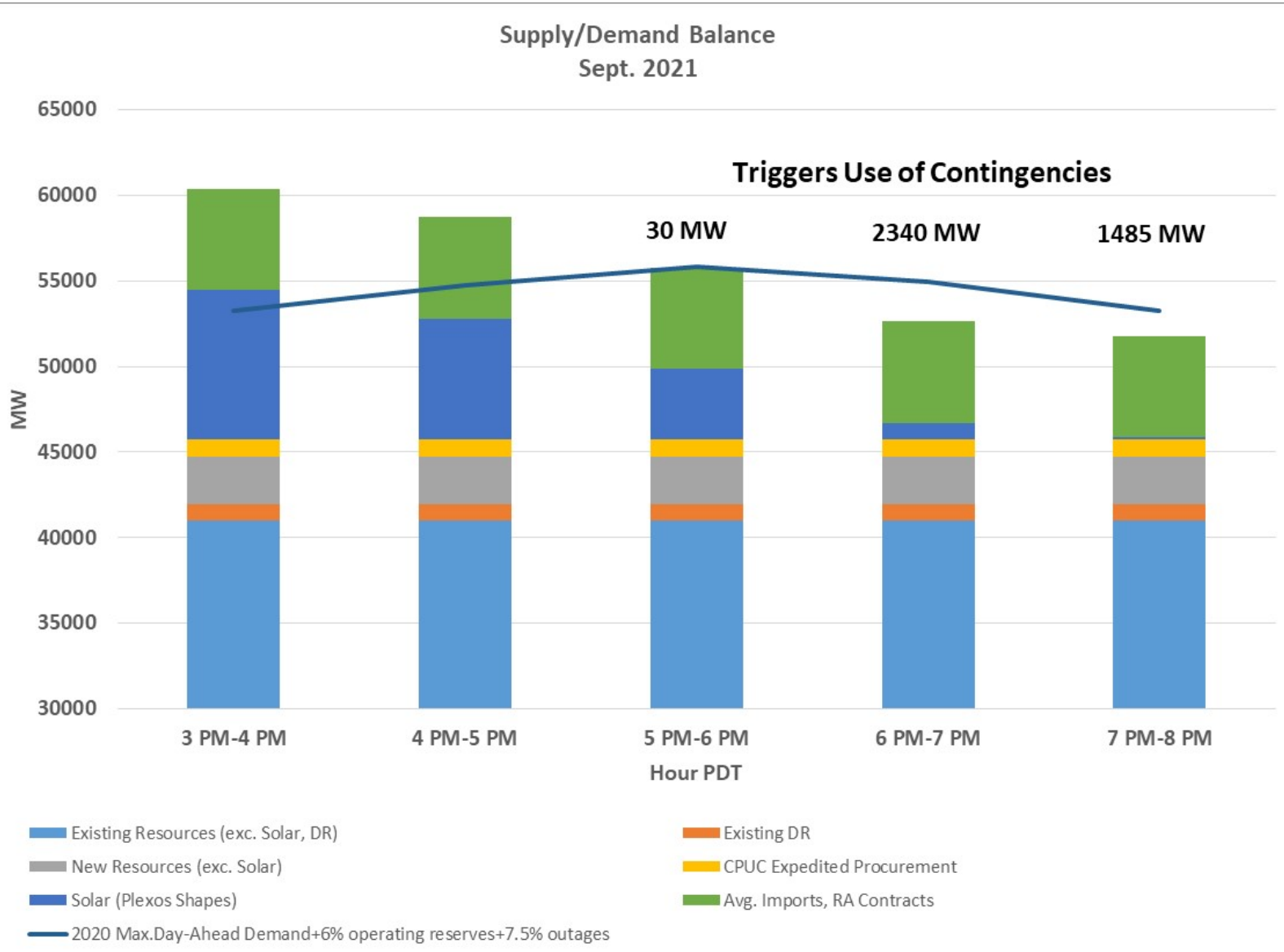
August 2021 Under Extreme-Scenario



- Assumes extreme demand and conservative resource assumptions
- Results do not account for potential contingency measures in place
- Contingency measures to be discussed in the next panels



September 2021 Under Extreme-Scenario



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Mid Term Resource Assessment

Objective: Calculate the loss of load expectation for the CAISO based solely on the resource adequacy capacity and imports for the 2021-2026 summer seasons.

Approach: Model the resource adequacy supply stack with combinations of wind, solar, load, and generator outages.

Look for additional information in an upcoming IEPR workshop.



Thank You!

