



California ISO

# Resource Adequacy Modeling and Program Design Working Group

April 29-30, 2024

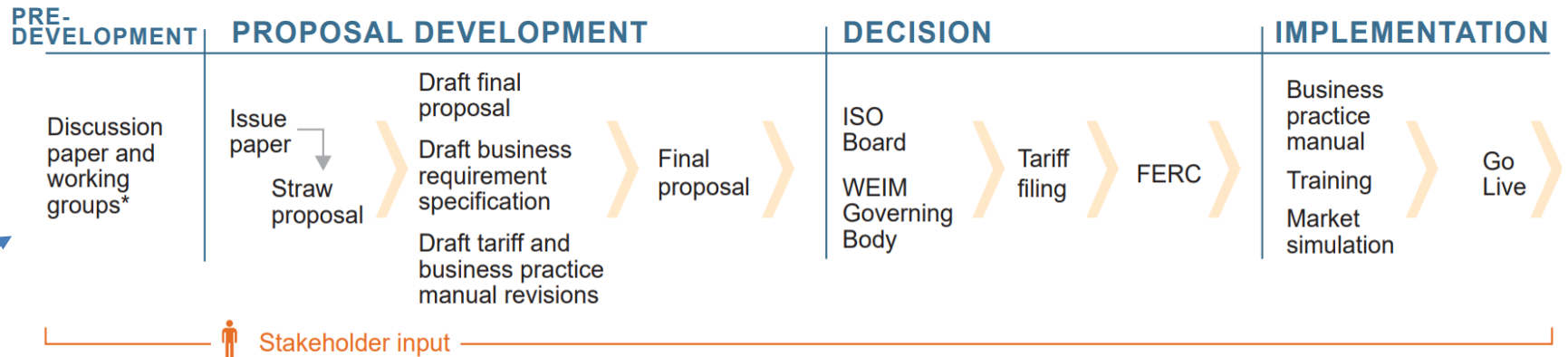
# Housekeeping Reminders

- This call is being recorded for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO's permission.
- These collaborative working groups are intended to stimulate open dialogue and engage different perspectives.
- Please keep comments professional and respectful.

## Instructions for raising your hand to ask a question

- If you are connected to audio through your computer, select the raise hand icon located on the bottom of your screen.
- If you dialed in to the meeting, press #2 to raise your hand.
- Please remember to state your name and affiliation before making your comment.
- You may also send your question via chat to all panelists.

# Working Group in context



*This represents the typical process, and often stages run in parallel. Stakeholder meetings, working groups and workshops may occur throughout the stakeholder process.*

We are here

# DAY 1: BACKSTOP

April 29, 2024

# Agenda – April 29th

Time	Topic	Speaker
10:00 – 10:10 AM	Working Group Intro/Goals	Danielle Powers
10:10 – 12:00 PM	Backstop: Capacity Procurement Mechanism <ul style="list-style-type: none"> <li>- Background</li> <li>- Analysis</li> <li>- Mechanics</li> </ul>	Partha Malvadkar, Anja Gilbert, Abhishek Hundiwale & Abdul Mohammed-Ali
12:00 – 1:00 PM	Lunch	
1:00 – 2:00 PM	Panel: Backstop	Steve Keene (SCE) Eric Little (CalCCA) Partha Malvadkar (CAISO) Mary Neal (AReM) Perry Servedio (CESA) Nuo Tang (MRP)
2:00 – 2:30 PM	Projected EDAM RSE Shortfalls	Danny Johnson & Hilary Staver
2:30 – 2:45 PM	Break	
3:20 – 4:00 PM	Modeling: Path Forward	Aditya Jayam Prabhakar

# WELCOME & GOALS

# RAMPD: Working Group Goals

Stakeholders have the opportunity to present and provide input on key components leading up to proposal development:

## **1. Develop principles/goals**

- Define and illustrate principles for resource adequacy

## **2. Form initial problem statements**

- Form problem statements reflecting stakeholder concerns

## **3. Align on priorities and establish meeting cadence**

- Balance staff & stakeholder bandwidth

## **4. Refine problem statements**

- Explore current ISO operations, functionality, processes meant to address problem statements
- Develop methodology for analysis, define data needs

## **5. Determine action items**

- Provide a bridge between working groups and proposal development



# RAMPD: Meeting Goals

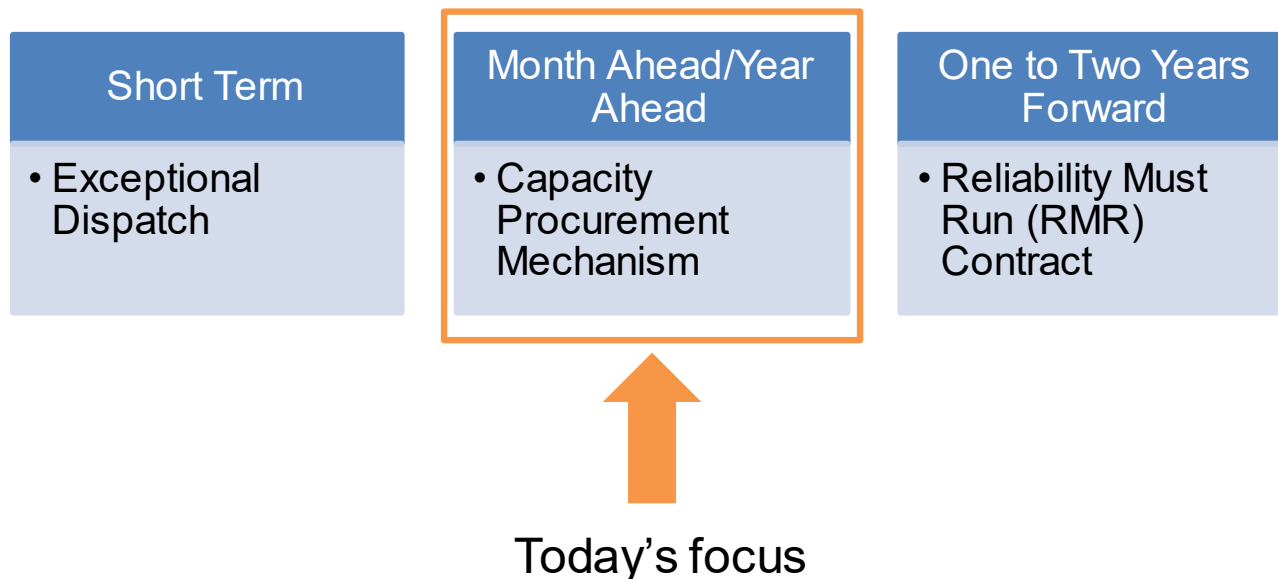
- 1. *Welcome***
- 2. *Align on backstop processes, analysis, and mechanics***
- 3. *Hear stakeholder perspectives on backstop***
- 4. *Understand modeling recommendations***

# CAISO PRESENTATION: BACKSTOP

# BACKGROUND

# Backstop

- Backstop is a key element of CAISO's resource adequacy processes working in harmonization with LRA resource adequacy programs to provide specific safeguards if shown RA is not enough to keep the system reliable
- Temporal aspects



# Capacity Procurement Mechanism (CPM)

- The ISO's capacity procurement mechanism was designed to ensure that the ISO has sufficient capacity to maintain reliability.
- It is a pay-as-bid competitive solicitation process (CSP) which includes a soft offer cap
  - Note: CAISO's tariff also includes a cost justification option for sellers with higher costs to participate in the CSP

# CPM Fundamentals

- Used by the ISO to address RA deficiencies and potential reliability concerns— often referred to as “backstop” procurement
- CPM resources are obligated to bid into the market and are subject to the RA Availability Incentive Mechanism (RAAIM)
- CPM designations rely on capacity willingly offered to the ISO by scheduling coordinators through annual, monthly and intra-monthly CSPs
- Attributes
  - CPM designations are generally issued after a cure period
  - Shown RA capacity and RMR capacity are not eligible for CPM designations
  - CPMs are offered to exceptional dispatches

# CPM Designation Types<sup>1</sup>

1. Insufficient local capacity area resources shown in an annual or monthly RA plan
2. Collective deficiency in local capacity area resources
3. Insufficient RA resources shown in a load-serving entity's annual or monthly RA plan
4. A CPM significant event
5. A reliability or operational need for an exceptional dispatch CPM
6. A cumulative deficiency in the total flexible RA capacity included in the annual or monthly flexible RA capacity plans, or in a flexible capacity category in the monthly flexible RA capacity plans

<sup>1</sup> ISO tariff section 43A.2

# Competitive Solicitation Process (CSP)

- CPM designations rely on capacity willingly offered to the ISO by scheduling coordinators through annual, monthly and intra-monthly competitive solicitation processes (CSPs)
- In CSPs, scheduling coordinators may offer their capacity to the ISO at prices up to a soft offer cap, set at \$7.34/kW-month<sup>2</sup>
  - The soft offer cap serves as both a safe harbor for resources providing offers as well as a way to mitigate potential market power
  - The soft offer cap is designed to be high enough to cover going-forward fixed costs
- Offers above the soft offer cap must be cost-justified at FERC to recover up to a resource-specific cost of service rate<sup>3</sup>

<sup>2</sup> On April 25, 2024 FERC approved CAISO's increase to the CPM soft offer cap from \$6.31/kw-month to \$7.34/kw-month. This will be implemented June, 2024.

<sup>3</sup> ISO tariff section 43A.4.1.1.1



# CSP Soft Offer Cap Uses

1. Cap for the CSP offers
2. RA Availability Incentive Mechanism (RAAIM) Price
  - The RAAIM price shall be 60 percent of the CPM Soft Offer Cap Price<sup>4</sup>

<sup>4</sup>ISO tariff section 40.9.6.1

# Stakeholder Suggestions in the RA Working Group

## **Backstop:**

- MRP: If modeling results do not meet a 0.1 LOLE, backstop to procure capacity to meet a 0.1 LOLE (opposed by Six Cities)
- Cal CCA, MRP, Six Cities, SCE, WPTF: Transparency and clarity on backstop decision making
- PGP: Non-RA shouldn't be monitored for backstop

## **Backstop and Modeling:**

- Cal CCA: Modeling should help minimize backstop
- PG&E: Concerned how modeling results will be used and could lead to backstop procurement and cost allocation

## **DR and Backstop Cost Allocation:**

- Cal CCA: Either update backstop cost allocation rules to consider “credited resources” or have the CPUC update their rules so that credited resources are shown on the supply plan
- AReM: Reconsider backstop cost allocation to consider credited DR

# Stakeholder Requests for broader CPM reform from the CPM Enhancements Proposal

1. Explore changes to the derivation and/or structure of the soft offer cap;
2. Change the FERC formula rate for a cost recovery filing above the soft offer cap as detailed in ISO tariff section 43A.4.1.1.1;
3. Make CPM designations mandatory instead of discretionary;
4. Issue CPM designations if ISO load-serving entities, collectively or individually, do not procure sufficient capacity to satisfy RA needs in all hours of the day, once the CPUC transitions to slice of day.

## CAISO's Prior Suggestion: Monthly Portfolio Deficiency Test (Not a Current Proposal)

- A stochastic production simulation tool which would have assessed how likely the shown monthly RA fleet supports grid reliability
- The thinking at the time was that a stochastic approach offered the best opportunity to assess the widest array of load, wind, and solar profiles and historic outage profiles
- Assesed if, with the shown RA fleet, the ISO could:
  - Serve forecasted gross and net-load peaks
  - Maintain adequate reserves and load following capability in that relevant RA compliance month
- Applied at the system level on monthly RA showings

# Challenges with the Monthly Portfolio Deficiency Test

- Stochastic production simulation provides a distribution of potential outcomes and probabilities, not yes-no
  - There are clear yes-no answers regarding the adequacy of the portfolio of resources when using an “RA accounting” or deterministic production simulation
- The goal was to establish the data needed to build the framework to determine
  - The adequacy of a given portfolio and
  - How much additional capacity may be needed if the fleet is determined to be inadequate

# Update

- CPM Track 1 – status
- CPM Track 2 – FERC accepted on 4/25/24

# MECHANICS & ANALYSIS

# CPM Designation Process

Identify reliability need that could be met by CPM

Examples: RA deficiency, significant event, exceptional dispatch



Identify minimum criteria to meet that need

Consider non-RA

Consider expected system conditions compared to RA assumptions



Identify resources with CSP offers

Assess if or which CSP offers can meet that need



If there are neither CSP offers nor unoffered capacity that can meet that need, CAISO can:

Offer designations to other capacity at soft offer cap

Lower minimum criteria and start over



If there is a CPM

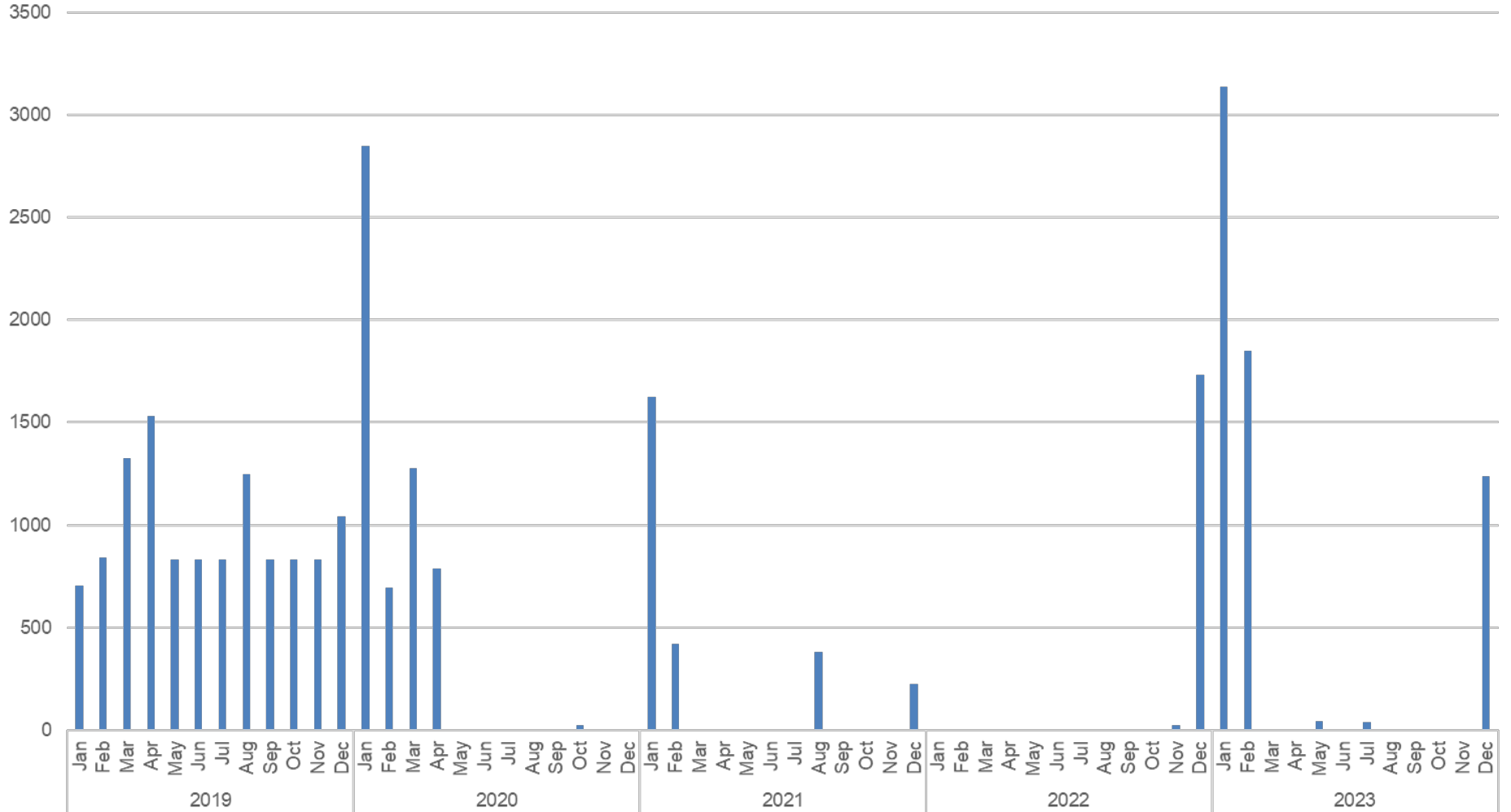
The ISO posts a designation report in accordance with tariff section 43A.6.2. The report will be available on [the ISO website](#) under the *Capacity procurement mechanism* heading



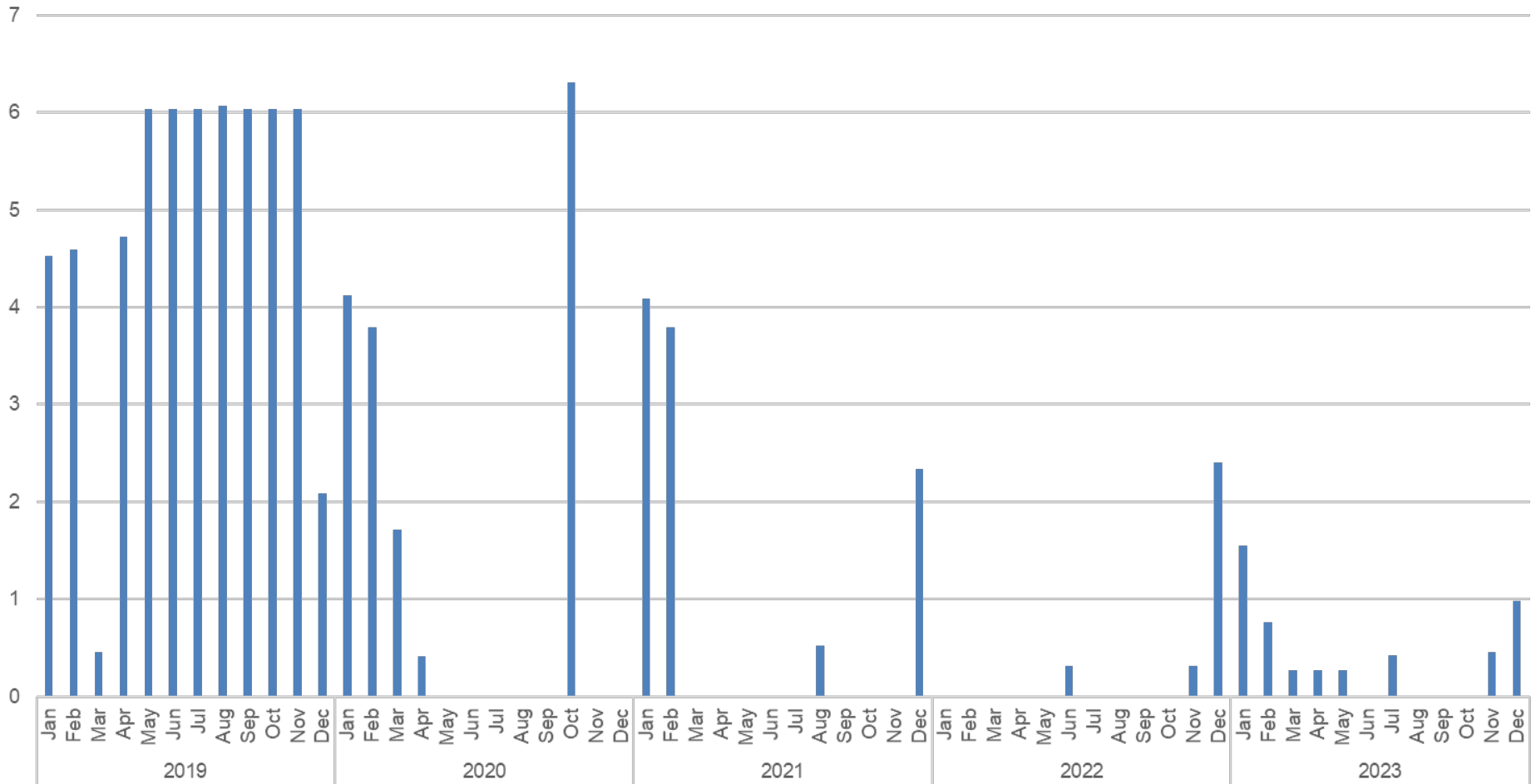
# CPM Designation Challenges

- For CPM decision making the ISO currently has access to the RA capacity shown and CSP offers
- Issues that raise uncertainty with the ISO's CPM decisions include
  - A lack of visibility into the non-RA internal fleet.
  - The ISO requires greater visibility for CPM decision making into:
    - What is “unshown” = (NQC – shown RA)
    - What is not contracted as RA
    - Resource contracting arrangements and decision making on if they would accept a CPM
  - Lack of clarity on what can be counted on and operationalized for credited RA

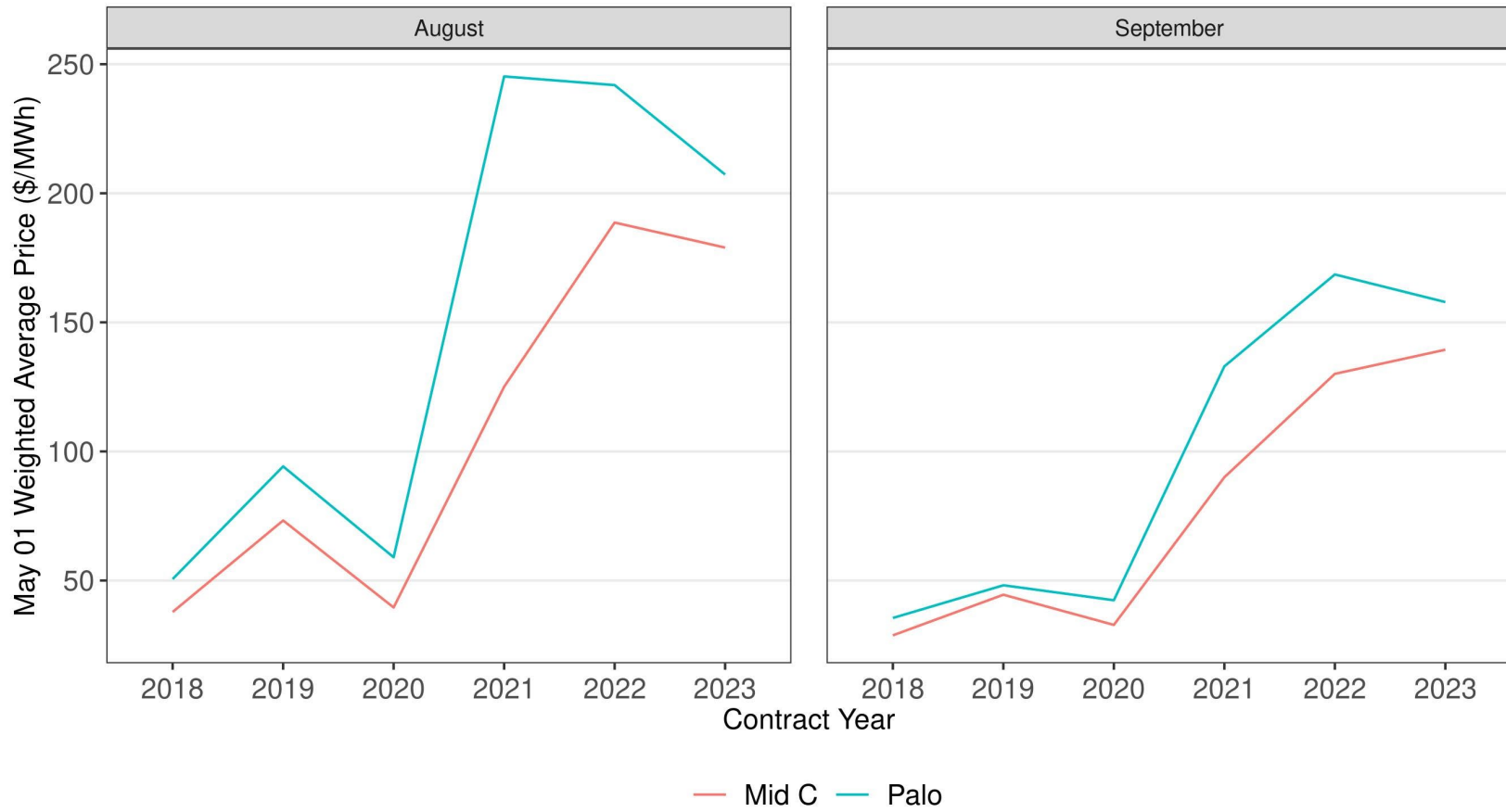
# CSP Offers by MW (Past Five Years)



# CSP Offers by Average Price (Past Five Years)



# Prices at major hubs external to the ISO increased after 2020.



# LUNCH

# PANEL: BACKSTOP

## Panel – Backstop

- Mary Neal (AReM)
- Eric Little (Cal CCA)
- Perry Servedio (CESA)
- Nuo Tang (MRP)
- Steve Keene (SCE)
- Partha Malvadkar (CAISO)



California ISO

# Projected EDAM RSE Shortfalls



## The EDAM RSE tests a BA's ability to meet its forecasted demand, uncertainty, and ancillary service requirements

- The EDAM RSE is a market run using all the same inputs as the financially binding IFM
  - The EDAM RSE does not enforce transmission limits
  - Advisory runs available between 6-10 am
- The evaluation accounts for demand response and emergency supply that is planned for next day use
- The EDAM RSE design incents entities to come to the market with sufficient forward procured supply.
  - Failure results in surcharge that is indexed to bilateral prices multiplied by a scaler

## The CAISO proposes to utilize its existing exceptional dispatch authority to address potential capacity shortages identified by the RSE

- A significant projected EDAM RSE shortfall signifies that the CAISO BA does not have sufficient resources to meet its expected demand forecast, ancillary service and imbalance reserve requirement
- System operator action to obtain additional capacity is consistent with good utility practice should a BA determine through analysis insufficiency forward procured supply to meet projected needs
  - The EDAM RSE result is an additional tool that reveals next day reliability issues before the day-ahead market
  - Operator actions to exceptionally dispatch consistent with addressing reliability concerns and avoiding system emergency

The CAISO BA will account for both all available forward contracted, bid-in, and emergency supply prior to taking manual action

- The EDAM RSE is designed to count all available bids
  - The CAISO BA process is designed to ensure all RA resources regardless of a must-offer-obligation are accounted for; including RDRR
- Strategic reliability reserves that participate in the day-ahead time frame will be accounted for prior to operator action
- Exceptional dispatch will consider cost minimization both in:
  - Consideration of resource
  - Consideration of shortfall quantity

Aditya Jayam Prabhakar, CAISO

# MODELING: PATHWAY FORWARD

# RA modeling will focus around three time horizons to answer specific questions

Timeframe	Question	Sufficiency Analysis of:	What are we looking for?
Year Ahead	Are the year ahead RA showings adequate?	RA Showings	Does the ISO BAA have a MW shortfall or excess?  Determine default PRM and counting rules.
Years 2-4	Is the current level of authorized procurement and contracted capacity sufficient?	Existing capacity plus authorized procurement	Do we have enough collectively and who needs to bring more?
Years 5-10	Is the LT plan producing resource adequate portfolios to meet reliability targets?	Resource plans by consolidating LSE IRPs	To determine if the ISO BAA has sufficient resources for years 5 to 10.

# Survey

- Thank you for attending the 4/23 RAMPD WG meeting
- Responses should be submitted through the CAISO Customer Inquiry, Dispute and Information system ([CIDI](#))
- Direct questions to Sam Hawkes: [shawkes@caiso.com](mailto:shawkes@caiso.com)
- Survey due by May 31, 2024

## Next steps include additional engagement with stakeholders periodically on RA modeling topics

- After CAISO receives the survey responses, we will compile all LSE responses and present aggregated survey responses
- More sessions will discuss:
  - Inputs and assumptions,
  - Methodology,
  - Models,
  - Outputs,
  - UCAP development, and
  - Default counting rules and PRM

# DAY 2: PATH FORWARD

April 30, 2024



# Agenda – April 30th

Time	Topic	Speaker
9:00 – 9:10 AM	Welcome and Goals for the Day	Danielle Powers
9:10 – 10:10 AM	Where We've Been <ul style="list-style-type: none"> <li>- Comments from 3/13 meeting</li> <li>- Takeaways from 4/29 meeting</li> </ul>	Danielle Powers
10:10 – 11:10 AM	Pathway Forward: Modeling <ul style="list-style-type: none"> <li>- Survey</li> <li>- Modeling Pathway Forward</li> <li>- Tie in with Default PRM and Default Counting</li> </ul>	Danielle Powers Modeling Director: Aditya Jayam Prabhakar Policy Lead: Anja Gilbert
11:10-12:00	Pathway Forward: Outage Substitution and Availability and Performance Incentives	Danielle Powers Policy Lead: Ansel Lundberg
12:00 – 1:00 PM	Lunch	
1:00 – 1:45 PM	Pathway Forward: Backstop: Visibility and Reform	Danielle Powers Policy Lead: Hilary Staver
1:45 – 2:30 PM	Pathway Forward: EDAM RSE: DA Sufficiency	Danielle Powers Policy Lead: Hilary Staver
2:30 – 3:00 PM	Pathway Forward: Remaining RA Topics for Future Working Group <ul style="list-style-type: none"> <li>- Flex RA</li> <li>- Energy Sufficiency</li> <li>- Deliverability</li> </ul>	Danielle Powers Partha Malvadkar
3:00 – 3:45 PM	Pathway Forward: Stakeholder Suggestions	Danielle Powers & Working Group
3:45 – 4:00 PM	Closing Remarks	Partha Malvadkar

# Meeting Goals

## **1. Welcome**

## **2. Where We've Been**

- Discuss comments from the 3/13 meeting
- Key takeaways from the 4/29 meeting

## **3. Pathway Forward – Problem Statement 1**

- Modeling
- Default PRM
- Default Counting
- UCAP
- Ambient Derates

## **4. Pathway Forward – Problem Statement 2**

- Outage Substitution
- Availability and Performance Incentives

## **5. Pathway Forward – Backstop: Visibility and Reform**

## **6. Pathway Forward – EDAM RSE: DA Sufficiency**

## **7. Pathway Forward – Remaining RA Topics for Future Work Group**

- Flex RA
- Energy Sufficiency
- Deliverability

## **8. Pathway Forward – Remaining RA Topics for Future Work Group**

# Participant Comments from the March 13<sup>th</sup> Meeting – Outage Substitution

## Comments

- Should (1) seek solutions that incentivize taking planned outages at times that minimize impact on system reliability and substitute capacity is more readily available, and (2) allow the availability of substitute capacity to be more easily known by generators who seek it
- Need to focus on complexity and costs of procurement instead of capacity availability
- Consider the roll-back of the POSO rules
- CAISO should enhance its analysis to better assess the reliability implications of forced outages lacking replacement capacity
  - Quantify the magnitude of forced outages in MW
  - Categorize forced outages based on the nature of work
  - Identify outages as RAAIM exempt and penalized amounts
  - Determine the MW capacity of forced outages originally designated as planned outages.
- Not opposed to enhancing the reporting requirements for forced outages to include additional information on the nature of the required repairs - further details on implementation will be needed
- Prioritize adopting a unforced capacity (UCAP) counting methodology. The interactions between planned outages and forced outages require a comprehensive solution that creates the proper incentives to conduct maintenance when necessary and be available when needed to support system reliability

# Participant Comments from the March 13<sup>th</sup> Meeting – Outage Substitution

## Comments

- If planned outage to forced outage conversion is taking place, there may be a need to find out the incentive to do so.
- Consider simplifying substitution rules and to allow less than a whole day substitution during the hours when CAISO needs them most (during tighter reserve margin hours)
- Planned to forced outage limitations imposed by CAISO do not adequately address scenarios involving urgent outages required to address vital maintenance needs that would help keep a plant online in future critical periods
- Suggests creating Planned Advanced Notice Forced RA Outages and “Planned Medium Notice Opportunity RA Outages” whereby SCs could submit requests between T-30 and T-7 days for discretionary outages limited to five days or less in duration without a substitution obligation
- Supports a broad reassessment of outage and substitution obligations and mechanisms for RA showings
- CAISO should help generators to procure substitute capacity for planned and forced outages
- Need to carefully consider the impacts of deferring forced outages
- Focus on providing the right incentives for resources to conduct planned maintenance when they are not providing RA capacity or when substitute capacity is readily available
- Should be broadly focused on identifying solutions to current procurement challenges, which include unprecedented increases in the price for RA capacity and resource scarcity

# Path Forward: Modeling (Problem Statement 1)

- **Feedback**

- General support for moving modeling (LOLE) to the policy development phase

- **Revised Problem Statement 1: Overall Reliability Information**

- Current processes and procedures do not provide sufficient visibility into the generation fleet to enable CAISO to ensure system reliability. There is a need for additional consistent, transparent, and timely information on the sufficiency of the RA fleet in the CAISO Balancing Authority Area (BAA).
- Without this, there are challenges in:
  - Assessing and communicating the system-wide sufficiency of the CAISO BAA in light of the contracted RA fleet.
  - Anticipating the amount of RA imports the CAISO can expect and the amount of RA-eligible resources within CAISO that will be contracted to entities outside the state.
  - Addressing such concerns around CAISO BAA system-wide RA sufficiency in a timely and efficient manner.

# Path Forward: Modeling (Problem Statement 1)

## **Proposed Edits to Sub issues:**

- **RA Portfolio Evaluation:** A comprehensive evaluation of the sufficiency of the current or expected CAISO BAA RA portfolio in forward time frames (e.g., monthly, yearly, multi-year) does not exist today. Such an assessment would provide the ISO and stakeholders an understanding of the overall CAISO BAA level of system-wide reliability, LRA contributions to overall system reliability, and the implications of a growing diverse resource fleet.
- **Non-RA Visibility:** The CAISO has limited visibility into resources not shown as RA.

# Path Forward: Modeling (Problem Statement 1) cont.

- Updating the CAISO's Default Planning Reserve Margin and Default Counting Rules: The CAISO's default PRM should be assessed in light of changes in the resource mix used to supply RA capacity and evolving reliability needs within the CAISO BAA. The ISO's default PRM and default counting rules should meet a 0.1 LOLE at the ISO BAA level.
- The availability of resources based on varying seasonal ambient derates is not consistently reflected in resource NQCs today which creates challenges in reliability operating the grid.
- Resource Accreditation: The stakeholder initiative should evaluate if and the extent to which current LRA established PRMs and counting rules reflect forced outage rates and performance and availability. In response to potentially light-of changing regulatory structures at the CPUC (including the scoping of UCAP), the ISO has an opportunity to consider establishing alternatives to the current resource counting design and eliminate/redefine availability and performance incentives while acknowledging the authority of local regulatory authorities to establish counting rules.

# Path Forward: Problem Statement 1

- **Survey Feedback**

STAKEHOLDER	SUGGESTED EDITS TO PROBLEM STATEMENT 1
CA CCA	<p>There is a need for additional consistent, transparent, and timely information on the sufficiency of the RA fleet in the CAISO Balancing Authority Area (BAA) <u>and in the non-CAISO WECC.</u></p> <p>Without this, there are challenges in:</p> <ul style="list-style-type: none"> <li>• Accessing and communicating the system-wide sufficiency of the CAISO BAA in light of the contracted RA fleet;</li> <li>• <u>Anticipating the amount of RA imports the CAISO can expect and the amount of RA-eligible resources within CAISO that will be contracted to entities outside the state;</u> and</li> <li>• Addressing such concerns <u>around CAISO BAA system-wide RA sufficiency</u> in a timely and efficient manner.</li> </ul> <p>Sub-Issue – Lack of non-RA Visibility: <u>Lack of Non-RA Visibility, where non-RA is defined as RA-eligible resources not shown on a supply plan and not available to the CAISO BAA for its use in meeting RA or CPM needs (e.g., supply contracted outside the state, supply held back for substitution, etc.)</u></p>
Middle River Power	<p>Proposes an additional Problem Statement ("0"): <u>There is a need for the CAISO to ensure the collective ability of the RA programs within its footprint meet the 0.1 LOLE metric. If the RA programs within the CAISO footprint do not meet this metric, then the CAISO shall engage in backstop procurement, regardless of whether the shown RA fleet is sufficient to meet the LSE requirements.</u></p> <p><u>Sub-issue: There is a need for additional information regarding the sufficiency of the LRA RA programs to meet 0.1 LOLE.</u></p>
PG&E	<p><u>Current processes and procedures do not provide sufficient visibility into the generation fleet to enable CAISO to ensure system reliability.</u></p>



# Path Forward: Problem Statement 1

- **Survey Feedback**

<p>Six Cities</p>	<ul style="list-style-type: none"> <li>• Sub-issue - Updating the CAISO's Default Planning Reserve Margin: The CAISO's default PRM <del>is outdated and has not kept pace with</del> <u>should be assessed in light of</u> changes in the <del>RA landscape resource mix used to supply RA capacity and evolving</del> <u>reliability needs within the CAISO BAA.</u></li> <li>• Sub-issue - Updating the CAISO's Default Counting Rules: The CAISO's default counting rules <del>have not kept pace with</del> <u>should be reassessed in light of</u> changes in the <del>RA resource mix used to supply RA capacity and evolving</del> <u>reliability needs within the CAISO BAA.</u></li> <li>• Sub-issue: The ISO's default PRM and default counting rules <u>should be based on planning standards that provide an adequate level of reliability within the ISO BAA meet a 0.1 LOLE at the ISO BAA level.</u></li> </ul>
<p>WAPA</p>	<p><u>Problem Statement 1: The primary problem is RA capacity shortage and high RA prices. To reduce net RA capacity demand and increase effective RA capacity supply in the operational timeframe, several sub (or means) problems can be addressed by CAISO market design without encroaching LRA's jurisdictional authority:</u></p> <p><u>a. Refine the CAISO's local RA requirements according to the month of the year and the time of the day, instead of applying August peak load to all other months of the year.</u></p> <p><u>b. Consider all available capacity in assessing operational needs and backstop procurement in the operational time frame regardless of whether such capacity is labeled as RA or not according to rules of the LRAs.</u></p> <p><u>c. Hold LRAs responsible for bringing sufficient operational capacity to the CAISO (EDAM) by validating and settling the shortage penalties associated with Resource Sufficiency at LRA or LSE level.</u></p> <p><u>d. Recognize use limited (e.g., energy limited) resource in the EDAM footprint in assessing RA capacity and operational capacity eligibility and requirements.</u></p> <p><u>e. Enhance or overhaul the CAISO's CIRA system to allow all LRAs to show RA capacity to the CAISO according to the LRA's RA plans to improve transparency and CAISO's visibility."</u></p>

# Path Forward: Modeling (Problem Statement 1)

- **Interdependencies**

- Default PRM – LOLE studies and PRM are interdependent.
- Default Counting – Capacity used in conducting LOLE studies and PRM is based on how these resources are “counted”.
- UCAP – UCAP methodology for use in default counting, will be interdependent with outage substitution and RAAIM. UCAP could create incentives for planned outages and sufficient incentives to be available, allowing for the potential modification or elimination of RAAIM.
- Ambient Seasonal Temperature Derates – Accurately account for capacity available to meet system reliability needs, could have interdependencies with UCAP.

# LUNCH

# Path Forward: Outage Substitution and Availability and Performance Incentives (Problem Statement 2, Sub Issues)

- **Feedback**

- General support for both of these sub-issues to the policy development phase

- **Revised Proposed Problem Statement 2: Sub Issues: Planned Outage**

- The ISO's existing outage substitution mechanisms should be reassessed as both initial analysis and working group feedback indicate that the current processes and procedures likely result in:
  1. Inefficiencies as multiple SCs holdback capacity for outage substitution for a partial month outage;
  2. Artificial tightness in the RA bilateral market due to holding back capacity;
  3. Potential maintenance delays if substitute capacity is not available; and
  4. Higher forced outage rates as planned outage unable to be scheduled turn into forced outages.

# Path Forward: Outage Substitution and Availability and Performance Incentives (Problem Statement 2)

- **Revised Proposed Problem Statement 2: Sub Issues: RAAIM**

- Availability and Performance Incentives and Penalties: In light of a tight RA market, high RA prices and market incentives, the current CAISO mechanism for incentivizing capacity to be available, the Resource Adequacy Availability Incentive Mechanism (RAAIM) may be insufficient. For example, RAAIM is applied only to a fraction of the RA fleet, the current deadband does not provide an incentive to be available, and the monthly netting process and carry-forward provisions both mute incentives. In some cases this can result in incentivizing less reliable generation to be contracted, discouraging showing of all RA resources, not reflect/incentivize real time performance/availability and/or actions to increase availability particularly during critical periods. Additionally, it creates operational backstop challenges for the ISO resulting in reliability risks.
- RAAIM should be assessed to see if it is meeting its intended objectives, if its objectives should be revisited, or if a new mechanism is needed to incent availability and/or performance. The need for either RAAIM reform or RAAIM elimination as well as any exploration of a new availability and performance mechanism should be done in concert/consideration of any counting rule changes to encourage all RA-eligible resources to be shown.

# Path Forward: Outage Substitution and Availability and Performance Incentives (Problem Statement 2)

- **Survey Feedback**

STAKEHOLDER	SUGGESTED EDITS TO PROBLEM STATEMENT 2
CPUC – Public Advocates	<ul style="list-style-type: none"> <li>• Sub-issue – Planned Outage Substitution: Current rules requiring substitute capacity for all planned outages on RA capacity were designed assuming there was excess capacity available at commercially reasonable prices and may require revisiting. <u>Disallowing a planned outage due to a failure to procure substitution</u> risks the health of the resource if this results in potential delays in performing maintenance. In addition, current substitution rules for planned outages may be overly burdensome.</li> </ul>
Middle River Power	<ul style="list-style-type: none"> <li>• Sub-issue – Planned Outage Substitution: Current rules requiring substitute capacity for all planned outages on RA capacity were designed assuming there was excess capacity require revisiting. <u>Substitute capacity is different than RA compliance capacity because substitute capacity may not be needed for all days of the month. The bilateral market mechanism does not transact substitute capacity efficiently. As a result, today generator owners taking planned outages often cannot find substitute capacity substitution which risks the health of the resource if this results in potential delays in performing maintenance or exposes the generator owner to enforcement action if the generator owner, acting in their best judgment, takes a forced outage to perform the needed maintenance.</u> In addition, current substitution rules for planned outages may be overly burdensome.</li> <li>• Sub-issue – Availability and Performance Incentives: In light of a tight RA market, high RA prices, and market incentives -- the current CAISO mechanism for incentivizing capacity to be available, the Resource Adequacy Availability Incentive Mechanism (RAAIM), <u>as it is currently applied only to a fraction of the overall RA fleet,</u> may be: insufficient and</li> </ul>

# Path Forward: Outage Substitution and Availability and Performance Incentives (Problem Statement 2)

- **Survey Feedback**

	<p>incentivize less reliable generation to be contracted, discourage showing of all RA resources, not reflect/incentivize real time performance/availability and/or actions to increase availability particularly during critical periods. Additionally, it creates operational backstop challenges for the ISO resulting in reliability risks.</p>
<p>Six Cities</p>	<ul style="list-style-type: none"> <li>• Sub-issue – Current Requirements for RA Capacity: <u>The stakeholder initiative should evaluate if and the extent to which Current PRMs and counting rules may not accurately reflect forced outage rates or and resource performance and availability which has the potential to result in a less efficient system. In light of response to potentially changing regulatory structures at the CPUC (including the scoping of UCAP), the ISO has an opportunity to consider establishing partner with the CPUC, other LRAs and stakeholders to create a more effective alternatives to the current resource counting design and eliminate/redefine availability and performance incentives, while acknowledging the authority of local regulatory authorities to establish counting rules.</u></li> <li>• Sub-issue – Availability and Performance Incentives: RAAIM should be assessed to see if it is meeting its intended objectives, if its objectives should be revisited, or if a new mechanism is needed to incent availability and/or performance. The need for either RAAIM reform or RAAIM elimination as well as any exploration of a new availability and performance mechanism should be done in concert/ and in consideration of with any counting rule changes to encourage all RA-eligible resources to be shown. <u>Potential modifications to RAAIM should consider the current RA market, high RA prices, and market incentives.</u></li> </ul>

# Path Forward: Outage Substitution and Availability and Performance Incentives (Problem Statement 2)

- **Interdependencies**

- Coordinated with UCAP, to the extent that UCAP does not fully account for the risks of outages and/or provide a strong enough performance incentive to be available
- Coordinated with backstop measures, to the extent RAIM is retained and informs the CPM soft offer cap price



# Path Forward: Backstop: Visibility and Reform

## Proposed Problem Statements:

1. The ISO lacks visibility into the contract and availability status of resources not shown as RA, preventing the ISO from efficiently and reliably running its current CPM processes
2. Stakeholder feedback is that there is a lack visibility into the ISO's CPM decision making processes.
3. In the current tight RA market, the ISO's Capacity Procurement Mechanism may not be producing all of its intended results particularly given the frequent lack of bids into its Competitive Solicitation Processes.
4. As the reliability needs evolve (e.g. to address changing needs for battery storage) the ISO's CPM process may need to evolve to obtain specific attributes necessary for reliability.

# Path Forward: EDAM RSE – DA Sufficiency

- **Proposed Problem Statements:**

- While CAISO proposes to utilize its existing exceptional dispatch authority to resolve reliability concerns highlighted by cure potential capacity shortages identified by the RSE, stakeholders has expressed concern that:
  - The cost of the Exception Dispatch (including potentially a monthly CPM designation) may be an inefficient tool to resolve these concerns
  - The option to exceptional dispatch resources might not be available during critical periods
  - The cost allocation should be reexamined to align better with cost causation, if feasible

# Path Forward: Remaining RA Topics for Future Working Group

- RA product definitions (e.g., Flex RA, capacity and energy sufficiency, etc.)
- Deliverability
- Interoperability with existing and emerging RA programs

# Pathway Forward: Discussion: Stakeholder Suggestions

Theme	Stakeholder Suggestion
Showings	Six Cities suggested changing the monthly RA showing process to allow different RA values for internal RA resources for different days of the month, while still being subject to the sum of the monthly requirement.
Showings	MRP suggested the ISO move to 100% annual showings.  This was opposed by Six Cities, and Cal Advocates.
Requirements / Showings	Six Cities suggested recognizing load reducing capacity for in-front-of-the-meter battery resources in an LSE's forecasted monthly peak load. This would be based on the 4-hour continuous energy output of the battery.
Requirements / Showings	Six Cities suggested allowing locally developed projects to meet some percent of RA needs without deliverability. These projects would still need to meet MOO and telemetry requirements and could be capped (e.g., 15-20% of RA need, not to exceed load in a given area).
Modeling	CEBA and MRP suggested conducting backcast analysis to see if the ISO has met a 0.1 LOLE
RA Requirements - UCAP	MRP suggested including estimated planned outages into RA requirements and allow CAISO to approve/deny outages based on planned outage buffer.
Resource Accreditation	MRP suggested the ISO should consider unit testing to set QC values

# Pathway Forward: Discussion: Stakeholder Suggestions

Theme	Stakeholder Suggestion
<b>Outage and Availability</b>	<p>BAMx suggested two paths forward for batteries:</p> <ul style="list-style-type: none"> <li>- If technology is not a challenge, either 1.) Develop a RTM 5 min interval look-ahead window beyond the current 65 min or 2.) Run an hourly market multiple times within the delivery day, instead of running a single DAM.</li> <li>- If technology is a challenge, revisit MOO for Flex RA BESS to allow them to economically bid or self schedule consistent with their DAM awards, subject to availability of co-located gen.</li> </ul>
<b>Outage and Substitution</b>	<p>MRP suggested that SCs be able to submit outages and substitutions well in advance and allow for up until T-8 to deny outage if not enough substitution is provided.</p>
<b>Outage and Substitution</b>	<p>Both MRP and the City of Anaheim suggested pools for substitute capacity.</p> <p>The City of Anaheim suggested a voluntary pool of “conditional RA” availability.</p> <p>MRP suggested building a centralized market just for substitution capacity on a daily basis.</p>
<b>Backstop</b>	<p>MRP and Terra Gen suggested the ISO backstop if the ISO has not met a 0.1 LOLE.</p>
<b>Planning</b>	<p>WAPA suggested the ISO explore a capacity market.</p>
<b>Hybrid resources</b>	<p>Terra-Gen suggests the ISO address hybrid resource interaction with the RA MOO, AS, Flex RA, RAAIM, and the use of outage cards and dynamic limits for signaling unavailability to the ISO and operators</p>

# NEXT STEPS

## Next steps

- Please submit written comments on the April 29<sup>th</sup> and 30<sup>th</sup> working group meetings along with your feedback on the RA Working Group Discussion and Draft Recommendations paper by Friday, May 17, 2024, through the ISO's commenting tool using the link on the working group webpage:  
<https://stakeholdercenter.caiso.com/Comments/MyOrgComments>



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<http://www.caiso.com/about/Pages/Blog/default.aspx>.



April 15, 2024  
*Inside the ISO, Markets*

## **Working groups playing key role in policy development**

At the California Independent System Operator, we value the views of stakeholders and take a variety of steps to make sure they are integrated into our market design and transmission planning efforts. Over the past couple of years, we have looked for opportunities to enhance our engagement practices to give them more meaningful input at all ...

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# New Resource Implementation Meeting

We will host a hybrid New Resource Implementation (NRI) stakeholder meeting on May 1, 2024.

If you plan to attend the in person, please [register](#) by end of day April 26, 2024. [Virtual registration form](#)

The final agenda and a presentation will be available prior to the meeting on the [public forums webpage](#).

# New training series: Resource Operations Readiness Training

Training Goal: to prepare customers in advance of summer to meet ISO expectations for successful resource management, especially during tight conditions.

These courses build on concepts shared during the May 1<sup>st</sup> New Resource Implementation meeting.

## Resource Performance Expectations May 7th

- Dispatch/Operating instruction response
- Hybrid resource management
- Outage cards completion
- Flex Alerts/EEA response

## Battery Performance Expectations May 15th

- Resource capabilities
- Correct Nature of Work
- Off-Grid Charging Indicator
- Physical management requirements

## Managing Inertie Transactions May 16th

- Wheel-through concepts
- Export priority
- Tagging expectations
- Flex Alert/EEA

## WEIM Resource Performance Expectations May 22nd

- Assistance Energy Transfer
- Demand Response process for WEIM

Register today at: <https://caiso.regfox.com/resource-operations-readiness-training-series>

Contact [CustomerReadiness@caiso.com](mailto:CustomerReadiness@caiso.com) with questions.



## A new **caiso.com** is coming in late May

Training sessions will be held on  
May 23 from 9:00 a.m. – 10:00 a.m.  
May 29 from 10:00 a.m. – 11:00 a.m.

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