



# RA Enhancements Phase 1 Final Proposal

February 23, 2021

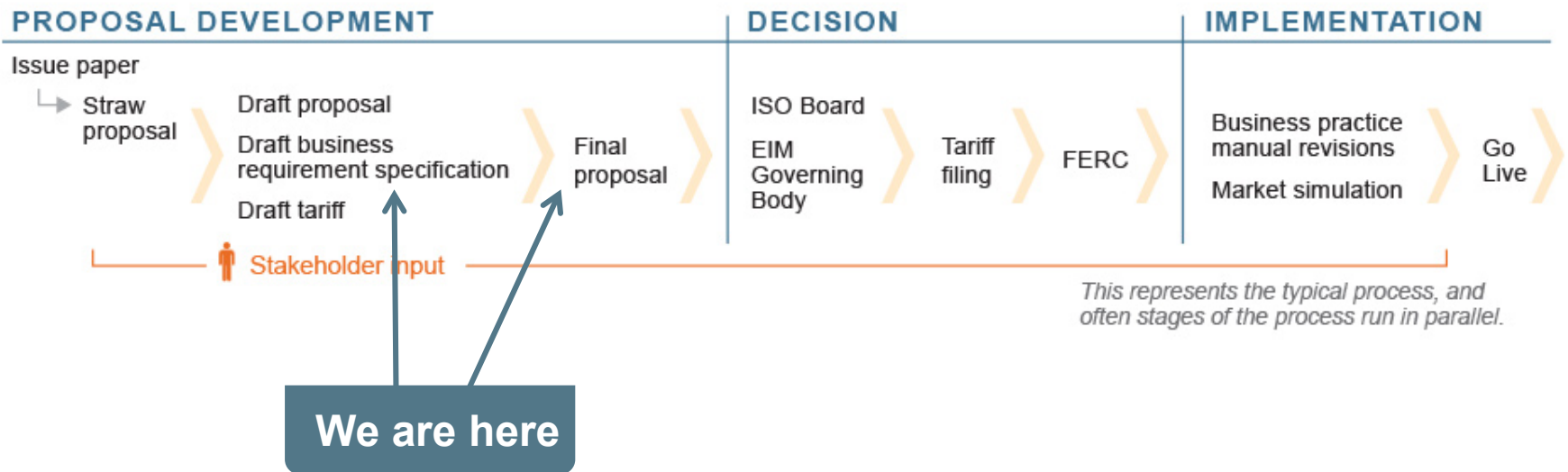
## Reminders

- This call is being recorded for informational and convenience purposes only. Any related transcriptions should not be reprinted without ISO permission.
- Calls are structured to stimulate an honest dialogue and engage different perspectives with the expectation that stakeholders have read the proposal.
- Please keep comments friendly and respectful.
- Questions submitted in advance will be addressed first, followed by those submitted via the WebEx chat feature.
- If time permits, verbal questions/comments will be addressed and time limits may be used to ensure we hear from all stakeholders.
- Please refrain from repeating or reiterating what has already been said so that we can manage the time efficiently

# Agenda

Time	Topic	Presenter
1:00 – 1:10	Welcome and Introduction	Isabella Nicosia
1:10 – 1:50	Planned Outage Process Enhancements	Karl Meeusen
1:50 – 3:20	Operationalizing Storage	Gabe Murtaugh
3:20 – 3:50	Backstop Capacity Procurement	Bridget Sparks
3:50 – 4:00	Next Steps	Isabella Nicosia

# Stakeholder Process



# The CAISO has published a final proposal on phase 1 elements

- **Phase 1**

- March Board of Governors (Final Proposal - Phase 1)
  - Planned outage process enhancements – phase 1 (Summer 2021)
  - Operationalizing storage (Summer 2021)
  - Backstop capacity procurement – CPM for local energy sufficiency (Fall 2021)

- **Phase 2 (Fall 2022 for RA Year 2023)**

- September Board of Governors (Phase 2A – next straw proposal pending)
  - Unforced capacity evaluations
  - Determining system RA requirements
  - System RA showings and sufficiency testing – individual assessments
  - Must offer obligations and bid insertion modifications
  - UCAP for local studies
  - Backstop capacity procurement – CPM modifications and availability penalty structure for RMR resources
  - Planned outage process enhancements – phase 2
  - System RA showings and sufficiency testing - portfolio assessment
  - Flexible resource adequacy
- November Board of Governors (Phase 2B – next straw proposal pending)
  - RA Import requirements

# Resource Adequacy Enhancements Policy Development Schedule

\* Dates are tentative and subject to change

Date	Milestone
Feb 17 2021	Final Proposal – Phase 1
Feb 23 2021	Stakeholder meeting on Final Proposal – Phase 1
Mar 9 2021	Stakeholder comments on Final Proposal
Mar 24 – 25 2021	Present proposal on Phase 1 elements to CAISO Board

# PLANNED OUTAGE PROCESS ENHANCEMENTS

# CAISO proposes a two-phase approach to planned outage substitution

- Phase 1 (summer 2021)
  - All planned outages for RA resources must bring full substitute capacity for the outage to be approved
  - Requested planned outage extensions must be made as a new outage card for extension and will require substitute capacity
  - Very focused and easily implemented for summer 2021
- Phase 2 (RA year 2023)
  - CAISO will continue developing a longer-term proposal for a planned outage resource pool concept
  - CAISO will explore the possibility of allowing planned outages during the summer months, when and if operationally appropriate



# Overarching objectives and principles for planned outage process modifications

- Encourage resources to enter outages early
- Avoid denial of any approved planned outages to the extent possible
- Identify specific replacement requirements for resources requiring replacement
- Include development of a CAISO system for procuring replacement capacity
- Minimize or eliminate the need to require substitute capacity to greatest extent possible

## CAISO has made several modifications and clarifications from the draft final proposal

- CAISO has provided specific responses to stakeholder objections to new POSO requirement
- CAISO has made the additional clarifications:
  - The planned and forced outage definitions are the same as those currently used today;
  - No grandfathering provisions;
  - Substitution is the obligation of the resource SC;
  - Will be required only for the MWs on outage not the whole resources;
  - Substitution must come from specified resource(s) ID(s);
  - Applies to all months, starting Summer 2021, and sunsets once the long-term solution is in place

# Stakeholders generally opposed the CAISO's planned outage substitution requirement

- CPUC staff, Wellhead, and LS Power offered support for the CAISO's two phase process
- Stakeholder objections fell into four general headings:
  1. There is sufficient excess non-RA capacity and substitution is not needed
  2. There is no substitute capacity available
  3. Requiring planned outage substitution incentivizes capacity withholding
  4. The proposal will not incrementally improve reliability

The presence of non-RA capacity or the lack of substitute capacity should not relieve an RA resource of its obligation to be available to the CAISO

- The CAISO proposal:
  - Ensures an RA resource provides substitute capacity when it takes a planned outage to maintain RA up to the forecasted need
  - Avoids leaning on and/or over-reliance on non-RA capacity, and potential CPM designations
- The planning reserve margin does not account for capacity unavailable due to planned outages
- Other ISOs allow for RA resources to take planned outage without substitution because there is excess RA capacity relative to forecasted needs

# Providing RA is a commitment to be available to the CAISO

- If an RA resource is unable to be available, it should:
  - Have an obligation to find another resource that is available, or
  - Not be shown as RA in that month
  - Face the financial and regulatory consequences
- If another resource available when an RA resource wants to take a planned outage, then:
  - That resource should be the one shown for RA or
  - Compensated for stepping in for another resource
- Substitute capacity should be abundant in off-peak months and relatively inexpensive
- Lack of available substitute capacity indicates:
  - The request was submitted too late or
  - Forecasted load conditions dictate that the resource is needed at that time

Ensuring adequate RA capacity is always available outweighs any potential for more incremental withholding beyond that which already exists

- POSO and RAIM create incentives to hold capacity out of the bilateral capacity market to mitigate potential penalties and denied planned outages
- CAISO's ultimate policy goal is to eliminate bad incentives
- CAISO must balance these incentives against the probability that a planned outage without substitute capacity could leave the CAISO with insufficient capacity
- CAISO will continue developing the long term solution to eliminate these incentives in Phase Two

## CAISO's proposal will provide incremental reliability benefit starting summer of 2021

- Even though some of the outages for summer 2021 have been requested and conditionally approved, the POSO process has not taken place
- The CAISO's proposal provides significant clarity
  - i.e. Resources wanting to take planned outages should line up substitute capacity now or consider rescheduling those outages
- Instead of 20 days of notice, the CAISO is providing several months of notice to find substitute capacity
  - CAISO is signaling to these resources that they now know that substitute capacity will be needed

## At this time, the CAISO proposes to treat all planned outage extensions as new outage requests

- Is consistent with the rest of the CAISO's proposal to require substitution
- Provides the CAISO and resources with clear rules regarding how extensions will be handled
- Ensures the CAISO has adequate capacity to maintain reliability when resources cannot return to service consistent the originally approved outage



## Phase two will focus on improving transparency and ensuring a pool of resources is available to provide substitute capacity

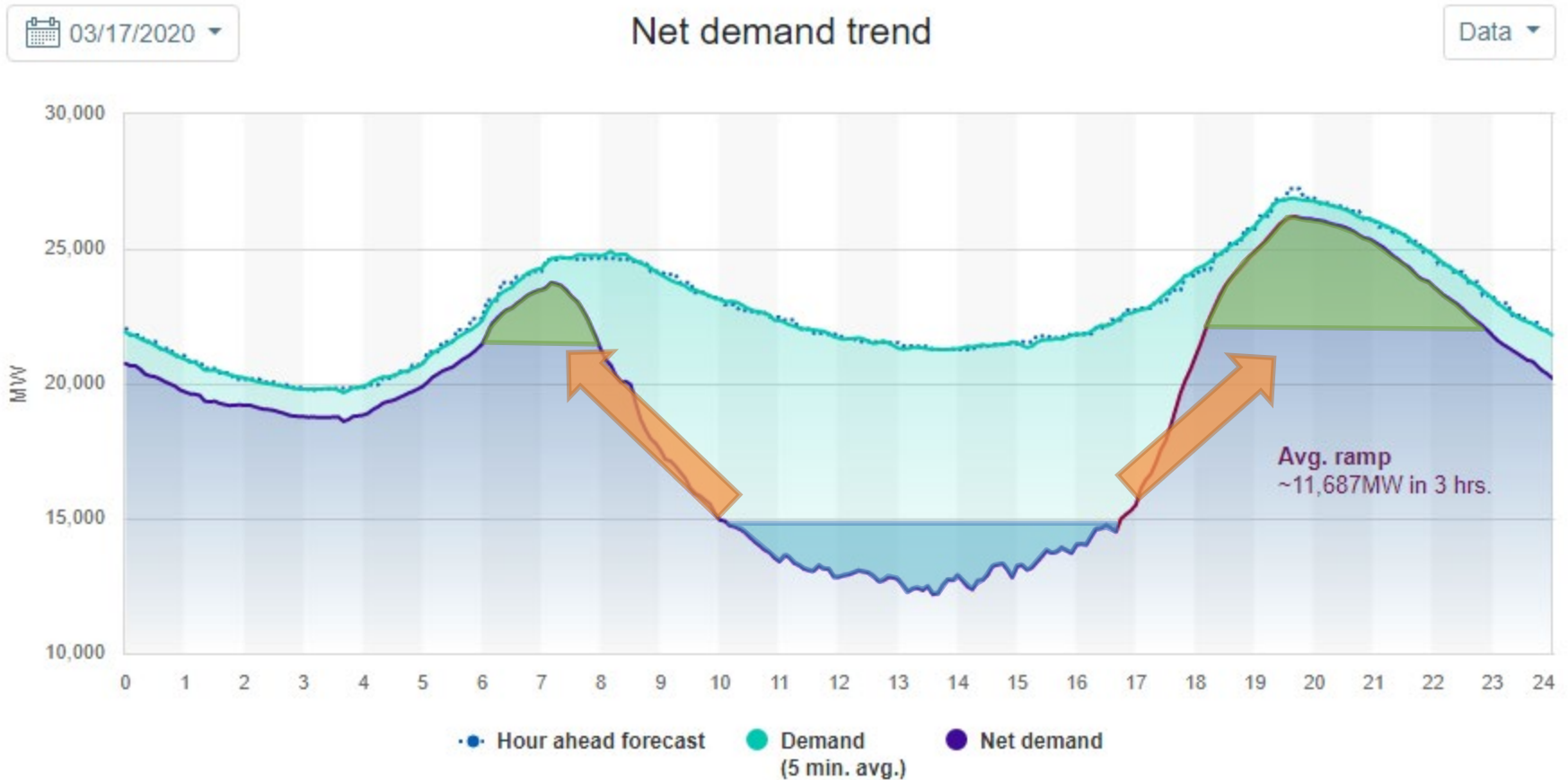
- CAISO will also seek to reduce any incentives to withhold capacity
- CAISO will develop a planned outage replacement pool
  - Help facilitate outage coordination
  - Provide the greatest certainty regarding the timing of planned outages to both the CAISO and resource SCs
- In response to stakeholder comments, CAISO will explore opportunities for summer months as well
  - The most significant challenge will be finding sufficient non-RA capacity to participate in the pool

# OPERATIONALIZING STORAGE

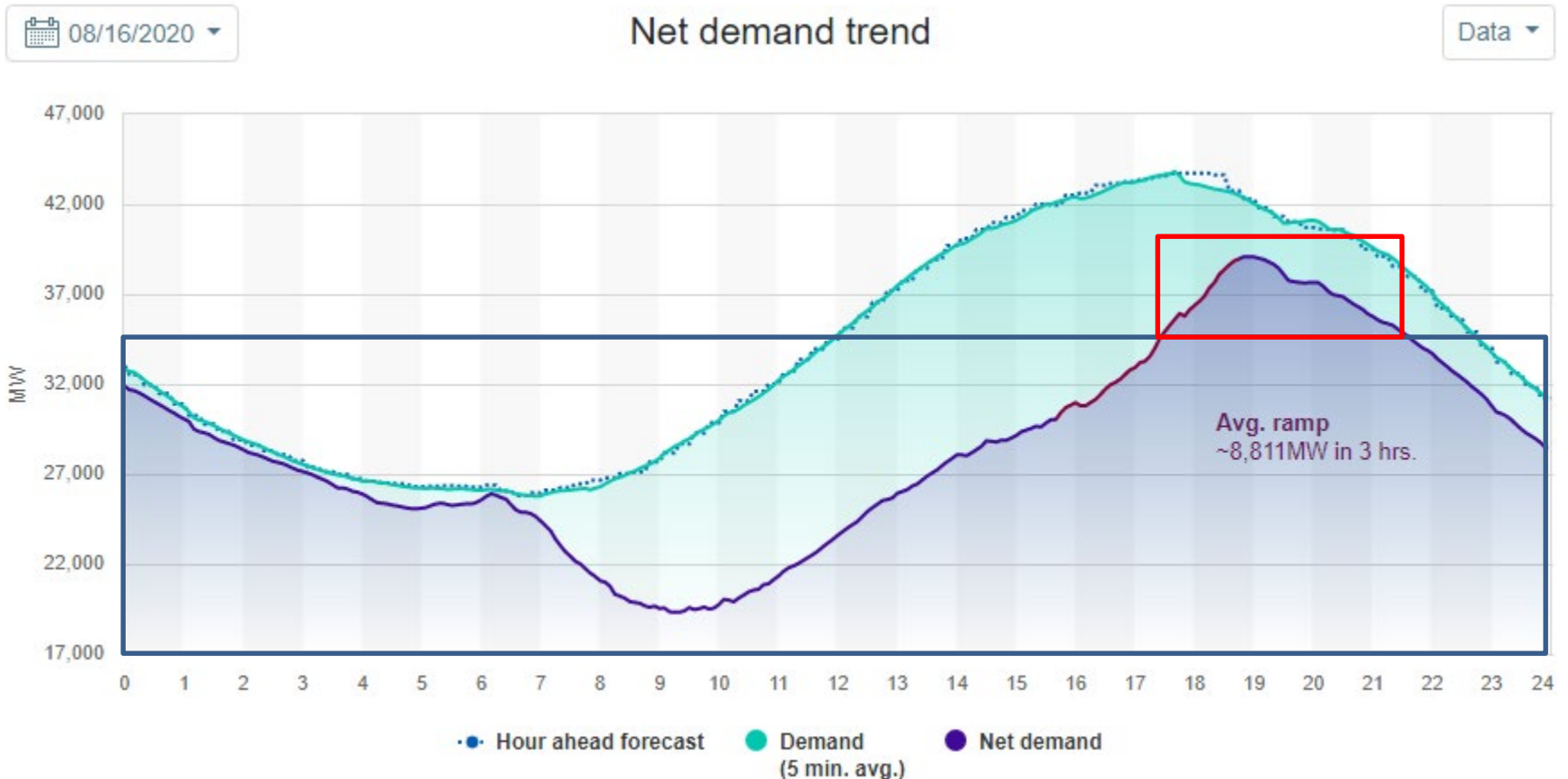
# Battery storage may become a rapidly growing segment of California's resource mix

- The CPUC authorized new resource procurement for 3,300 MW of resource adequacy capacity during next 3 years
  - ISO expects 1,800 MW of capacity on-line by August 1, 2021
- Retirement over next few years include older steam resources and Diablo Canyon nuclear facility in 2024
- Today there are about 550 MW of storage on-line, but the ISO may be dispatching thousands of MW shortly
- Much of the new procurement is likely to come in the form of battery storage and hybrid (solar + storage) resources
- These resources bring new integration challenges
- The minimum state of charge (MSOC) requirement will work with other RA tools to ensure storage is charged

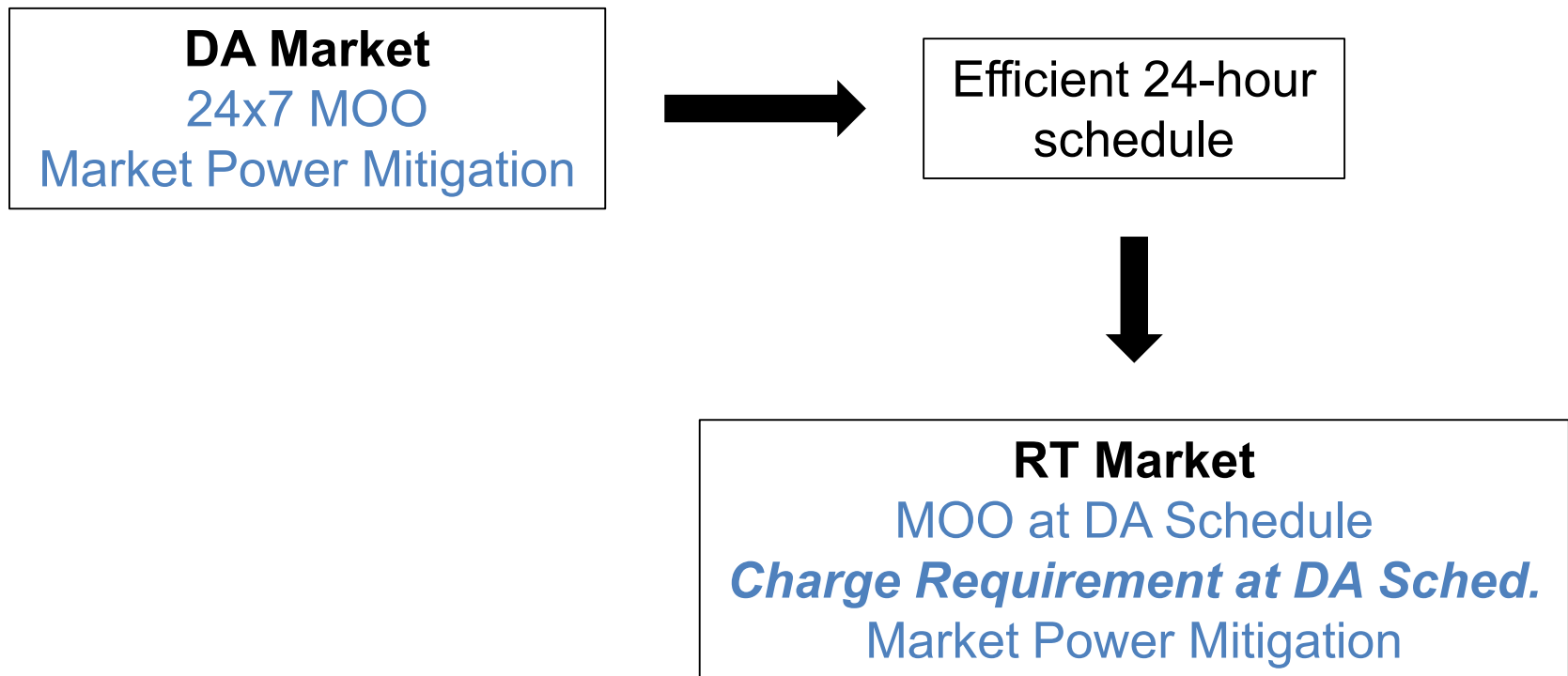
# Planning for storage resources assumes 'arbitrage' of day-ahead energy prices for batteries



In the future storage will be critical for meeting load on days with the highest *net load* peak



The ISO is implementing a number of tools across three initiatives to ensure grid reliability with storage integration in real-time market



## In response to stakeholder feedback, the ISO proposes a number of changes to the MSOC requirement

- The MSOC requirement will continue to ensure that RA storage resources can meet discharge schedules awarded in the day-ahead market
  - Requirement will continue to only be applied to RA storage resources
- ISO software will only apply the MSOC on days when system conditions are very tight
  - If a RUC infeasibility occurs the ISO will impose the MSOC requirements
  - These may be triggered very infrequently
  - RUC infeasibilities occurred during 23 days in 2020 during very hot conditions, on only one day in 2019, and one day in 2018
- ISO will have the ability to cancel or initiate the MSOC tool in the real-time market
  - Updates the status of the requirement based on real-time conditions

## The ISO is not endorsing this as a permanent solution to address procuring state of charge

- ISO is going to request that FERC authorize authority for use of the MSOC requirement for 2 years
- Concurrently, the ISO will begin a new stakeholder initiative - energy storage enhancements - to develop a permanent tool to compensate energy availability
  - Will develop a market based tool to replace the MSOC
  - Will include compensation for resources providing service to the ISO
- ISO is committed to reporting on when the minimum state of charge is used and may estimate impacts



# BACKSTOP CAPACITY PROCUREMENT

# CAISO currently has authority to backstop for CPM for a number of scenarios

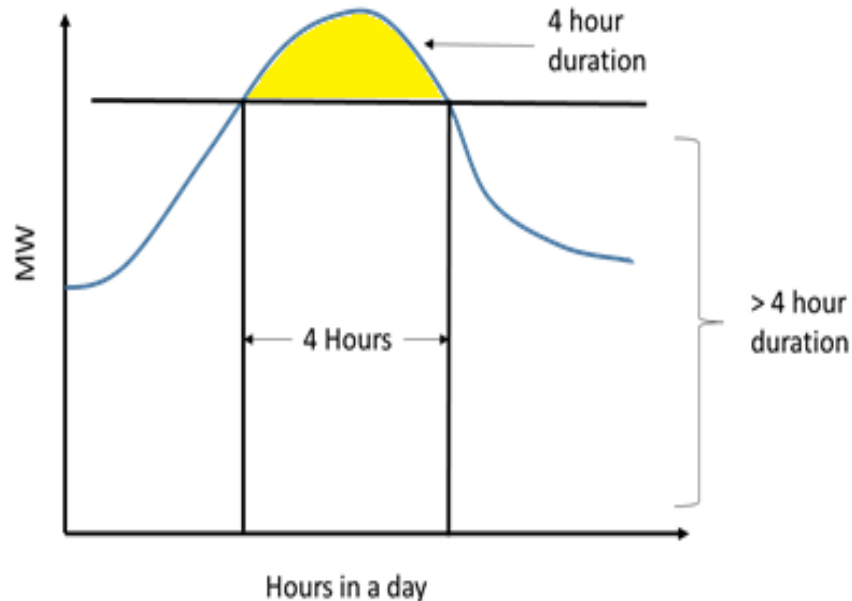
## Existing CAISO CPM authority

1. System annual/monthly deficiency
2. Local annual/monthly deficiency
3. Local collective deficiency\*
4. Cumulative flexible annual/monthly deficiency
5. Significant event
6. Exceptional dispatch
7. Risk of retirement

# Local Energy Sufficiency Evaluation

- As part of the annual local capacity technical studies, the ISO has started to develop and perform detailed hourly load and resource analysis to determine energy in addition to capacity needs in local areas.
- This figure demonstrates how availability limited resources could meet peak needs in a local area, but other resources are needed to meet energy needs in other hours.
- Seeking to expand tariff authority to designate a local collective deficiencies if any area or sub-area fails this evaluation, and allow the ISO to backstop (following cure period) to ensure sufficient energy to cover reliability needs

**Figure: Hourly Load Shape with Four-Hour Minimum Availability Threshold**



# CAISO seeks, and stakeholders support, expanding CPM authority to ensure energy sufficiency in local areas

- With increased procurement of availability-limited resources to meet local area needs, the CAISO has expanded our local technical studies to consider not only capacity but also energy sufficiency in each local area and sub-area
- Seeking CPM authority to designate local collective deficiencies for any local area or sub-area that fails the energy sufficiency evaluation
  - Ensure we have sufficient MWs and also MWhs to meet reliability needs
- Implementation for RA Year 2022

## Stakeholder Feedback

- CalCCA, CPUC, DMM, MRP, Six Cities, and SCE were generally supportive of this expansion of CPM authority
- Stakeholders want to ensure that the requirements are clear up-front so that LSEs and Central Procurement Entities can direct procurement to reduce CPM risks
  - The CAISO will continue to outline the requirements for all applicable local areas and sub-areas, and these will be clearly described in the LCR Reports by charts and graphs with the energy needs during peak as well as year round conditions, before LSE procurement begins
  - The CAISO has submitted a proposal in Track 3.B1 proceedings to request the CPUC use the hourly load and resource analysis from the LCT studies to direct procurement of availability-limited resources in local areas to maintain alignment of RA requirements

## Stakeholder Feedback Cont.

- PG&E and SDG&E wanted additional details on the energy sufficiency evaluation
- PG&E wanted clarity on how the energy sufficiency evaluation for local areas differs from the sufficiency evaluation proposed in Phase 2B
  - Clarified that the portfolio evaluation assess ability to meet energy sufficiency in all hours for system level requirements, this CPM authority is specifically for local areas energy needs
- SDG&E wanted further details on how LSEs or the ISO would be able to identify what resources could cure deficiency
  - The CAISO will continue to use the RA Deficiency report that is published in mid November to describe how each local area and sub-area capacity as well as energy needs were not met and to inform load serving entities of how much from each resource is not shown as RA capacity, as is done today

# NEXT STEPS

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# Comments

- Stakeholders should submit comments on the RA Enhancements final proposal - phase 1 by March 9, 2021
- Submit comments using the template provided on the CAISO's initiative webpage located here:  
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/Resource-adequacy-enhancements>