



California ISO

Market Simulation Plan Fall 2023 Release

Initiatives –

Energy storage enhancements Track 2

Washington WEIM greenhouse gas enhancements


WEIM resource sufficiency evaluation redesign phase 2

Maximum import capability enhancements

Hybrid Resources 2C – Metered Quantities

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Location of Document – [\(link\)](#)

Revision History

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08/14/2023	1.1	Updated Plan	Anshuman Vaidya



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1. Introduction

The objective of this document is to provide the information needed by market participants in order to engage in the Fall 2023 Release initiatives, thereby enabling market participants to smoothly transition and utilize the new features.

1.1 Scope of Initiatives


ISO release planning sites for the Fall 2023 Release initiatives – ([link](#))

1. Energy storage enhancements Track 2([link](#))
2. Washington WEIM greenhouse gas enhancements([link](#))
3. WEIM resource sufficiency evaluation redesign phase 2([link](#))
4. Maximum import capability enhancements([link](#))
5. Hybrid Resources 2C – Metered Quantities

1.2 Market Simulation

The ISO conducts market simulations on a regular basis as part of its bringing new capabilities to its markets. This provides market participants an opportunity to test their systems and procedures in advance of the market implementation. The market simulation process facilitates an effective market operations “dress rehearsal” and helps expedite a smooth production launch. The benefits of market simulation may include but are not limited to:

- Allowing for system or procedural problem identification and mitigation before the market is operationally or financially binding.
- Enabling market participants to observe the behavior of ISO systems and markets in a simulated production environment, particularly in regards to new functions and features introduced through the addition of the modifications included in the Fall 2023 Release initiatives.
- Establishing confidence in the operational processes and systems associated with the new market functionality implementation.
- Providing a hands-on environment to allow participants to interact with new and unique features and functionality.

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- Providing an environment where market participants can scrutinize and tailor their own tools, applications, and business practices to participate in new market functionality.
- Providing a means of capturing additional market participant input and feedback regarding the implementation of the new market features and functionality, beyond what might have been received in the stakeholder process.
- Providing market participants the tools to help determine:
 - Proper exchange of market-related data and validation of new timelines.
 - Common understanding of data submittal requirements and timelines.
 - Familiarity with market rules and timelines.
- An opportunity to verify the ISO bid-to-bill process in a pre-production environment that includes simulated market and operational data inputs. Allowing the market participants to verify systems, processes, and procedures which may need modifying due to the functional changes tied to the release.

1.3 Schedule Summary

Fall Release 2023 market simulation high-level timeline is the following.

Phase 1 Market Simulation Type	Start	End
Connectivity Testing	08/11/2023	08/16/2023
Structured Simulation	08/17/2023	09/29/2023
Unstructured Simulation	08/14/2023	09/29/2023
Supported Regression Testing	08/21/2023	09/29/2023

ISO will continue to have the MAP Stage environment available for market participants to support regression testing if necessary beyond go live.

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2. Market Simulation Approach


2.1 High-Level Overview

The timeline for the Fall 2023 Release initiatives market simulations is identified below. Critical pre-simulation activities are identified in section 2.2 of this document.

<u>Fall 2023 Initiatives</u>	<u>Start Date</u>	<u>Start Date (Trade Date)</u>	<u>End Date</u>	<u>Structured Simulation Start (Trade Date)</u>
<u>Fall 2023 Market Simulation</u>				
Energy storage enhancements Track 2	09/04	09/04	09/15	09/19, 09/21
Washington WEIM greenhouse gas enhancements	09/07	08/31	09/15	N/A
WEIM resource sufficiency evaluation redesign phase 2	09/07	09/04	09/15	09/07
Maximum import capability enhancements	08/14	08/14	09/15	08/17
Hybrid Resources 2C – Metered Quantities	09/07	09/07	09/29	N/A

2.2 Pre-Simulation Activities

The Fall 2023 Release initiatives market simulations will be conducted in the MAP Stage environment. Participants will need to obtain access to this environment if they do not already have access. The ISO envisions participants may wish to access Master File (MF), Market Participant Portal (MPP), Outage Management System (WebOMS), Demand Response Registration System (DRRS), Customer Interface for Resource Adequacy (CIRA), Scheduling Infrastructure and Business Rules (SIBR), Base Schedule Aggregation Portal (BSAP), Balancing Authority Area Operations Portal (BAAOP), CAISO Market

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Results Interface (CMRI), Automated Dispatch System (ADS), and Market Results Interface Settlements (MRIS). For those who do not already have access to the MAP Stage systems, access can be requested by completing an Application Access Request Form ([AARF](#)) or modifying existing certificates through the Access Identity Management ([AIM](#)) application. Information regarding the completion of AIM and AARF forms can be found on the ISO portal under the application access request forms and application installation instructions heading.

Information pertaining to accessing the externally facing ISO environments is detailed in the System Access Information (SAI) for market participants document located on the ISO public site in the “Application Access” ([link](#)).

Systems Access Information Document – ([link](#))

2.3 Pre-Simulation and Simulation Activities Calendar

Activity	Description	Timeframe
MAP Stage maintenance	MAP Stage maintenance for market simulation preparation for the Fall 2023 Release.	08/07 - 08/13
Fall 2023 Releases market simulation kick-off teleconference	ISO to conduct a teleconference to provide market participants with a Fall 2023 Releases market simulation briefing.	08/10/2023
Structured simulation resource registration	As identified in the structured simulation documents for each initiative; registration for the resources to be validated during the structured simulation phase of the market simulation	07/31/2023 – MIC Enh 08/15/2023 – Remaining projects
Fall 2023 release simulation begins	Fall 2023 Releases market simulation in the MAP Stage environment	08/14/2023
Fall 2023 connectivity testing	MAP Stage open for interface access validation	08/11/2023
Fall 2023 structured scenarios	Fall 2023 structured scenarios to be executed.	08/17/2023

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3. General Information

3.1 Participant Observation and Inputs

During the Fall 2023 Release market simulation, market participants will be able to observe market results in the same applications that are available in production: OASIS, CMRI, ADS, etc.

The ISO will seed bids and base schedules on your behalf in MAP Stage, participants are encouraged to input data into the ISO bid-to-bill using all systems available: MRI-S, SIBR/BSAP, ADS and OMS etc., for a more realistic simulation.

Day Ahead Market (DAM) bids are submitted for T+4 >> (**NOTE:** CB bids are submitted for T+2, if participant submits for T+4 they will be over-written)

- Example: on 9/10 bids are submitted for 9/14

Participants wishing to check and or submit DA bids for T+1 – T+4) can do so after 7am on T.

- Example T=9/10 - DA bids can be submitted for 9/11, 9/12, 9/13 and if after 8am for 9/14
- In the example no seeded bids will over-write submitted bids for T+1, T+2, T+3. For T+4 if the submitted bids come in after 7am they will not be over-written by seeded bids.

Real Time Market (RTM) bids are submitted for T+1 at 11:00am

- Example: on 9/10 static bids are submitted at 11:00am for 9/11
- Participants wishing to check and or submit RT bids for T+1 can do so after 12:00pm (noon), no seeded data will over-write submitted bids.


Day Ahead Base Schedules BSAP (DAM) base schedules are submitted for T+4

Real Time Base Schedules BSAP (RTM) base schedules are submitted for T+ 4

- Example: on 9/10 base Schedules (DAM/RTM) are submitted for 9/14

Participants wishing to check and or submit base schedules for T+1 – T+4) can do so after 8am on T.

- Example T=9/10 - DA/RT base schedules can be submitted for 9/11, 9/12, 9/13 and if after 7am for 9/14
- In the example no seeded base schedules will over-write submitted base schedules for T+1, T+2, T+3. For T+4 if the submitted base schedules come in after 8am they will not be over-written by seeded base schedules.

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SIBR RTM functionality for validating submitted bids or generating submitted bid based on DA market results will still apply, typically MAP Stage market results are not published until after 12pm.

All RTM bids are revalidated between 22:10 and 23:00 for the next day based on the latest commitment cost data received.

All DAM bids are revalidated beginning at 03:10 and again at 09:10 for future dates based on the latest Master File and commitment cost data received.

All base schedules are revalidated beginning at 08:25 for the next day only based on the latest Master File data received.

Bids and Base Schedules must be submitted or verified by participants wanting to validate functionality in SIBR and BSAP or downstream applications with regard to project expectations.


3.2 Release Web Service Changes

ISO has provided all the necessary technical specifications for the web service changes in scope for Fall 2023 Release on the developer web site [\(link\)](#) .

Resource Data Template (RDT) submission and/or modifications for the Fall 2023 Release will take 10 business days to process. Prior to the start of simulation all modified RDT's for the Fall 2023 Release should be emailed to RDT@caiso.com please also Cc MarketSim@caiso.com. Once simulation begins RDT's should be submitted to the MAP Stage Master File with an expected turnaround time of 10 business day, similar to Production.

ISO will be settling unstructured scenario trade dates for the Fall 2023 Release simulations.

ISO will be offering Settlements statements during the Fall 2023 Release market simulation. Similar to how the process is performed in our production environment, the ISO will be using estimated Meter data with our initial statements and market participant submitted meter data where applicable, for the re-calc statements.

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3.3 Known Issue List

The ISO will create and publish a known issues list and post in on the release planning site – ([link](#))

3.4 Structured Scenarios

Market participants will need to register their request with the ISO to participate in this simulation via the MarketSim@caiso.com mailbox.

Please submit the information requested by 07/31/23.

For initiatives not listed, there will be no structured scenarios executed –

1. Energy storage enhancements Track 2([link](#))
2. Washington WEIM greenhouse gas enhancements([link](#))
3. WEIM resource sufficiency evaluation redesign phase 2([link](#))
4. Maximum import capability enhancements([link](#))
5. Hybrid Resources 2C – Metered Quantities

3.5 ISO’s Approach

Unstructured Simulation –

If a market participant would like to see specific market conditions for their resource please contact ISO at MarketSim@caiso.com preferably TD-1 prior to the unstructured TD’s DAM or RT market run.


Regression Simulation –

If a market participant would like to see specific market conditions for their resource please contact ISO at MarketSim@caiso.com preferably TD-1 prior to the regression TD’s DAM or RT market run.


3.6 Configuration Guides and Payment Calendars

ISO Settlements Calendar and Configuration guides Fall 2023 Release -


- Draft Settlements Configuration Guides – ([link](#))

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Calendar Day	Day	CMRI T+1B	Submit Meter Data by T+2B 10:00 for Initial	Publish Initial Statement T+5B	Submit Meter Data by T+5B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice	
			T+9B	T+9B	T+70B	T+70B		
28-Aug-23	Monday							
29-Aug-23	Tuesday							
30-Aug-23	Wednesday	29-Aug						
31-Aug-23	Thursday		29-Aug					
01-Sep-23	Friday	31-Aug						
02-Sep-23	Saturday							
03-Sep-23	Sunday							
04-Sep-23	Monday	ISO Holiday						
05-Sep-23	Tuesday		31-Aug					
06-Sep-23	Wednesday	5-Sep		29-Aug	29-Aug			
07-Sep-23	Thursday		5-Sep					
08-Sep-23	Friday	7-Sep		31-Aug	31-Aug			
09-Sep-23	Saturday							
10-Sep-23	Sunday							
11-Sep-23	Monday		7-Sep	Monthly Initial 29- Aug - 31- Aug		29-Aug	Daily Initial 29- Aug; Daily Initial 31-Aug; Monthly Initial 29- Aug - 31-Aug;	
12-Sep-23	Tuesday			5-Sep	5-Sep			
13-Sep-23	Wednesday	12-Sep				31-Aug		
14-Sep-23	Thursday		12-Sep	7-Sep	7-Sep	Monthly Recalc 29- Aug - 31- Aug	Daily Recalc 29- Aug; Daily Recalc 31-Aug; Monthly Recalc 29-Aug - 31-Aug;	
15-Sep-23	Friday	14-Sep		Monthly Initial 05-		5-Sep	Daily Initial 05- Sep; Daily Initial 07-Sep;	

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				Sep - 07-Sep			Monthly Initial 05-Sep - 07-Sep;
16-Sep-23	Saturday						
17-Sep-23	Sunday						
18-Sep-23	Monday		14-Sep				
19-Sep-23	Tuesday			12-Sep	12-Sep	7-Sep	
20-Sep-23	Wednesday	19-Sep				Monthly Recalc 05-Sep - 07-Sep	Daily Recalc 05-Sep; Daily Recalc 07-Sep; Monthly Recalc 05-Sep - 07-Sep;
21-Sep-23	Thursday		19-Sep	14-Sep	14-Sep		
22-Sep-23	Friday	21-Sep		Monthly Initial 12-Sep - 14-Sep		12-Sep	Daily Initial 12-Sep; Daily Initial 14-Sep; Monthly Initial 12-Sep - 14-Sep;
23-Sep-23	Saturday						
24-Sep-23	Sunday						
25-Sep-23	Monday		21-Sep				
26-Sep-23	Tuesday			19-Sep	19-Sep	14-Sep	
27-Sep-23	Wednesday	26-Sep				Monthly Recalc 12-Sep - 14-Sep	Daily Recalc 12-Sep; Daily Recalc 14-Sep; Monthly Recalc 12-Sep - 14-Sep;
28-Sep-23	Thursday		26-Sep	21-Sep	21-Sep		
29-Sep-23	Friday	28-Sep		Monthly Initial 19-Sep - 21-Sep		19-Sep	Daily Initial 19-Sep; Daily Initial 21-Sep; Monthly Initial 19-Sep - 21-Sep;
30-Sep-23	Saturday						
01-Oct-23	Sunday						
02-Oct-23	Monday		28-Sep				
03-Oct-23	Tuesday			26-Sep	26-Sep	21-Sep	
04-Oct-23	Wednesday					Monthly Recalc 19-Sep - 21-Sep	Daily Recalc 19-Sep; Daily Recalc 21-Sep;

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							Monthly Recalc 19-Sep - 21-Sep;
05-Oct-23	Thursday			28-Sep	28-Sep		
06-Oct-23	Friday			Monthly Initial 26- Sep - 28- Sep		26-Sep	Daily Initial 26- Sep; Daily Initial 28-Sep; Monthly Initial 26- Sep - 28-Sep;
07-Oct-23	Saturday						
08-Oct-23	Sunday						
09-Oct-23	Monday						
10-Oct-23	Tuesday					28-Sep	
11-Oct-23	Wednesday					Monthly Recalc 26- Sep - 28- Sep	Daily Recalc 26- Sep; Daily Recalc 28-Sep; Monthly Recalc 26-Sep - 28-Sep;
12-Oct-23	Thursday						
13-Oct-23	Friday						
14-Oct-23	Saturday						
15-Oct-23	Sunday						


4. Market Simulation Support

4.1 Routine Functions

For system connectivity issues, system availability issues, user account and permissions issues, and other technical issues, please contact the ISO Help Desk 24x7, 365 days a year @ (916) 351-2309.

4.2 Market Simulation-Specific Support

The ISO will operate a Market Simulation Support Center throughout the market simulation. This support center is focused on providing support for market simulation specific issues. Hours of operation of the Market Simulation Support Center are 09:00 – 18:00 PPT, Monday through Friday.

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Issues will be tracked through the ISO’s Case Management System, CIDI through market participant portal ([link](#)). Simple questions that can be answered in a single call can be asked without opening a CIDI case, but if the issue cannot be resolved on the call, then participants will need to open a CIDI case. Using the “Functional Environment” field please identify the CIDI case as a “Market Simulation Fall 2023” simulation related question and not a “Production” question.

4.3 Market Simulation Communication

Links to online conferences, dial in numbers, and call schedules to be posted on the ISO Calendar – ([link](#))

4.4 Market Simulation Environment Maintenance


Fall 2023 Release market simulation maintenance will take place Monday morning through Tuesday morning as the weekly maintenance window. At this time, the market simulation environment will not be available for market simulation activities.

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5. Market Simulation Trainings

Please find information regarding Fall 2023 Release market simulation training offerings at the following locations -

- Training calendar – [\(link\)](#)
- ISO training contact – CustomerTraining@caiso.com

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6. Market Simulation Execution and Exceptions

MAP Stage has been setup with specific application characteristics and data flows to foster successful simulation, please note these changes are made to facilitate a simulation and will not be implemented in Production –

The ISO will upload a previous day’s production based bid set for the Day Ahead Markets (DAM) run by 10:00 PPT daily.

Market participants can overwrite these bids between 10:00 PPT and 11:00 PPT when the DAM closes.

DAM will close @ 11:00 PPT and the results will be published by 14:00 PPT daily unless it is a Structured Scenario day, it may take ISO longer to publish DAM due to Scenario setup and verification.

Real Time (RT) template bids will be built from DAM awards as the standard process, ISO will seed RT bids and base schedules for EIM entities.

RT bid markets for a specific Trade Date (TD) open automatically @ 11:00 PPT TD-1.


Market participants are encouraged to bid and base schedule in the Real Time Markets (RTM) to foster a more realistic simulation, the only exceptions are during structured scenario executions were identified.

Market participants will need to register for a tagging test bed user identification if they would like to simulate E-Tagging, if no E-Tag is submitted ISO will “auto tag” on your behalf, limit one registration per SCID.

ISO has activated auto approval for all OMS submissions and changes in MAP Stage.

Please note the timeframes for each Settlements statement publication period are different.

Settlement timelines are covered in section 3.5 above.

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7. Documentation Links

Fall 2023 Release web site – [\(link\)](#)

8. ISO Market Simulation Contact

Please contact MarketSim@caiso.com if you have any questions or concerns regarding this plan and its content.