



California ISO


# Demand and Distributed Energy Market Integration Working Group

June 17<sup>th</sup>, 2025

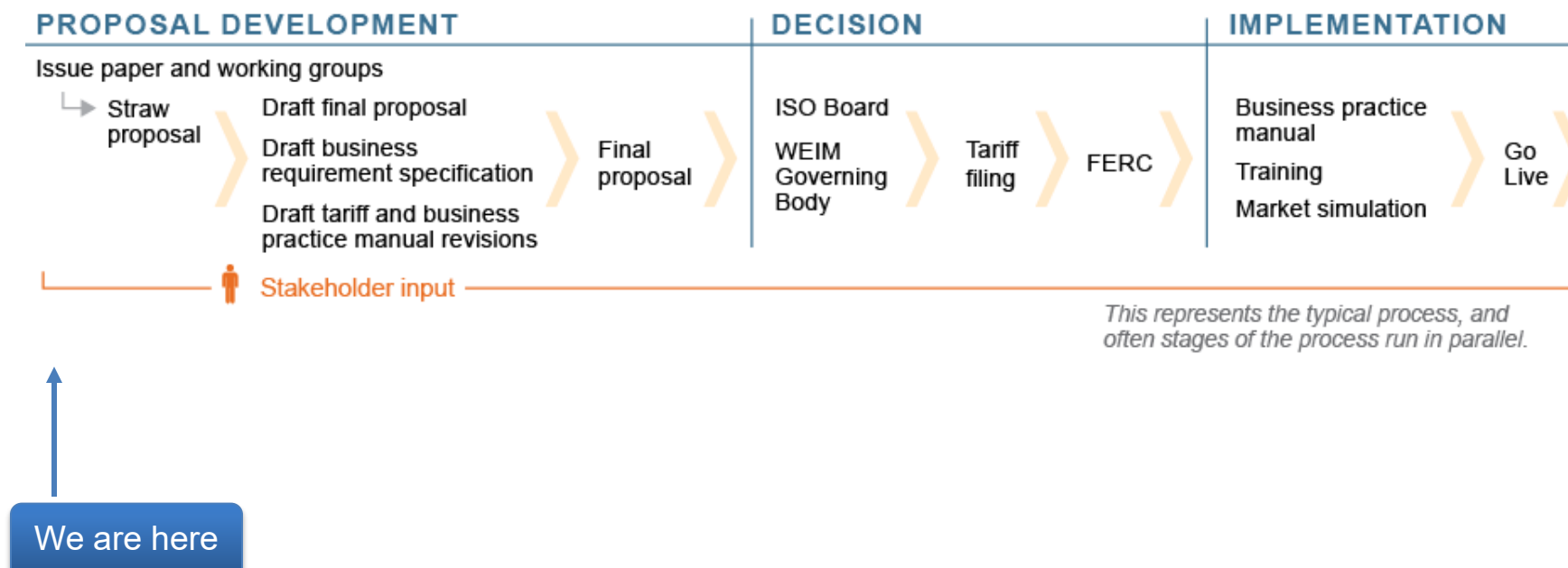
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# CAISO Policy Initiative Stakeholder Process

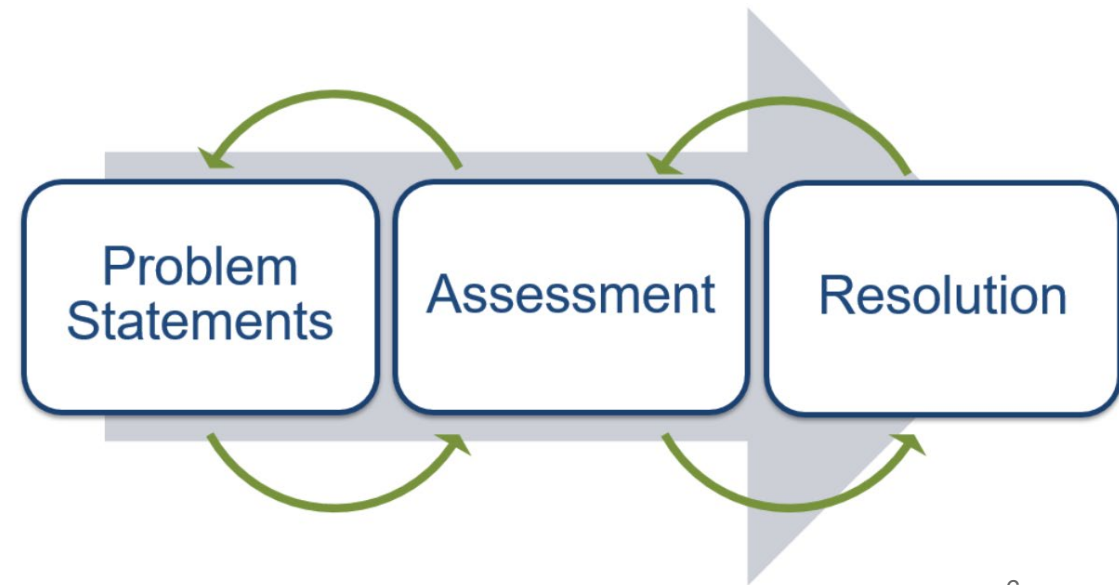


# Today's agenda

Time	Topic	Presenter
9:00 am – 9:05	Welcome, Today's Agenda	Christina Guimera
9:05 – 9:20	Introducing Models for Pumped Storage and Participating Load	Jill Powers & Ansel Lundberg
9:20 – 11:35	<b>Stakeholder Presentations</b> Hydrogen/Electrolyzer Participation	NCPA
	Representation of Demand Response (DR) through Base Schedules	Portland General Electric
	Participating Load Modifications	CDWR
11:35 – 12:05 pm	<b>Break</b>	All
12:05 – 12:55	<b>Stakeholder Discussion</b> Draft Problem Statement Formulation	Jimmy Bishara
12:55 – 1:00	<b>Next Steps</b>	Christina Guimera

# Working Group Progress to date

- Frame/Level Set on Policy Area **[Complete]**
- Issue/Challenge Identification **[Complete]**
- Problem statements **[In progress]**
  - Problem Statements translate issues into actionable items
- Assessment **[Starting]**
  - Validate problem statements as represented
- Resolving the issues **[Based on Working Group progress/discussion]**
  - Identify existing opportunities
  - Develop solutions



# Goal of Today's Working Meeting

- During the previous working group (May 13<sup>th</sup>), CAISO reviewed and finished the previous problem statement theme discussion for Performance Evaluation Methodologies (PEMs) with stakeholders
  - CAISO has requested written comments on an updated Discussion Paper to capture stakeholder input to date, for potential policy development
- Today, we will hear stakeholder viewpoints, as we move to the next theme of Enhancing Demand Flexibility market options and discuss how it compares with the CAISO's current Participating Loads:
  - Hydrogen Electrolyzer Participation
  - Representation of DR through Base Schedules
  - Participating Load Modifications

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# **PARTICIPATING LOADS**



# Demand response participation models we previously introduced

## Two models:

### Supply Side DR

- Subtypes
  - Reliability Demand Response Resource (RDRR)
  - Proxy Demand Response (PDR)
  - DER Aggregation (DERP)
  - Non-Generating Resource (NGR)
- Price-responsive
- Market integrated – supply side DR offers are considered in the real time market

### WEIM Load Forecast Adjustment

- Also known as: non-participating, load-modifying, non-market
- Reduces (or increases) an entity's capacity needed to support load & pass RSE
- Submitted to ISO short-term forecasting for scheduling

# Models for Pumped Storage Resources and Participating Load

A Participating Load is an entity providing Curtailable Demand that has executed a Participating Load Agreement

- Curtailment of Participating Load is analogous to increasing electricity Supply or Generation.
- Most Participating Loads are Pumping Loads.
- Participating Load curtailment occurs through a real-time dispatch, achieved when Curtailable Demand is offered to meet requirements for Non-Spinning Reserve or to balance Imbalance Energy.

## Three types of Participating Load:

- 1) Pumping Load that is associated with a Pump-Storage resource,
- 2) A single Participating Load (i.e. Pumping and non-Pump Load) that is not associated with a Pump-Storage resource; and
- 3) Aggregated Participating Load (i.e. aggregated Pumping and non-Pumping Load that is an aggregation of individual loads that operationally must be operating in coordination with each other)

# Models used to accommodate various types of Participating Loads

Participating Resources	Model Used	Comments
Pump-Storage Resources (i.e. Helms, San Luis)	Pump-Storage Hydro Unit Model	Model can support generation and pump mode. Pump mode is effectively negative generation mode.
Single Participating Load (single Pump and non-Pump Load)	Pump-Storage Hydro Unit Model.	For load (pump-only) the Generation capability of the Pump-Storage model is set to 0 MW. Therefore, pump can use negative generation.
Aggregated Participating Load (i.e., aggregated Pumping and non-Pumping Load)	Extended Non-Participating Load Model	Energy will be bid and scheduled using Non-Participating Load in the Day-Ahead Market. To the extent resource is certified to provide Non-Spin, a pseudo-generator model will be used to offer Non-Spin and to the extent necessary dispatch energy from Non-Spin Capacity representing dropping pump load.

# Pumped-Storage Hydro Unit Model vs Extended Non-Participating Load Model

Reference material:

CAISO Participating Load Web Page:

<https://www.caiso.com/generation-transmission/load/load-serving-entities>

Participating Load Agreement:

[appendixb4\\_participatingloadagreement\\_asof\\_jun12\\_2013.pdf](#)

BPM for Market Operations section 2.1.6 and BPM appendices section D.5

<https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Operations>

- Participating Load (PL) will be modeled by a pair of “fictitious Non-Participating Load and fictitious Generator”
- Inter-temporal constraint conversions are provided in the BPM for Market Operations appendices document

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# **STAKEHOLDER PRESENTATION: NCPA**

## Draft problem statement formation: Hydrogen/Electrolyzer Participation

- Current CAISO market participation models may not best account for the unique components/characteristics of certain large loads when paired with (or in parallel operation with) supply-resource operation
- Seeking stakeholder input to further refine

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# **STAKEHOLDER PRESENTATION: PORTLAND GENERAL ELECTRIC**

## Draft problem statement formation: Demand-Side Bidding

- Supply-side economic signals do not align with current market incentives
- Current manual load forecast adjustment process is not efficient or ideal
- Current Performance Evaluation Methodology (PEM) options do not recognize alternative measurement methods used by WEIM entities for performance evaluation
- Seeking stakeholder input to further refine



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# **STAKEHOLDER PRESENTATION: CDWR**

## Draft problem statement formation: Participating Load modifications

- Participating load resources cannot fully bid demand into the RT market or decrease energy consumption due to barriers to its participation within wholesale Demand Response (DR) and to modeling limitations, which would otherwise allow it to better respond to ramping needs by shifting demand (e.g., when water conditions permit)
- Seeking clarity from stakeholder as to bidding restrictions or input to further refine

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# **STAKEHOLDER DISCUSSION: DRAFT PROBLEM STATEMENT FORMATION & GENERAL QUESTIONS**

# Next Steps – Remaining DDEMI themes for problem statement formation

- **Enhancing demand flexibility market options** [Today's Working Group]
  - Hydrogen Electrolyzer participation
  - Utilization of NGR model by WEIM
  - Representation of DR through base schedules
- **Reliability based DR**
  - Eliminate 100 MW cap or change exception criteria for RDRR
  - Allow RDRR bid option to utilize startup-time
  - Methods to consider fixed cost in economic dispatch decisions for RDRR
  - Allow RDRR to reflect Min on Time > 1 hour
- **Economic demand response**
  - Refresh of PDR programs
  - Create mPDR for participants with BTM storage or Rule 21 exports
- **Expanding demand side bidding options**
  - Allow participating load resources to bid demand into real-time markets
- **Distributed energy resource participation**
  - Extend DR and DER programs within WEIM and EDAM
  - Explore BTM storage participation in wholesale markets

## Next Steps

- A comments template for providing formal written comments on an updated Discussion Paper will be noticed prior to the next Working Group
- All meeting material and notices are available on the Demand and Distributed Energy Market Integration working group webpage:  
<https://stakeholdercenter.caiso.com/StakeholderInitiatives/Demand-DistributedEnergy-Market-Integration>
- If you have any questions, please contact Christina Guimera at [cguimera@caiso.com](mailto:cguimera@caiso.com), or [ISOStakeholderAffairs@caiso.com](mailto:ISOStakeholderAffairs@caiso.com)

# This Week at the ISO – 06/16/25

## **Stakeholder Meetings**

*All public stakeholder meetings are also listed on the [ISO calendar](#):*

- Monday, June 16<sup>th</sup> – [Market Surveillance Committee General Session](#)
  - 9:00am - 10:00am PT ([link](#))
- Tuesday, June 17<sup>th</sup> – [Demand and Distributed Energy Market Integration Working Group](#)
  - 9:00am - 1:00pm PT ([link](#))
- Tuesday, June 17<sup>th</sup> – [Technical User Group](#)
  - 10:00am - 11:00am PT ([link](#), developer account required)
- Tuesday, June 17<sup>th</sup> – [WEM Regional Issues Forum](#)
  - 1:00pm - 5:00pm PT ([link](#))
- Wednesday, June 18<sup>th</sup> – [Summary of Cluster 15 Intake Scoring Results](#)
  - 10:00am - 12:00pm PT ([link](#))
- Wednesday, June 18<sup>th</sup> – [Settlement User Group](#)
  - 10:00am - 11:00am PT ([link](#), meeting number: 961 854 046)
- Wednesday, June 18<sup>th</sup> – [WEM Governing Body General Session](#)
  - 1:00pm – 3:30pm PT ([link](#))
- Wednesday, June 18<sup>th</sup> – [Resource Adequacy Customer Partnership Group](#)
  - 2:00pm – 3:00pm PT ([link](#))
- Thursday, June 19<sup>th</sup> – [Joint ISO Board of Governors and WEM Governing Body General Session](#)
  - 10:00am – 12:00pm PT ([link](#))

## **Comment Submission Deadlines**

- Tuesday, June 17<sup>th</sup> – [BPM Proposed Revision Requests PRR's 1620-1631](#)
- Tuesday, June 17<sup>th</sup> – [Resource Adequacy Modeling and Program Design Track 3](#)
- Friday, June 20<sup>th</sup> – [Extended Day-Ahead Market Congestion Revenue Allocation Draft Tariff Language](#)

# This Week at the ISO continued

## **Trainings**

The ISO encourages market participants to review the new training page on the [Market Participant Portal](#). In addition to the [Training Center](#), this new training page provides Scheduling Coordinators with a centralized location for accessing computer-based training videos (to learn more, please view the [High-Level Overview](#) video).

- None scheduled this week

## **Market Simulations**

Please refer to our [Release Schedule](#) for the most recent updates of initiatives scheduled for MAP- and Production- stage market sims.

- Thursday, June 19<sup>th</sup> – [DAME, EDAM, and EDAM CAISO Balancing Authority PR Market Simulation Meeting](#)
  - 1:00pm - 2:00pm PT (Email [marketsim@caiso.com](mailto:marketsim@caiso.com) for registration)
- Thursday, June 19<sup>th</sup> – [Market Simulation Forum](#)
  - 2:00pm – 3:00pm PT ([link](#))



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<https://www.caiso.com/about/news/energy-matters-blog>

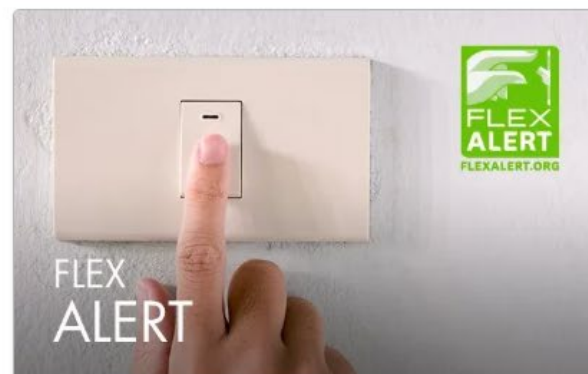


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