



California ISO

# **DAY 4: RA Enhancements Draft Final Proposal and Sixth Revised Straw Proposal**

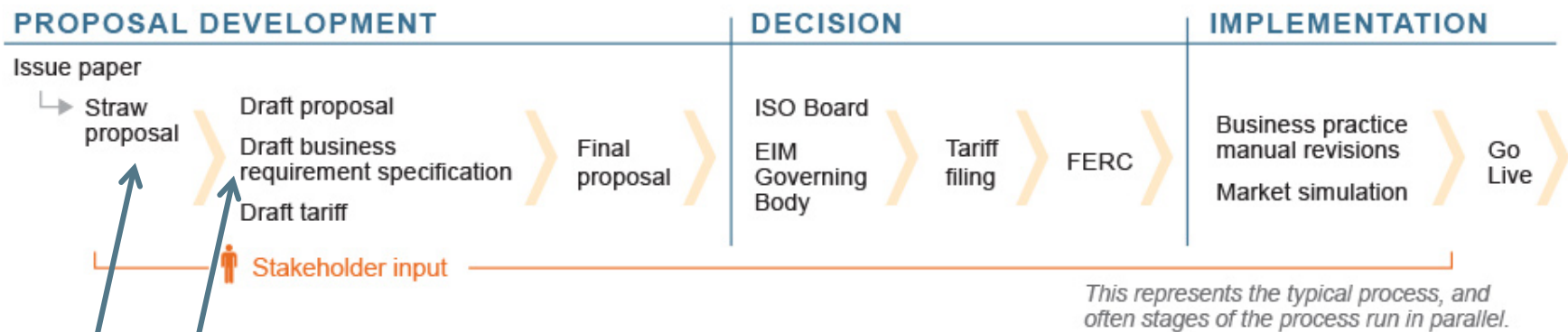
January 15, 2021

# Agenda – Day 4

## Sixth Revised Straw Proposal

Time	Topic	Presenter
10:00 – 10:10	Welcome and Introduction	Isabella Nicosia
10:10 – 10:50	Minimum System RA Requirement	Karl Meeusen
10:50 – 11:30	Must Offer Obligations	Lauren Carr
11:30 – 11:40	Next Steps	Isabella Nicosia

# Stakeholder Process



**We are here**

# Resource Adequacy Enhancements Policy Development Schedule

\* Dates are tentative and subject to change

\*\* Detailed Phase 2 schedule in the paper

Date	Milestone
<b>Dec 17</b>	<b>Draft Final Proposal – Phase 1 and Sixth Revised Straw Proposal</b>
<b>Jan 5-7 2021</b>	Stakeholder meeting on Draft Final Proposal – Phase 1 and Sixth Revised Straw Proposal
<b>Jan 15 2021</b>	<i>Stakeholder meeting on remaining Sixth Revised Straw Proposal elements</i>
<b>Jan 21 2021</b>	Stakeholder comments on Draft Final Proposal – Phase 1 and Sixth Revised Straw Proposal
<b>Jan 29 2021</b>	<i>Stakeholder comments on remaining Sixth Revised Straw Proposal elements</i>
<b>Feb 2021</b>	<b>Final Proposal – Phase 1 and Draft Final Proposal – Phase 2A</b>
<b>Feb 2021</b>	Stakeholder meeting on Final Proposal – Phase 1 and Draft Final Proposal – Phase 2A
<b>Feb 2021</b>	Stakeholder comments on Draft Final Proposal – Phase 2A
<b>Mar 2021</b>	<b>Present proposal on Phase 1 elements to CAISO Board</b>
<b>May 2021</b>	<b>Present proposal on Phase 2A elements to CAISO Board</b>
<b>Sept 2021</b>	<b>Present proposal on Phase 2B elements to CAISO Board</b>

# MINIMUM SYSTEM RA REQUIREMENT

# The CAISO believes it is necessary and appropriate to set a minimum system RA obligation

- CAISO has observed some LRAs:
  - Setting unusually low PRM requirements
  - Attempting to meet the RA requirements with only RA “credits” not on supply plan of RA credited resources
- Setting a minimum system RA obligation will
  - Avoid LRA leaning
  - Ensure LRAs meet a minimum equitable level of reliability
- These minimum requirements will be expressed in terms of UCAP/NQC

# LSEs should provide a minimum amount of UCAP/NQC sufficient to serve forecasted peak load and reserve requirements

- Historically in California a PRM has accounted for:
  - Load
  - Reserves
  - Forecast error
  - Forced outages
- Forced outage rates now embedded in the UCAP/NQC value
- CAISO will continue to coordinate with the CPUC and LRAs to the greatest extent possible to ensure alignment with individual LRA requirements
  - LRAs may set their specific RA requirements at any level above this minimum threshold

# The CAISO proposes to establish the minimum RA threshold using a “bottom-up” approach

- Builds on the foundation of forecasted peak demand and reserves
- Primary benefit of the bottom-up approach is it does not rely on any assumptions about forced outage rates
  - Only individual resource outage rates are needed and then only for procurement and RA showing purposes
- A top-down approach is more complicated, relying on developing a probabilistic model to determine how much installed capacity must be procured



## To set minimum requirements, the ISO must establish four parameters

- Requirement based on gross peak or net peak
- Forecast (i.e. 1-in-2, 1-in-5, or 1-in-10 load/net-load)
- Reserves needed at peak
- Forecast error cushion (inversely related to forecast)
  - i.e. If using 1-in-2, add an additional 5-7% for forecast error, if using 1-in-10 forecast, no additional forecast error needed

# The CAISO proposes to set minimum requirement at 1-in-5 gross load plus six percent of that forecast

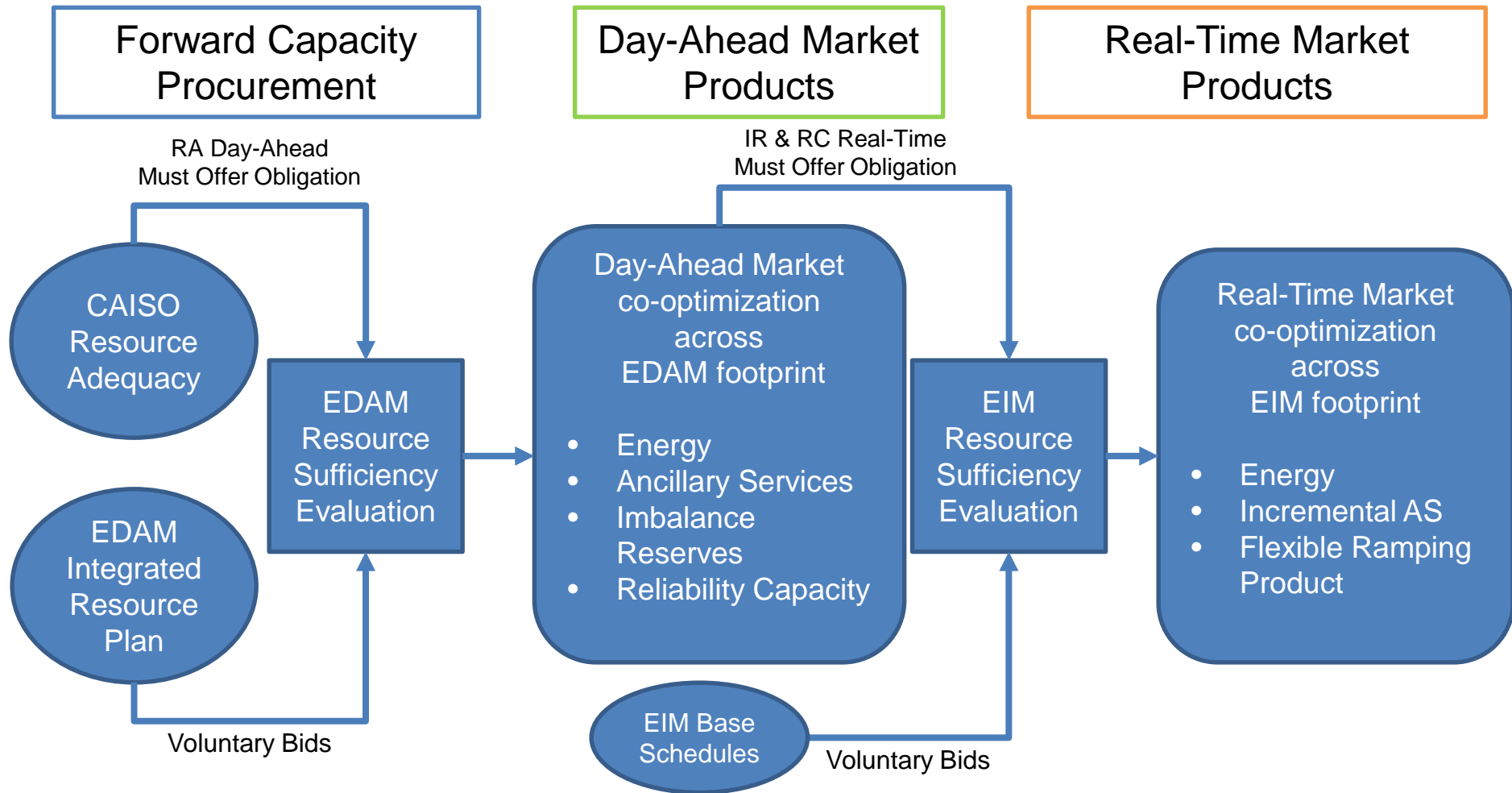
- Assures more than just average load years
  - Comparable to 1-in-2 forecast plus 10 percent PRM UCAP
  - Mirrors preliminary CPUC estimated UCAP PRM to achieve 1-in-10 LOLE
- Allows LRA to set higher obligations
- CAISO will also test net-peaks

The CAISO will backstop if the overall system showings are deficient in meeting the minimum requirement

- LRAs may set RA requirements that exceed this minimum threshold, but requirements should not fall below this level
- If a LRA sets a PRM below the minimum threshold, then the ISO will designate CPM capacity to backstop the shortfall if the overall system RA showings are deficient
- In such cases, the CAISO proposes to allocate the costs first to LSEs that did not meet a minimum showing of their forecast plus the default PRM

# MUST OFFER OBLIGATIONS AND BID INSERTION

# Overview of RA, DAME & EDAM relationship with CAISO market runs



# RA resources are obligated to bid shown RA capacity into the CAISO market

- Must offer obligations (MOOs) must be set at the resource's shown Deliverable QC (DQC) value
  - For example: A resource shown for 100 MW of DQC with a 20% forced outage rate (providing 80 MW of UCAP/NQC), would have a MOO to bid 100 MW of capacity into CAISO markets when not on outage
  - If a resource shows a portion of its DQC as RA the must offer obligation is set at the portion of the DQC shown as RA, not the full amount
- Allows CAISO to eliminate forced outage substitution
  - By using UCAP-based RA counting and DQC-based resource bidding obligations, the RA fleet effectively provides its substitute capacity upfront
  - CAISO proposes to eliminate the existing forced outage substitution rules in favor of UCAP proposal

## Resource adequacy resources will have a day-ahead must offer obligation

- The CAISO proposes modifications to RA must offer obligations into the day-ahead market only
- To simplify offer obligations, the CAISO proposes a standard MOO that would apply to all RA resources, unless specified by the CAISO:
  - **Standard 24 by 7 MOO into day-ahead market:** Economic bids or self-schedules for all RA capacity for all hours of the month the resource is not on outage
  - **Standard residual unit commitment (RUC) must offer obligation:** RUC availability bid for all RA capacity not reflected in the day-ahead schedule for all hours of the month the resource is not on outage
    - Outage refers to both planned and forced outage

# CAISO proposes the standard 24 by 7 day-ahead must offer obligation with bid insertion, with limited exceptions (1 of 3)

- Use-limited resources and conditionally available resources:
  - Will receive the standard must offer obligation, in both IFM and RUC, and bid insertion unless the underlying technology has an exemption
  - Should utilize outage cards when unavailable due to use-limitations and conditionally available resource limitations
- Demand response:
  - The CAISO will defer to the local regulatory authority to establish program parameters for demand response
  - If none established, resource must follow standard must offer obligation
  - Days and hours resources must bid must be clearly communicated through LRA-approved documentation such as contract provisions or decisions
  - RDRR will still have the option to bid day ahead and must be available in real-time



# CAISO proposes the standard 24 by 7 day-ahead must offer obligation with bid insertion, with limited exceptions (2 of 3)

- Non-generator resources:
  - NGRs (including battery storage and hybrid resources with a battery component) must reflect charge and discharge capabilities in their day-ahead bids
  - NGRs with a default energy bid will receive bid insertion
    - Storage DEB proposed in ESDER 4
  - Battery storage will not be able to set their end-of-hour state of charge parameter in a way that prevents them from meeting their day-ahead schedule
  - NGRs must register under the non-REM option to provide generic RA
  - Hybrids will be required to bid full expected capability (charge and discharge) into the day-ahead market
    - Unavailability can be reflected through outages or the dynamic limit tool as described in the hybrid resource policy

# CAISO proposes the standard 24 by 7 day-ahead must offer obligation with bid insertion, with limited exceptions (3 of 3)

- Eligible intermittent resources:
  - Because the RA value produced by the ELCC may be lower or higher than what the resource can produce in the operational timeframe, the RA capacity under offer obligation to the CAISO is for all energy necessary to derive the shown RA value
  - Energy from these resources above the NQC value cannot be used to support an export from non-RA capacity
- Other than the changes described in the previous slides, the CAISO will exempt:
  - Resources listed in tariff section 40.6.8 (e) from bid insertion
  - Resources listed in tariff section 40.6.4.2. from submitting RUC availability bids

# Day-ahead bidding obligations for system and local resource adequacy

- Resources providing system and local resource adequacy will be required to bid or self-schedule for energy and bid or self-provide ancillary services
- Additionally, they will be required to economically bid for reliability capacity and corrective capacity for any portion not self-scheduled for energy or ancillary services
- Resources providing system and local resource adequacy only will not be required to bid for imbalance reserves
  - Resources providing flexible RA will be required to economically bid for imbalance reserves

# Real-time bidding obligations for system and local resource adequacy

- **RA year 2022** – RA imports real-time must offer obligation
- **RA year 2023** – RAE day-ahead must offer obligation and bid insertion modifications and DAME implementation
  - **Pre-DAME Transition Period**
    - Existing real-time MOOs for RA resources will remain until end of the transition period
    - RA resources will bid zero for imbalance reserves and reliability capacity and have a real-time must offer obligation even if not awarded
  - **Post-DAME Transition Period**
    - Resources awarded in day-ahead will have a real-time MOO up to their day-ahead award
    - RA resources must still be available for exceptional dispatch after the conclusion of the day-ahead market whether or not they receive a day-ahead award
    - The transition period will end at the start of the calendar year in which EIM entities will onboard into the extended day-ahead market

# NEXT STEPS

# Comments

- Stakeholders should submit comments on the RA Enhancements draft final proposal and sixth revised straw proposal covered in the January 5-7, 2021 meeting by January 21, 2021
- Stakeholders should submit comments on sixth revised straw proposal elements covered in the January 15, 2021 meeting by January 29, 2021
- Submit comments using the templates provided on the CAISO's initiative webpage located here:  
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/Resource-adequacy-enhancements>