

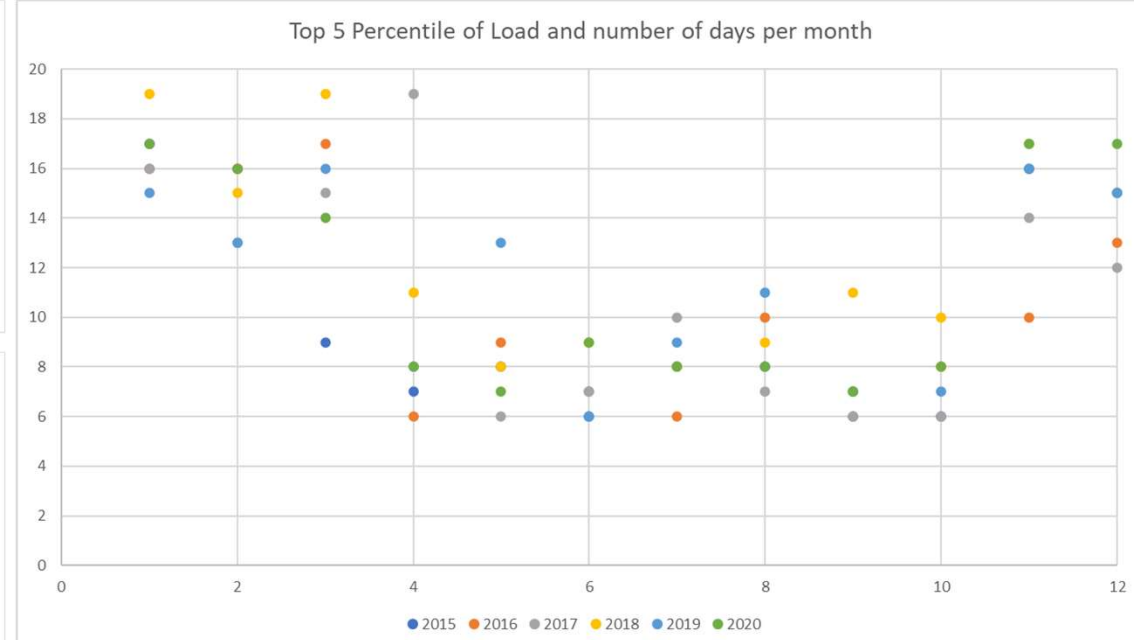
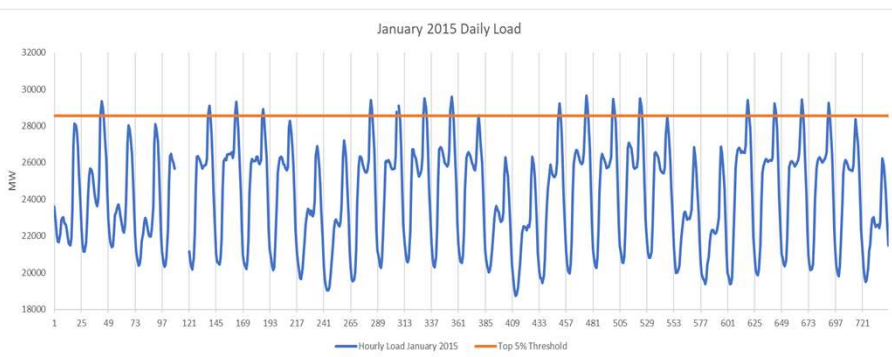
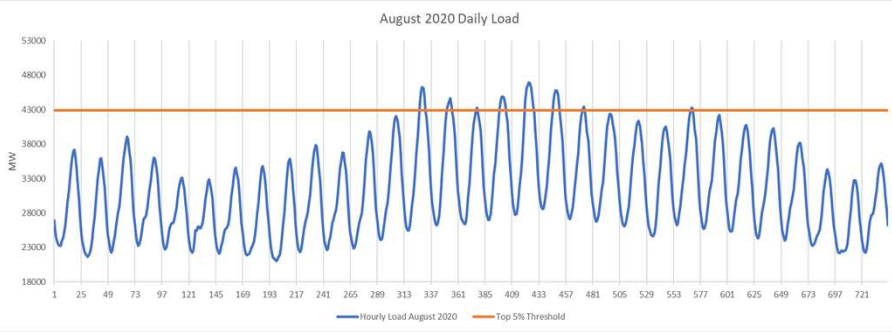
# 24-Slice of Day Implementation Presentation

- ◆ Planning Reserve Margin Calibration
- ◆ Wind/Solar Exceedance
- ◆ Thermal Counting – UCAP Light
- ◆ Elimination of MCC Buckets
- ◆ Test Year

- ◆ Loss of Load Expectation analysis needs to be run for 2024 – January 2023
  - Utilize 2024 load forecast, expected supply mix and resource constraints
- ◆ Resulting annual portfolio should be calibrated to meet monthly demand + annualized PRM while maintaining 1-in-10 year LOLE standard throughout the year
  - ED’s approach to add load during various months will result in the necessary annual PRM and 0.1 LOLE but may not yield the monthly portfolio that the 24-SOD conversion tool is expecting
  - Resulting annual portfolio should be converted to monthly portfolios so that conversion tool can properly yield a 24-SOD PRM
    - Possible middle step is to translate the amount of load added per month as the amount of capacity that must be removed
- ◆ Process needs to ensure 0.1 LOLE for the full year and not simply for July through September months
- ◆ LOLE and PRM process should be revisited every 2 to 4 years as load and supply mix change over time

# Wind/Solar Exceedance

- ◆MRP reviewed PG&E's exceedance proposal, steps 1-3
- ◆Top 5 days, even with 2015-2020 years, provides small sample to solve for exceedance threshold
- ◆Reviewed top 2.5%, 5% and 10% of hours from data used by PG&E
- ◆Currently considering days that fall in the top 5% of hour



Number of days range from 6 to 19 days per month throughout 2015-2020

# Wind/Solar Exceedance Preliminary Findings



## Seasonal Construct

- ◆ Summer Months: May – Oct
- ◆ Non-Summer: Nov – Apr
- ◆ Aligns with CPUC’s year ahead showing months

### Solar

- ◆ Summer Months: 80% Exceedance
- ◆ Non-Summer Months: 60% Exceedance

### NP/SP-15 Wind

- ◆ NP-15
  - Summer: 75%
  - Non-Summer: 50%
- ◆ SP-15
  - Summer: 75%
  - Non-Summer: 60%

# Preliminary Profiles



### Solar Exceedance Profile

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
60%	1 Jan	0%	0%	0%	0%	0%	0%	0%	7%	29%	43%	50%	53%	53%	51%	43%	28%	6%	0%	0%	0%	0%	0%	0%	0%
60%	2 Feb	0%	0%	0%	0%	0%	0%	0%	17%	48%	62%	66%	67%	68%	66%	60%	51%	22%	1%	0%	0%	0%	0%	0%	0%
60%	3 Mar	0%	0%	0%	0%	0%	0%	0%	9%	40%	62%	69%	69%	70%	68%	65%	60%	44%	21%	4%	0%	0%	0%	0%	0%
60%	4 Apr	0%	0%	0%	0%	0%	0%	1%	22%	53%	69%	76%	78%	79%	78%	77%	71%	64%	48%	16%	1%	0%	0%	0%	0%
80%	5 May	0%	0%	0%	0%	0%	0%	6%	31%	53%	64%	72%	74%	74%	73%	72%	68%	60%	45%	21%	2%	0%	0%	0%	0%
80%	6 Jun	0%	0%	0%	0%	0%	0%	9%	36%	58%	71%	78%	81%	81%	79%	78%	74%	66%	52%	29%	6%	0%	0%	0%	0%
80%	7 Jul	0%	0%	0%	0%	0%	0%	5%	28%	54%	68%	76%	80%	81%	79%	77%	73%	65%	52%	29%	6%	0%	0%	0%	0%
80%	8 Aug	0%	0%	0%	0%	0%	0%	1%	19%	48%	65%	73%	77%	78%	76%	74%	69%	59%	44%	16%	1%	0%	0%	0%	0%
80%	9 Sep	0%	0%	0%	0%	0%	0%	0%	13%	43%	60%	68%	72%	73%	72%	69%	63%	51%	27%	4%	0%	0%	0%	0%	0%
80%	10 Oct	0%	0%	0%	0%	0%	0%	0%	6%	32%	54%	63%	65%	65%	65%	64%	58%	39%	10%	0%	0%	0%	0%	0%	0%
60%	11 Nov	0%	0%	0%	0%	0%	0%	1%	19%	46%	59%	62%	62%	61%	59%	52%	29%	3%	0%	0%	0%	0%	0%	0%	0%
60%	12 Dec	0%	0%	0%	0%	0%	0%	0%	8%	29%	44%	48%	49%	50%	48%	41%	21%	2%	0%	0%	0%	0%	0%	0%	0%

### NP-15 Wind Exceedance Profile

NP-15 Wind		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
50%	1 Jan	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	3%	4%	4%	3%	3%	3%	3%	3%	4%	5%	5%	5%	6%	6%
50%	2 Feb	13%	13%	12%	10%	10%	9%	10%	11%	9%	8%	9%	8%	8%	8%	9%	9%	8%	8%	9%	10%	10%	11%	12%	13%
50%	3 Mar	16%	14%	14%	13%	11%	10%	8%	8%	8%	7%	7%	7%	6%	7%	7%	8%	10%	10%	12%	14%	17%	15%	16%	17%
50%	4 Apr	36%	34%	34%	30%	29%	25%	23%	18%	15%	16%	14%	13%	11%	12%	15%	21%	25%	27%	29%	31%	35%	35%	36%	40%
75%	5 May	37%	37%	36%	32%	28%	24%	22%	17%	13%	12%	9%	8%	7%	8%	11%	17%	23%	28%	33%	32%	37%	38%	40%	38%
75%	6 Jun	46%	48%	45%	40%	40%	36%	32%	23%	17%	13%	9%	6%	5%	7%	8%	15%	22%	34%	41%	39%	42%	44%	43%	46%
75%	7 Jul	62%	61%	57%	53%	50%	46%	43%	36%	30%	21%	15%	12%	10%	12%	16%	25%	35%	43%	47%	49%	56%	57%	61%	62%
75%	8 Aug	57%	58%	53%	47%	45%	43%	37%	30%	22%	18%	12%	8%	8%	8%	10%	18%	26%	32%	40%	47%	54%	57%	58%	57%
75%	9 Sep	23%	24%	22%	19%	17%	13%	11%	8%	6%	5%	3%	2%	2%	2%	2%	3%	6%	10%	13%	17%	20%	19%	21%	21%
75%	10 Oct	9%	9%	7%	5%	4%	4%	3%	3%	3%	2%	1%	1%	1%	1%	1%	1%	1%	1%	3%	4%	5%	6%	7%	9%
50%	11 Nov	8%	6%	6%	6%	5%	5%	4%	5%	3%	3%	2%	2%	2%	2%	2%	2%	2%	3%	3%	4%	4%	5%	7%	7%
50%	12 Dec	7%	7%	7%	7%	6%	6%	6%	6%	6%	5%	5%	5%	4%	4%	4%	4%	4%	5%	6%	7%	8%	8%	8%	8%

### SP-15 Wind Exceedance Profile

Exceedance %		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
60%	1 Jan	4%	4%	4%	4%	5%	4%	5%	4%	4%	4%	4%	4%	4%	4%	5%	4%	4%	4%	5%	4%	4%	4%	4%	4%
60%	2 Feb	7%	6%	7%	6%	6%	6%	6%	6%	5%	4%	5%	5%	5%	7%	8%	9%	10%	9%	9%	9%	10%	8%	8%	9%
60%	3 Mar	16%	16%	14%	15%	14%	13%	11%	9%	7%	8%	9%	10%	10%	11%	13%	15%	18%	18%	20%	20%	18%	18%	18%	17%
60%	4 Apr	31%	31%	30%	27%	25%	22%	19%	16%	13%	12%	13%	13%	14%	15%	21%	25%	30%	31%	33%	34%	32%	31%	31%	31%
75%	5 May	28%	28%	26%	25%	21%	17%	14%	10%	7%	7%	6%	6%	6%	7%	9%	16%	23%	28%	30%	30%	31%	32%	31%	29%
75%	6 Jun	34%	33%	29%	27%	24%	21%	16%	12%	8%	6%	5%	5%	7%	7%	10%	16%	22%	26%	31%	34%	35%	35%	35%	35%
75%	7 Jul	28%	26%	25%	21%	18%	15%	12%	8%	5%	3%	3%	4%	5%	6%	9%	13%	19%	23%	27%	28%	30%	31%	30%	29%
75%	8 Aug	25%	24%	21%	18%	15%	12%	9%	7%	4%	3%	2%	3%	4%	5%	7%	11%	15%	20%	23%	26%	28%	30%	27%	27%
75%	9 Sep	10%	8%	6%	5%	5%	4%	4%	3%	2%	2%	2%	3%	4%	5%	5%	5%	6%	9%	12%	13%	12%	11%	11%	10%
75%	10 Oct	5%	4%	4%	4%	4%	3%	3%	3%	2%	2%	2%	3%	3%	3%	3%	3%	4%	4%	5%	5%	5%	4%	5%	5%
60%	11 Nov	4%	4%	4%	4%	4%	4%	3%	3%	3%	4%	4%	4%	5%	4%	4%	4%	4%	3%	4%	4%	5%	5%	4%	4%
60%	12 Dec	5%	5%	5%	5%	5%	5%	5%	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	6%	6%	6%	6%	6%	6%	6%

- ◆Parties and Energy Division should work with CAISO on future of RA Enhancements to eliminate RA Availability Incentive Mechanism (RAAIM) and improve outage replacement process
- ◆Additional work is needed and UCAP is not implementable at this time

# Elimination of MCC Buckets

- ◆ Energy Division presented on elimination of MCC buckets
- ◆ Potentially keep DR bucket and eliminate all other buckets
- ◆ Unclear how usage of imports will be monitored under 24-SOD
  - 6x16 imports do not cover all days of the month and unclear if LOLE analysis models imports similarly
  - CAISO allows imports to be shown as subset of days
- ◆ Consider whether ED should monitor impact of imports under 24-SOD



## ◆Year Ahead SOD Showing

- Due November 30 to CPUC
- If CAISO supply plan is ready or needed, then suppliers would also submit such information, potentially not in CIRA but maybe CIDI

## ◆Month Ahead SOD Showing

- Due 1<sup>st</sup> day of each compliance month to CPUC
- If CAISO supply plan is ready/needed, also submit to CAISO, potentially not in CIRA but maybe CIDI

## ◆ED should monitor showing templates and fix issues as necessary

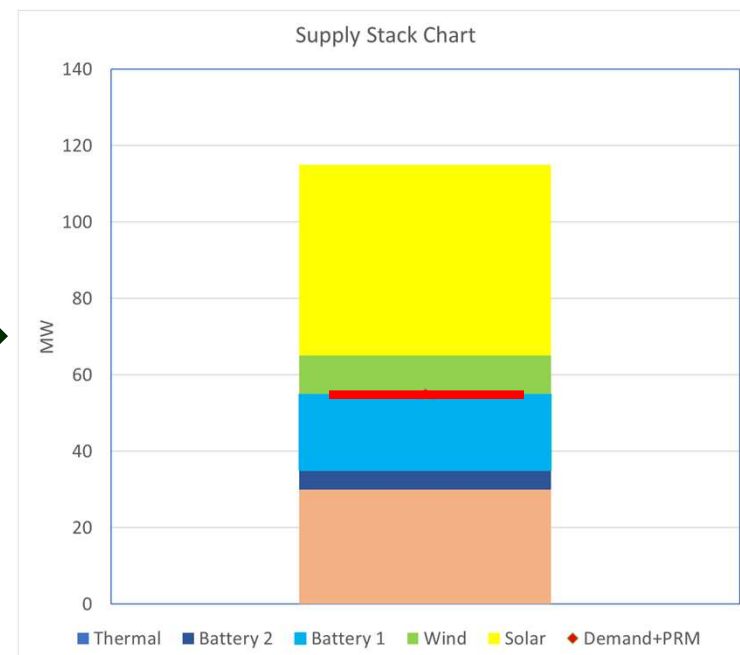
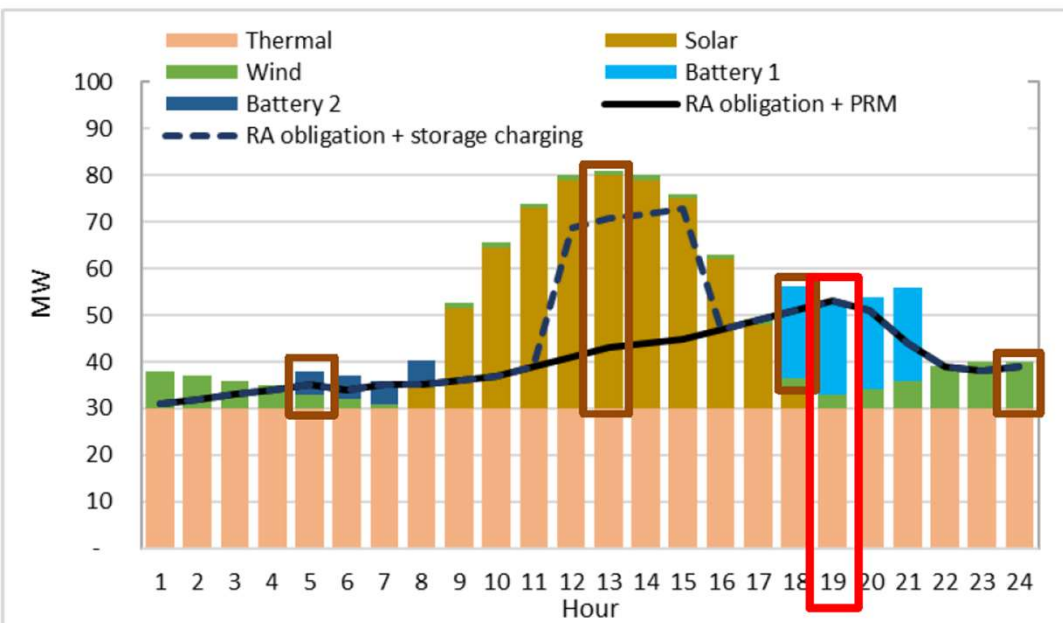
## ◆If CIRA changes are needed, LSEs & suppliers will most likely wait until September/October 2024 for market simulation

- May need to test CIRA uploads, outage substitutions in CIRA, bid insertion, RAIM(?)

## ◆Possible CIRA changes are necessary because if LSE shows single max hour MW value to CAISO to validate against the 24-SOD PRM, then CAISO will have surplus capacity due to stacking of capacity of various hour

- Could be solved if CAISO uses different PRM than the 24-SOD PRM, more in line with the annual LOLE PRM

# Example of Test Year Showing to CAISO



- ◆ If LSEs/Suppliers show max MW shown of 24-SOD to CAISO who's validating only single hour peak demand+PRM, then total shown capacity will likely be greater than demand+PRM
- ◆ ISO may need different non 24-SOD PRM or use different shown NQC value to meet demand+PRM