

# Consideration of the Flexible Capacity Requirement in the 24-hour Slice Framework

R.21-10-002 Reform Track Workshop  
September 21, 2022



California Public  
Utilities Commission

# Background on Flexible Capacity Requirement

- D.22-08-039 noted the following regarding the flexible capacity requirements:
  - “SCE recommends eliminating the flexible RA requirements part of the 24-hour proposal, claiming that the granularity of the 24-hour approach directly accounts for resource capabilities and use limitations. PG&E and Calpine support eliminating the flexible requirements, with PG&E stating that this should be done in coordinating with CAISO, and Calpine arguing that the flexible capacity requirements serve no useful function.”
  - “The Commission agrees that the granularity of the 24-hour framework may obviate the need for flexible RA requirements. However, CAISO’s current tariff and processes will need to align with removal of these requirements. We find that further discussion is necessary to avoid misalignment or other further intended consequences. As such we direct parties to discuss and develop proposals on the elimination of the flexible requirements in the CAISO coordination workstream.”

# Current Flexible Capacity Requirements

- D.13-06-024 and D.14-06-050 adopted an “interim” flexible capacity requirement from 2015-2017
  - Recognized the need for flexible resource adequacy resources to meet current operational needs and future challenges
  - Specified the total need for economically dispatched resources necessary to meet largest monthly continuous 3-hour ramp
- CAISO conducts annual Flexible Capacity Needs Assessment to determine overall need
  - CPUC determines load serving entity (LSE) requirement based on load-ratio and is responsible for ~90 percent of the overall requirement
- “Flexible Resource” defined by ability to ramp and sustain energy output for 3 hours

# FRACMOO Categories

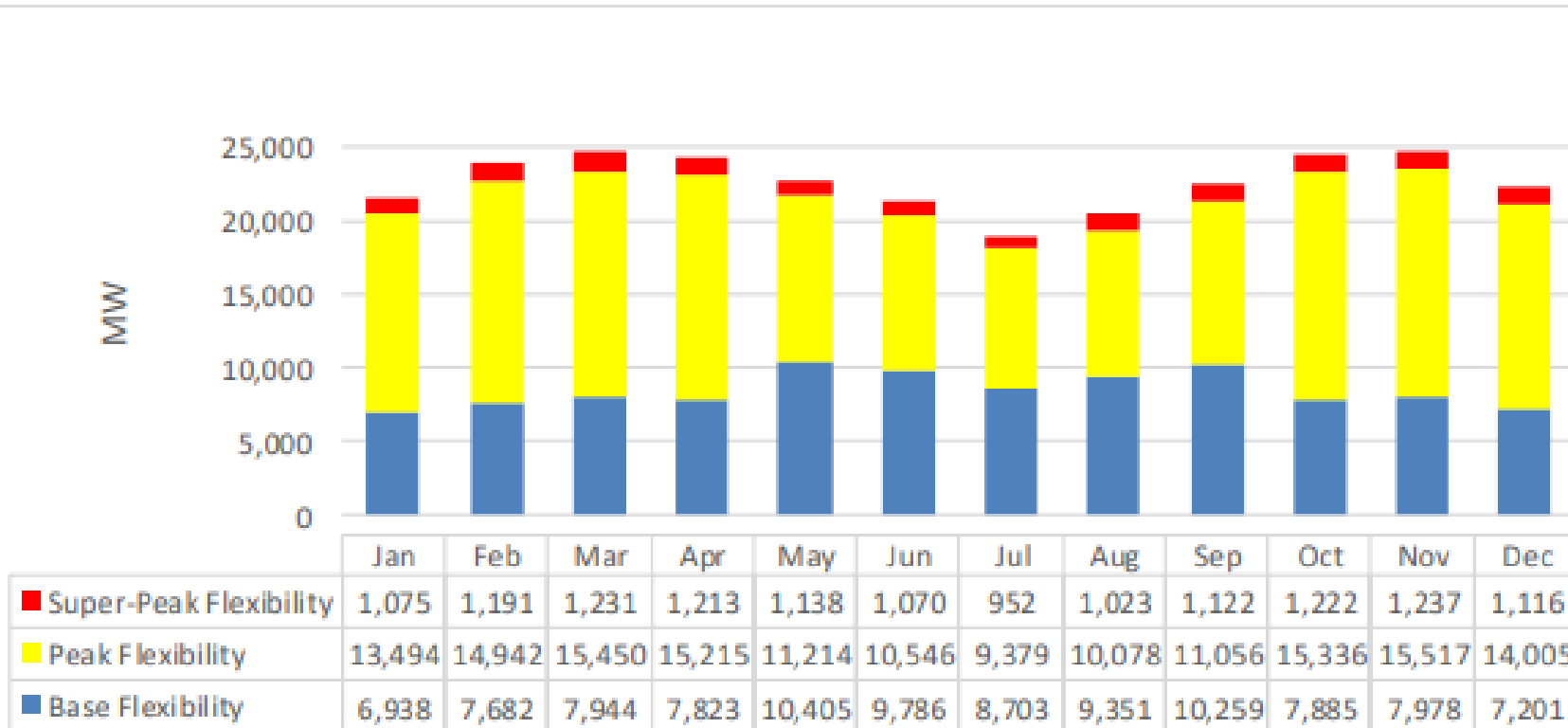
- Flexible Resource Adequacy Must Offer Obligation (FRACMOO)
- 3 categories: base, peak and super-peak
- Different requirements for: hours of availability, number of starts per day, ability to sustain max EFC
- Bid behavior must correspond to category for which resource is contracted, i.e. “must offer obligation”
- Must offer an economic bid into CAISO’s market

# FRACMOO Categories

Parameter	Category 1 (Base Ramping)	Category 2 (Peak Ramping)	Category 3 (Super Peak Ramping)
Day-Ahead and Real-Time Market Economic Bid Must-Offer Obligation	5 am – 10 pm	5 hour block (determined seasonally)	5 hour block (determined seasonally)
Energy Requirement	Minimum 6 hours at EFC	Minimum 3 hours at EFC	Minimum 3 hours at ERC
Daily Availability	7 days/week	7 days/week	Non-holiday weekdays
Daily Start-Up Capability	2 starts per day with caveats related to operational limits	At least 1 start per day	At least 1 start per day

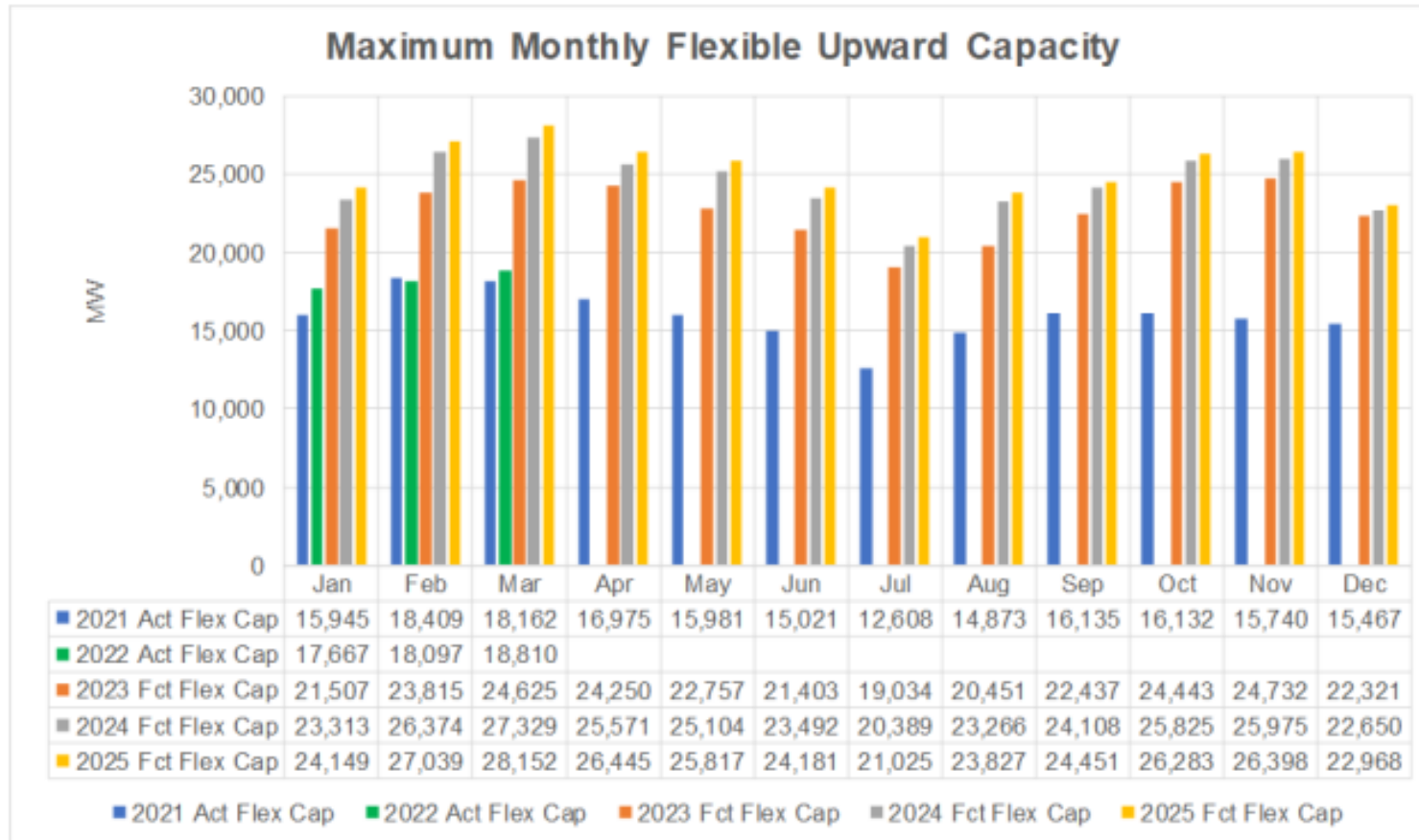
# 2023 Flexible Capacity Requirements by Category

**Figure 10: System-wide Flexible Capacity Need in Each Category for 2023 –Adjusted**



# Forecasted Flexible Requirements

**Figure 5: The ISO Monthly Maximum Three-Hour Flexible Capacity Requirements**



# Arguments in Favor of Removing the Flexible Capacity Requirement

- Administratively complex, in an increasingly complex regulatory regime
- Sufficient flexible resources on the system and this regime does not appear to be required to retain or build new flexible capacity resources
- Does not appear to incent flexibility as flexible capacity prices do not appear to be higher than system capacity prices
- May not be necessary to incent economic bidding , based on analysis that shows substantially more resource shown than required
- RAIM penalties are not sufficiently high to incent behavior and/or penalties and incentives over the years are modest compared to overall payments, calling into question their benefit (set at a level of ~50 percent of the CPM)
- CAISO has proposed an imbalance reserve product that would pay for the real-time must offer obligation and, therefore, flexible capacity requirements would be duplicative



# Types of Flexible Capacity Resources (2023 Draft Effective Flexible Capacity List)

Resource	Sept. EFC (MW)
Natural Gas or Distillate	23,548
LESR	5,469
Hydro	4,395
Geothermal	724
Coal	372
Biomass/Biogas/Other	384
<b>Total</b>	<b>34,892</b>

Category	Sept. EFC (MW)
1	31,454
2	1,491
3	1,947
<b>Total</b>	<b>34,892</b>

# Flexible Capacity Prices

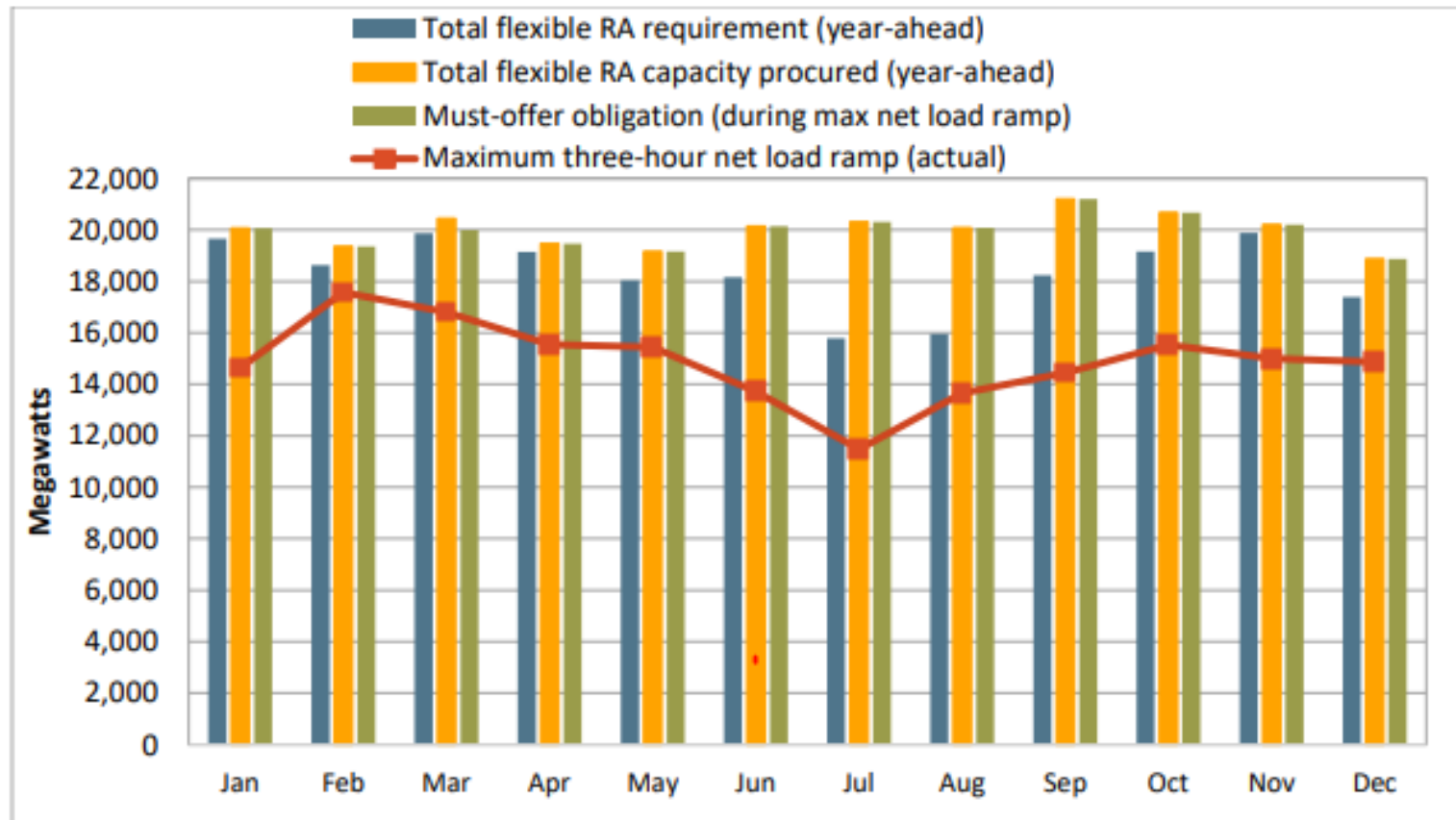
**Table 11. Aggregated Non-Local RA Contract Prices Excluding Imports, 2020**

	Flexible Capacity	Non-Flexible Capacity	All CAISO System
<b>Contracted Capacity (MW)</b>	24,244	35,949	60,193
<b>Percentage of Total Capacity in Data Set</b>	100%	100%	100%
<b>Weighted Average Price (\$/kW-month)</b>	\$4.65	\$4.81	\$4.75
<b>Average Price (\$/kW-month)</b>	\$4.94	\$5.45	\$5.32
<b>85% of MW at or below (\$/kW-month)</b>	\$6.75	\$7.50	\$7.05

*Source: 2020 price data submitted by LSEs.*

# Flexible Capacity Procured Exceeded Requirement in All Months

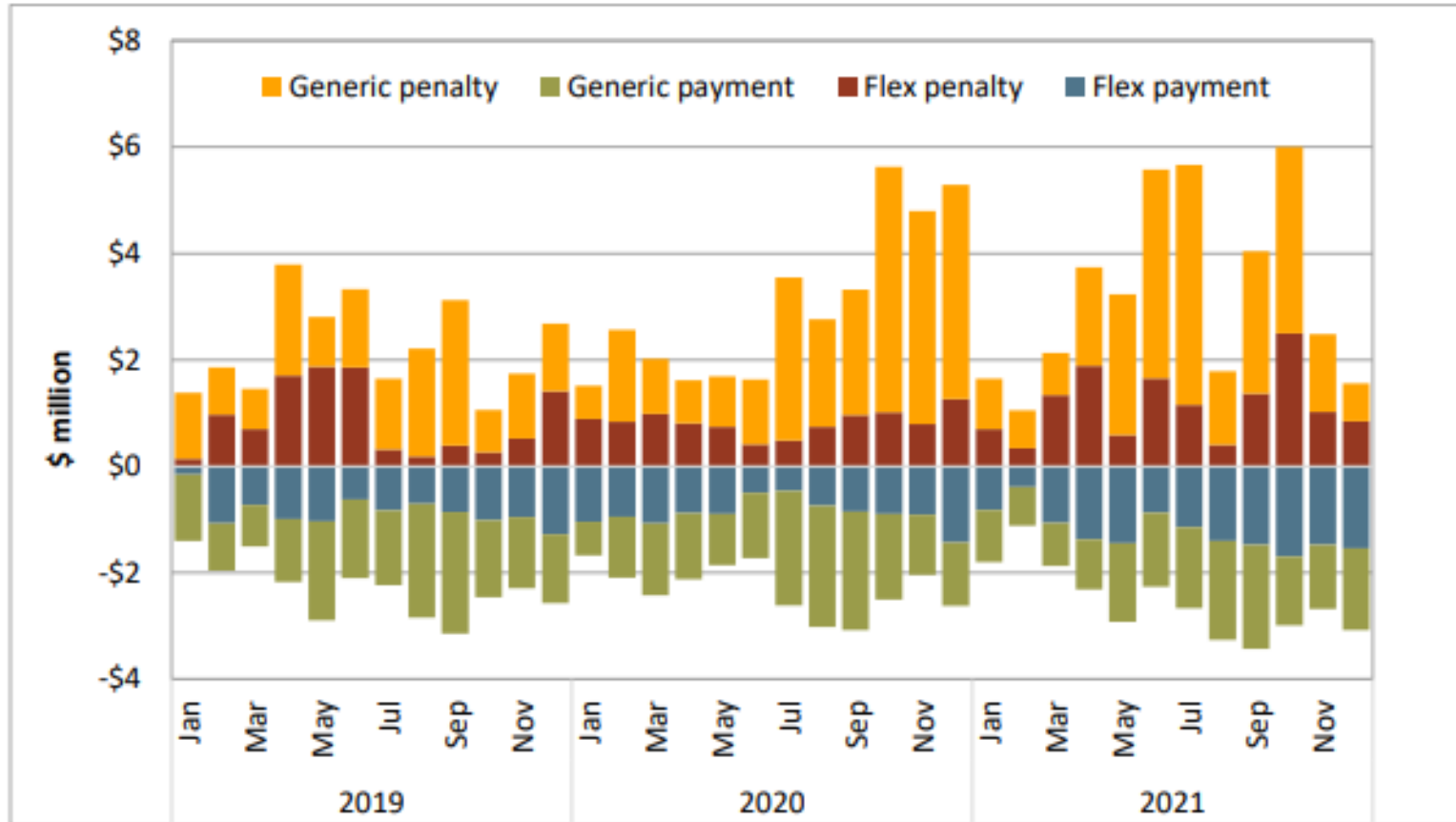
Figure 9.4 Flexible resource adequacy procurement during the maximum net load ramp



Source: 2021 CAISO Annual Report

# 2021 RAAIM Penalties

Figure 9.5 Monthly RAAIM penalties and payments



Source: 2021 CAISO Annual Report

# Arguments Against Removing the Flexible Capacity Requirement

- Lose must offer and RAIM penalties for the 17 hour, 7 day/week period
- If the CPUC eliminated the requirement and the CAISO did not, this could create additional confusion
  - CAISO has tariff authority to allocate to load serving entities
  - CAISO uses a different allocation methodology than the CPUC's load ratio share method
  - Backstop costs could be duplicative, if CAISO backstops flexible capacity that is already under contract for system or local resource adequacy

# CAISO Tariff Provisions

- 40.10.5.1. Submission

**Submission Requirement.** A Scheduling Coordinator must submit annual and monthly LSE Flexible RA Capacity Plans for each Load Serving Entity it represents.

- 40.10.5.3.a.1- Requirements

If the Local Regulatory Authority has not established its own flexible capacity procurement requirements, the CAISO will validate the annual and monthly LSE Flexible RA Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities, and will use the Effective Flexible Capacity value for each resource calculated under Section 40.10.4. The CAISO will determine whether

- 40.10.5.4 – Deficiencies

**Unresolved Deficiency.** If the CAISO issues a notice of deficiency under Section 40.10.5.4(a) and is not advised that the deficiency is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43A.

- 43A – Backstop and Cost Allocation



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Thank you!

# Appendix Slides



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