




California ISO

Market Simulation Plan Fall 2019 Release

Initiatives – Commitment Costs and Default Energy Bid Enhancements (CCDEBE), Energy Imbalance Market (EIM) Enhancements 2019, Energy Storage and Distributed Energy Resources (ESDER) Phase 3A, Federal Energy Regulatory Commission (FERC) Order 841, Local Market Power Mitigation Enhancements (LMPME), Real-Time (RT) Market Neutrality Settlement and Reliability Must-Run (RMR) and Capacity Procurement Mechanism (CPM) Enhancements

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6/17/19	1.0	Initial draft	Christopher McIntosh
8/15/19	1.1	Deadline for structured scenario resource registration 8/30/19 identified	Christopher McIntosh
8/20/19	1.2	Updated to reflect the new phased approach to Fall 2019 Market Simulation	Christopher McIntosh
8/29/19	1.3	Updated the Phase 2 End Data, added more content to section 3.1 specific to EIM participants	Christopher McIntosh
9/5/19	1.4	Update to the EIM 2019 Enhancement simulation phased approach	Christopher McIntosh



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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 2019 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 Fall 2019 Release initiatives – ([link](#))

1. (Fall) – Commitment Costs and Default Energy Bid Enhancements (CCDEBE) – ([link](#))
2. (Fall) – Energy Imbalance Market (EIM) Enhancements 2019 – ([link](#))
3. (Fall) – Energy Storage and Distributed Energy Resources (ESDER) Phase 3A – ([link](#))
4. (Fall) – Federal Energy Regulatory Commission (FERC) Order 841 – ([link](#))
5. (Fall) – Local Market Power Mitigation Enhancements (LMPME) – ([link](#))
6. (Fall) – Real-Time (RT) Market Neutrality Settlement – ([link](#))
7. (Fall) – Reliability Must-Run (RMR) and Capacity Procurement Mechanism (CPM) Enhancements – ([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 Fall 2019 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

Fall Release 2019 Market Simulation High Level Time line is the following.

Phase 1 Market Simulation Type	Start	End
Connectivity Testing	09/03/19	09/13/19
Structured Simulation	09/16/19	09/27/19
Unstructured Simulation	09/27/19	10/11/19
Supported Regression Testing	10/11/19	11/13/19

Phase 2 Market Simulation Type	Start	End
Connectivity Testing	10/14/19	10/18/19
Unstructured Simulation	10/21/19	11/04/19
Supported Regression Testing	11/04/19	12/04/19

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 Fall 2019 Release initiatives market simulations is identified below. Critical pre-simulation activities are identified in section 2.2 of this document.

<u>Fall 2019 Release Initiatives</u>	<u>Start Date</u>	<u>Start Date (TD)</u>	<u>End Date</u>	<u>Structured Simulation Start (Trade Date)</u>	<u>Expected Participation</u>
<u>Fall 2019 Release Market Simulation Phase 1</u>	09/03/19	09/04/19	10/11/19	09/17/19	
<i>Energy Imbalance Market (EIM) Enhancements 2019 (BAAOP and BSAP Interface Changes)</i>					EIM Market Participants
<i>Energy Storage and Distributed Energy Resources (ESDER) Phase 3A</i>					ISO Market Participants EIM Market Participants
<i>Federal Energy Regulatory Commission (FERC) Order 841</i>					ISO Market Participants EIM Market Participants
<i>Local Market Power Mitigation Enhancements (LMPME)</i>					ISO Market Participants EIM Market Participants
<i>Real-Time (RT) Market Neutrality Settlement</i>					EIM Market Participants
<i>Reliability Must-Run (RMR) and Capacity Procurement Mechanism (CPM) Enhancements</i>					ISO Market Participants
<u>Fall 2019 Release Market Simulation Phase 2</u>	10/14/19	10/15/19	11/04/19	N/A	

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<i>Commitment Costs and Default Energy Bid Enhancements (CCDEBE)</i>					ISO Market Participants EIM Market Participants
<i>Energy Imbalance Market (EIM) Enhancements 2019 (Reporting Features)</i>					EIM Market Participants

2.2 Pre-Simulation Activities


The Fall 2019 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 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 2019 Release	08/16/19 – 09/02/19
Fall 2019 Releases Market Simulation Kick-Off Teleconference	ISO to conduct a teleconference to provide MPs with a Fall 2019 Releases market simulation briefing	08/29/19

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Activity	Description	Timeframe
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	08/30/19
Phase 1 Fall 2019 Release Simulation Begins	Phase 1 Fall 2019 Releases market simulation in the MAP Stage environment	09/03/19
Phase 1 Fall 2019 Connectivity Testing	MAP Stage open for interface Phase 1 access validation	09/03/19 – 09/13/19
Phase 1 Fall 2019 Structured Scenarios	Fall 2019 Structured Scenarios to be executed.	09/16/19 - 09/27/19
Phase 2 Fall 2019 Connectivity Testing	MAP Stage open for interface Phase 2 access validation	10/14/19 – 10/18/19
Phase 2 Fall 2019 Unstructured Validation	Phase 2 Fall 2019 Unstructured Validation Period.	10/21/19 – 11/04/19

3. General Information

3.1 Participant Observation and Inputs


During the Fall 2019 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.

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.

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- 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.


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 has provided all the necessary technical specifications for the Web Service changes in scope for Fall 2019 Release -

Master File Tech GRDT – ([link](#))

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CMRI Tech Specs – ([link](#))
 OASIS Tech Specs – ([link](#))
 SIBR Tech Specs – ([link](#))

Resource Data Template (RDT) submission and or modifications for the Fall 2019 Release initiatives will take 10 business days to process. Prior to the start of simulation all modified RDT's for the Fall 2019 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 2019 Release simulations.

ISO will be offering Settlements statements during the Fall 2019 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.

Please submit the information requested below by 08/30/19.

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


1. Energy Storage and Distributed Energy Resources (ESDER) Phase 3A – ([link](#))
2. Local Market Power Mitigation Enhancements (LMPME) – ([link](#))
3. Reliability Must-Run (RMR) and Capacity Procurement Mechanism (CPM) Enhancements – ([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 –

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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 Fall 2019 Release -

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




Market Sim Calendar - Fall 2019 Release Sep 3, 2019 through Oct 11, 2019


Calendar Day	Day	CMRI T+1B	Publish Initial Statement T+4B	Submit Meter Data by T+4B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice
02-Sep-19	Monday	Cal ISO Holiday				
03-Sep-19	Tuesday					
04-Sep-19	Wednesday					
05-Sep-19	Thursday	4-Sep				
06-Sep-19	Friday	5-Sep				
07-Sep-19	Saturday					
08-Sep-19	Sunday					
09-Sep-19	Monday					
10-Sep-19	Tuesday		4-Sep	4-Sep		
11-Sep-19	Wednesday		5-Sep	5-Sep		
12-Sep-19	Thursday	11-Sep	Monthly Initial 04-Sep - 5-Sep			Daily Initial 4-Sep, 5-Sep Monthly Initial

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						4-Sep - 5-Sep
13-Sep-19	Friday	12-Sep				
14-Sep-19	Saturday					
15-Sep-19	Sunday					
16-Sep-19	Monday				4-Sep	
17-Sep-19	Tuesday		11-Sep	11-Sep	5-Sep	
18-Sep-19	Wednesday		12-Sep	12-Sep	Monthly Recalc 04-Sep - 5-Sep	Daily Recalc 4-Sep, 5-Sep Monthly Recalc 4-Sep - 5-Sep
19-Sep-19	Thursday	18-Sep	Monthly Initial 11-Sep - 12-Sep			Daily Initial 11-Sep, 12-Sep Monthly Initial 11-Sep - 12-Sep
20-Sep-19	Friday	19-Sep				
21-Sep-19	Saturday					
22-Sep-19	Sunday					
23-Sep-19	Monday				11-Sep	
24-Sep-19	Tuesday		18-Sep	18-Sep	12-Sep	
25-Sep-19	Wednesday		19-Sep	19-Sep	Monthly Recalc 11-Sep - 12-Sep	Daily Recalc 11-Sep, 12-Sep Monthly Recalc 11-Sep - 12-Sep

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26-Sep-19	Thursday	25-Sep	Monthly Initial 18-Sep - 19-Sep			Daily Initial 18-Sep, 19-Sep Monthly Initial 18-Sep - 19-Sep
27-Sep-19	Friday	26-Sep				
28-Sep-19	Saturday					
29-Sep-19	Sunday					
30-Sep-19	Monday				18-Sep	
01-Oct-19	Tuesday		25-Sep	25-Sep	19-Sep	
02-Oct-19	Wednesday		26-Sep	26-Sep	Monthly Recalc 18-Sep - 19-Sep	Daily Recalc 18-Sep, 19-Sep Monthly Recalc 18-Sep - 19-Sep
03-Oct-19	Thursday	2-Oct	Monthly Initial 25-Sep - 26-Sep			Daily Initial 25-Sep, 26-Sep Monthly Initial 25-Sep - 26-Sep
04-Oct-19	Friday	3-Oct				
05-Oct-19	Saturday					
06-Oct-19	Sunday					
07-Oct-19	Monday				25-Sep	
08-Oct-19	Tuesday		2-Oct	2-Oct	26-Sep	
09-Oct-19	Wednesday		3-Oct	3-Oct	Monthly Recalc 25-Sep - 26-Sep	Daily Recalc 25-Sep, 26-Sep Monthly

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						Recalc 25-Sep - 26-Sep
10-Oct-19	Thursday	9-Oct	Monthly Initial 02-Oct - 03-Oct			Daily Initial 02-Oct, 03-Oct Monthly Initial 02-Oct - 03-Oct
11-Oct-19	Friday	10-Oct				
12-Oct-19	Saturday					
13-Oct-19	Sunday					
14-Oct-19	Monday				2-Oct	
15-Oct-19	Tuesday		9-Oct		3-Oct	
16-Oct-19	Wednesday		10-Oct		Monthly Recalc 02-Oct - 03-Oct	Daily Recalc 02-Oct, 03-Oct Monthly Recalc 02-Oct - 03-Oct
17-Oct-19	Thursday		Monthly Initial 09-Oct - 10-Oct			Daily Initial 09-Oct, 10-Oct Monthly Initial 09-Oct - 10-Oct
18-Oct-19	Friday					
19-Oct-19	Saturday					
20-Oct-19	Sunday					

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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 Fall 2019” 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 – ([TBD](#))

4.4 Market Simulation Environment Maintenance


Fall 2019 Release market simulation maintenance will take place Monday morning through Tuesday morning as the weekly maintenance window.

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5. Market Simulation Trainings

Please find information regarding Fall 2019 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

Fall 2019 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.