



California ISO

Market Simulation Plan Independent 2022 Releases

Initiatives –

Reliability Demand Response Resource Bidding Enhancements – Phase 1

Transmission Service and Market Scheduling Priorities – Phase 1

WEIM Resource Sufficiency Evaluation Enhancements Phase 1A

**Version: 1.0
March 25, 2022**

 California ISO	Market Simulation Plan Program Office	Template Version:	1.1
		Template Date:	03/30/2011
ISO External Market Simulation Plan		Document Version:	1.0
		Effective Date	03/25/2022

Location of Document – [\(link\)](#)

Revision History

Date	Version	Description	Author
03/25/2022	1.0	Initial draft	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 Independent 2022 Release initiatives, thereby enabling them to smoothly transition and utilize the new features and functionality that will be available when they go into production.

1.1 Scope of Initiatives

ISO release planning sites for the Independent 2022 Release initiatives – ([link](#))

1. Reliability Demand Response Resource Bidding Enhancements – Phase 1 ([link](#))
2. Transmission Service and Market Scheduling Priorities-Phase 1 ([link](#))
3. WEIM Resource Sufficiency Evaluation Enhancements Phase 1A ([link](#))

1.2 Market Simulation

The ISO conducts market simulations on a regular basis as part of its process of bringing new capabilities to its markets. This provides participants an opportunity to test their systems and procedures in advance of the market implementation. The market simulation process serves a number of purposes for both the ISO and market participants. It also 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 Independent 2022 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, process and procedures which may need modifying due to the functional changes tied to the release.

1.3 Schedule Summary

Independent Release 2022 Market Simulation High Level Time line is the following.

Phase 1 Market Simulation Type	Start	End
Connectivity Testing	04/11/2022	04/15/2022
Structured Simulation	04/19/2022	05/20/2022
Unstructured Simulation	04/19/2022	05/20/2022
Supported Regression Testing	04/19/2022	05/20/2022

ISO will continue to have MAP Stage 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 Independent 2022 Release initiatives market simulations is identified below. Critical pre-simulation activities are identified in section 2.2 of this document.

<u>Independent 2022 Release Initiatives</u>	<u>Start Date</u>	<u>Start Date (Trade Date)</u>	<u>End Date</u>	<u>Structured Simulation Start (Trade Date)</u>
<u>Independent 2022 Release Market Simulation</u>	04/19/22	04/19/22	05/20/22	04/19/22
Reliability Demand Response Resource Bidding Enhancements – Track-1				04/19/22
Transmission Service and Market Scheduling Priorities-Phase 1				05/05/22
WEIM Resource Sufficiency Evaluation Enhancements Phase 1A				TBD

2.2 Pre-Simulation Activities

The Independent 2022 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 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 application access request forms and application installation instructions heading.

Information pertaining to accessing the externally facing ISO environments is detailed on the ISO Developer site ([link](#)).

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2.3 Pre-Simulation and Simulation Activities Calendar

Activity	Description	Timeframe
MAP Stage Maintenance	MAP Stage maintenance for market simulation preparation for the Independent 2022 Release	04/08-04/11
Independent 2022 Releases Market Simulation Kick-Off Teleconference	ISO to conduct a teleconference to provide MPs with a Independent 2022 Releases market simulation briefing	04/07/2022
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	04/07/2022
Independent 2022 Release Simulation Begins	Independent 2022 Releases market simulation in the MAP Stage environment	04/19/2022
Independent 2022 Connectivity Testing	MAP Stage open for interface access validation	04/08 - 04/11
Independent 2022 Structured Scenarios	Independent 2022 Structured Scenarios to be executed.	04/19 - 05/20

3. General Information

3.1 Participant Observation and Inputs

During the Independent 2022 Release initiatives market simulations, participants will be able to observe market results in the same applications that are available in Production: OASIS, CMRI, ADS, etc.

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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 in Production: 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.

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 latest commitment cost data received.

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

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All base schedules are revalidated beginning at 08:25 for the next day only based on 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 will provide all the necessary technical specifications for the Web Service changes in scope for Independent 2022 Release on the ISO Developer site ([link](#)) -

SIBR Rules – ([link](#))

SIBR Tech Specs – ([link](#))

OASIS Tech Specs – ([link](#))

CMRI Tech Specs – ([link](#))

Resource Data Template (RDT) submission and or modifications for the Independent 2022 Release initiatives will take 10 business days to process. Prior to the start of simulation all modified RDT's for the Independent 2022 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 Independent 2022 Release simulations.

ISO will be offering Settlements statements during the Independent 2022 Release market simulation. Similar to Production the ISO will be using estimated Meter data with our initial statements and MP submitted meter data where applicable, for the Re-calc statements.

3.3 Known Issue List

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

3.4 Structured Scenarios

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

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Please submit the information requested by 04/07/22.

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

1. Reliability Demand Response Resource Bidding Enhancements – Track-1 ([link](#))
2. Transmission Service and Market Scheduling Priorities-Phase 1 ([link](#))
3. WEIM Resource Sufficiency Evaluation Enhancements Phase 1A ([link](#))

3.5 ISO’s Approach

Unstructured Simulation –

If a MP 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 MP 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 Independent 2022 Release -

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

Settlements Calendars –

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	
04-Apr-22	Monday						
05-Apr-22	Tuesday						
06-Apr-22	Wednesday	5-Apr					
07-Apr-22	Thursday		5-Apr				

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08-Apr-22	Friday	7-Apr					
09-Apr-22	Saturday						
10-Apr-22	Sunday						
11-Apr-22	Monday		7-Apr				
12-Apr-22	Tuesday			5-Apr	5-Apr		
13-Apr-22	Wednesday	12-Apr					
14-Apr-22	Thursday		12-Apr	7-Apr	7-Apr		
15-Apr-22	Friday			Monthly Initial 05-Apr - 07-Apr		5-Apr	Daily Initial 05-Apr; 07-Apr; Monthly Initial 05-Apr - 07-Apr
16-Apr-22	Saturday	14-Apr					
17-Apr-22	Sunday						
18-Apr-22	Monday		14-Apr				
19-Apr-22	Tuesday			12-Apr	12-Apr	7-Apr	
20-Apr-22	Wednesday					Monthly Recalc 05-Apr - 07-Apr	Daily Recalc 05-Apr; 07-Apr; Monthly Recalc 05-Apr - 07-Apr
21-Apr-22	Thursday	19-Apr					
22-Apr-22	Friday		19-Apr	14-Apr	14-Apr		
23-Apr-22	Saturday						
24-Apr-22	Sunday						
25-Apr-22	Monday		21-Apr				
26-Apr-22	Tuesday			19-Apr	19-Apr	14-Apr	
27-Apr-22	Wednesday					Monthly Recalc 12-Apr - 14-Apr	Daily Recalc 12-Apr; 14-Apr; Monthly Recalc 12-Apr - 14-Apr
28-Apr-22	Thursday	26-Apr					
			26-Apr	21-Apr	21-Apr		

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29-Apr-22	Friday			Monthly Initial 19-Apr - 21-Apr		19-Apr	Daily Initial 19-Apr; 21-Apr; Monthly Initial 19-Apr - 21-Apr
30-Apr-22	Saturday						
01-May-22	Sunday						
02-May-22	Monday		28-Apr				
03-May-22	Tuesday					21-Apr; Monthly Recalc 19-Apr - 21-Apr	Daily Recalc 19-Apr; 21-Apr; Monthly Recalc 19-Apr - 21-Apr
04-May-22	Wednesday	3-May					
05-May-22	Thursday		3-May	28-Apr	28-Apr		
06-May-22	Friday			Monthly Initial 26-Apr - 28-Apr			Daily Initial 26-Apr; 28-Apr; Monthly Initial 26-Apr - 28-Apr
07-May-22	Saturday						
08-May-22	Sunday						
09-May-22	Monday		5-May				
10-May-22	Tuesday			3-May	3-May	28-Apr	
11-May-22	Wednesday					Monthly Recalc 26-Apr - 28-Apr	Daily Recalc 26-Apr; 28-Apr; Monthly REcalc 26-Apr - 28-Apr
12-May-22	Thursday		10-May	5-May	5-May		
13-May-22	Friday			Monthly Initial 03-May - 05-May			Daily Initial 03-May; 05-May; Monthly Initial 03-May - 05-May
14-May-22	Saturday						

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15-May-22	Sunday							
16-May-22	Monday		12-May					
17-May-22	Tuesday			10-May	10-May	5-May		
18-May-22	Wednesday	17-May				Monthly Recalc 03-May - 05-May	Daily Recalc 03-May; 05-May; Monthly Recalc 03-May - 05-May	
19-May-22	Thursday		17-May	12-May	12-May			
20-May-22	Friday	19-May		Monthly Initial 10-May - 12-May		10-May	Daily Initial 10-May; 12-May; Monthly Initial 10-May - 12-May	
21-May-22	Saturday							
22-May-22	Sunday							
23-May-22	Monday		19-May					
24-May-22	Tuesday			17-May	17-May	12-May		
25-May-22	Wednesday					Monthly Recalc 10-May - 12-May	Daily Recalc 10-May; 12-May; Monthly Recalc 10-May - 12-May	
26-May-22	Thursday			19-May	19-May			
27-May-22	Friday			Monthly Initial 17-May - 19-May		17-May	Daily Initial 17-May; 19-May; Monthly Initial 17-May - 19-May	
28-May-22	Saturday							
29-May-22	Sunday							
30-May-22	Monday	CAISO Holiday						
31-May-22	Tuesday							
01-Jun-22	Wednesday					19-May		
02-Jun-22	Thursday					Monthly Recalc 17-	Daily Recalc 17-May; 19-May;	

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						May - 19- May	Monthly Recalc 17-May - 19-May
03-Jun-22	Friday						
04-Jun-22	Saturday						
05-Jun-22	Sunday						

4. Market Simulation Support

4.1 Routine Functions

All normal support processes should be followed for support functions that are not specific to the market simulation. These include system connectivity issues, system availability issues, user account and permissions issues, etc. The ISO Help Desk can be reached 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.

Issues will be tracked through the ISO’s Case Management System, CIDI. 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 Independent 2022” simulation related question and not a “Production” question.

4.3 Market Simulation Communication

Dial in numbers and call schedules to be posted on the ISO Calendar – ([link](#))

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4.4 Market Simulation Environment Maintenance

Independent 2022 Release market simulation maintenance will take place Friday morning through Monday morning as the weekly maintenance window.

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5. Market Simulation Trainings

Please find information regarding Independent 2022 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.

Settlements timelines are covered in section 3.5 above.

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7. Documentation Links

Independent 2022 Release Initiatives Release Planning Site – [\(link\)](#)

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8. ISO Market Simulation Contact

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