



California ISO

Market Simulation Plan Independent 2018 & Spring 2019 Releases

**Initiatives – Congestion Revenue Rights Auction
Efficiency – 1B, Energy Imbalance Market 2019
Balancing Authority of Northern California / Sacramento
Municipal Utility District**

Version: 1.4

November 26, 2018

 California ISO	Market Simulation Plan Program Office	Template Version:	1.1
		Template Date:	03/30/2011
ISO External Market Simulation Plan		Document Version:	1.4
		Effective Date	11/26/2018

Location of Document – [\(link\)](#)

Revision History

Date	Version	Description	Author
10/15/18	1.0	Initial	Trang Deluca
10/24/18	1.1	Add Settlements Calendars, add impacted systems for maintenance, add Independent 2018 connectivity window	Trang Deluca
11/12/18	1.2	Added new Settlements Calendar 3.7	Adam Wohlsen
11/20/18	1.3	Updated Settlements Calendar and corresponding dates in 1.3, 2.1, and 2.3. Link provided for CRR-1B Structured Scenarios	Adam Wohlsen
11/26/18	1.4	Updated Settlements Calendar 3.7	Adam Wohlsen

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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 2018 release and Spring 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 Independent 2018 release and Spring 2019 Release initiatives – ([link](#))

1. (2018) – Congestion Revenue Rights Auction Efficiency – 1B – ([link](#))
2. (Spring 2019) – Energy Imbalance Market 2019 Balancing Authority of Northern California / Sacramento Municipal Utility District – ([link TBD](#))

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 2018 release and Spring 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.
- Providing an environment where market participants can scrutinize and tailor their own tools, applications, and business practices to participate in new market functionality.

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- 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

The Congestion Revenue Rights Auction Efficiency – 1B market simulation will begin 11/05/18 and end on trade date 12/18/18. The Energy Imbalance Market 2019 Balancing Authority of Northern California / Sacramento Municipal Utility District market simulation will begin 12/4/18 and end on trade date 1/31/19. ISO will continue to have MAP Stage available for market participants to support regression testing if necessary.

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2. Market Simulation Approach

2.1 High Level Overview

The timeline for the Independent 2018 release and Spring 2019 release initiatives market simulations is identified below. Critical pre-simulation activities are identified in section 2.2 of this document.

<u>Independent 2018 release and Spring 2019 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>Expected Participation</u>
<u>Independent 2018 Release Market Simulation</u>	11/5	11/5	12/18	11/19	
CRR Auction Efficiency – 1B	11/5	11/5	12/18	11/19	ISO Market Participants EIM Market Participants
<u>Spring 2019 Release Market Simulation</u>	12/4	12/4	1/31	12/4	
EIM 2019 BANC / SMUD	12/4	12/4	1/31	12/4	ISO Market Participants EIM Market Participants

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2.2 Pre-Simulation Activities

The Independent 2018 release and Spring 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), Scheduling Infrastructure and Business Rules (SIBR), 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”.

Systems Access Information Document – ([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 – CMRI, CRR	10/29-11/5
Independent 2018 release Market Simulation Kick-Off Teleconference	ISO to conduct a teleconference to provide MPs with Independent 2018 release market simulation briefing.	11/1
Independent 2018 release Simulation Begins	Independent 2018 release market simulation in the MAP Stage environment for the following project: CRR Auction Efficiency – 1B	11/5
Independent 2018 release connectivity	Independent 2018 release connectivity in the MAP Stage environment for the following project: CRR Auction Efficiency – 1B	11/5-11/9
Independent 2018 release and Spring 2019 Release Simulation Begins for Group 2	Spring 2019 Releases market simulation in the MAP Stage environment for the following project: EIM 2019 – BANC / SMUD	12/4
Spring 2019 Structured Scenarios	Spring 2019 Structured Scenarios for the following project: EIM 2019 BANC / SMUD are executed.	12/4

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3. General Information

3.1 Participant Observation and Inputs

During the Independent 2018 release and Spring 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

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

Participants wishing to check and or submit 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 7am 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 bid for T+1 can do so after 12:00pm (noon), no seeded data will over-write submitted bids.

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 at 22:10 for the next day based on latest commitment cost data received.

Bids must be submitted or verified by participants wanting to validate functionality in SIBR 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 Independent 2018 release and Spring 2019 Release -

CMRI Tech Specs – ([link](#))

Draft Settlements Tech Docs – ([link](#))

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Resource Data Template (RDT) submission and or modifications for the Independent 2018 release and Spring 2019 Release initiatives will take 10 business days to process. Prior to the start of simulation all modified RDT's for the Independent 2018 release and Spring 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 Independent 2018 release and Spring 2019 Release simulations.

ISO will be offering Settlements statements during the Independent 2018 release and Spring 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.

3.4 Structured Scenarios

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

1. CRR Auction Efficiency – 1B ([link](#))
2. EIM 2019 BANC / SMUD ([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 2018 release and Spring 2019 Release -

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

3.7 Settlements Calendars –

Independent 2018 release and Spring 2019 Calendars –

Independent 2018

Calendar Day	Day	CMRI T+1B	Publish Initial Statement T+4B	Meter Data by T+4B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice
05-Nov-18	Monday					
06-Nov-18	Tuesday					
07-Nov-18	Wednesday					
08-Nov-18	Thursday	7-Nov				
09-Nov-18	Friday					
10-Nov-18	Saturday					
11-Nov-18	Sunday					
12-Nov-18	Monday					
13-Nov-18	Tuesday		7-Nov			
14-Nov-18	Wednesday					
15-Nov-18	Thursday					
16-Nov-18	Friday					
17-Nov-18	Saturday					
18-Nov-18	Sunday					
19-Nov-18	Monday					
20-Nov-18	Tuesday	19-Nov				
21-Nov-18	Wednesday	20-Nov				
22-Nov-18	Thursday					
23-Nov-18	Friday					
24-Nov-18	Saturday					
25-Nov-18	Sunday					
26-Nov-18	Monday					
27-Nov-18	Tuesday		19-Nov, 20-Nov	19-Nov		
28-Nov-18	Wednesday		Monthly Initial 19-Nov – 20-Nov	20-Nov		Daily Initial 19-Nov, 20-Nov Monthly Initial 19-Nov-20 -Nov

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Calendar Day	Day	CMRI T+1B	Publish Initial Statement T+4B	Meter Data by T+4B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice
29-Nov-18	Thursday					
30-Nov-18	Friday					
01-Dec-18	Saturday					
02-Dec-18	Sunday					
03-Dec-18	Monday				19-Nov	
04-Dec-18	Tuesday				20-Nov	
05-Dec-18	Wednesday	4-Dec			Monthly Recalc 19-Nov – 20-Nov	Daily Recalc 19-Nov, 20-Nov Monthly Recalc 19-Nov – 20-Nov
06-Dec-18	Thursday	5-Dec				
07-Dec-18	Friday					
08-Dec-18	Saturday					
09-Dec-18	Sunday					
10-Dec-18	Monday		4-Dec	4-Dec		
11-Dec-18	Tuesday		5-Dec	5-Dec		
12-Dec-18	Wednesday		4-Dec – 5-Dec			Daily Initial 4-Dec, 5-Dec Monthly Initial 4-Dec – 5-Dec
13-Dec-18	Thursday					
14-Dec-18	Friday				4-Dec	
15-Dec-18	Saturday					
16-Dec-18	Sunday					
17-Dec-18	Monday				5-Dec	
18-Dec-18	Tuesday				4-Dec – 5-Dec	Daily Recalc 4-Dec, 5-Dec Monthly Recalc 4-Dec – 5-Dec

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Spring 2019

Calendar Day	Day	CMRI T+1B	Publish Initial Statement T+4B	Meter Data by T+4B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice	
03-Dec-18	Monday						
04-Dec-18	Tuesday						
05-Dec-18	Wednesday	4-Dec					
06-Dec-18	Thursday	5-Dec					
07-Dec-18	Friday						
08-Dec-18	Saturday						
09-Dec-18	Sunday						
10-Dec-18	Monday		4-Dec	4-Dec			
11-Dec-18	Tuesday		5-Dec	5-Dec			
12-Dec-18	Wednesday	11-Dec	4-Dec - 5-Dec			Daily Initial 4-Dec, 5-Dec Monthly Initial 4-Dec - 5-Dec	
13-Dec-18	Thursday	12-Dec					
14-Dec-18	Friday				4-Dec		
15-Dec-18	Saturday						
16-Dec-18	Sunday						
17-Dec-18	Monday		11-Dec	11-Dec	5-Dec		
18-Dec-18	Tuesday		12-Dec	12-Dec	4-Dec - 5-Dec	Daily Recalc 4-Dec, 5-Dec Monthly Recalc 4-Dec - 5-Dec	
19-Dec-18	Wednesday	18-Dec					
20-Dec-18	Thursday	19-Dec					
21-Dec-18	Friday				11-Dec		
22-Dec-18	Saturday						
23-Dec-18	Sunday						
24-Dec-18	Monday						
25-Dec-18	Tuesday	ISO Holiday					
26-Dec-18	Wednesday		18-Dec	18-Dec	12-Dec		
27-Dec-18	Thursday		19-Dec	19-Dec			
28-Dec-18	Friday						
29-Dec-18	Saturday						
30-Dec-18	Sunday						

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Calendar Day	Day	CMRI T+1B	Publish Initial Statement T+4B	Meter Data by T+4B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice	
31-Dec-18	Monday		Monthly Initial 11-Dec - 19-Dec			Daily Initial 11-Dec, 12-Dec, 18-Dec, 19-Dec Monthly Initial 11-Dec - 19-Dec	
01-Jan-19	Tuesday	ISO Holiday					
02-Jan-19	Wednesday				18-Dec		
03-Jan-19	Thursday				19-Dec		
04-Jan-19	Friday				Monthly Recalc 11-Dec - 19-Dec	Daily Recalc 11-Dec, 12-Dec, 18-Dec, 19-Dec Monthly Recalc 11-Dec - 19-Dec	
05-Jan-19	Saturday						
06-Jan-19	Sunday						
07-Jan-19	Monday						
08-Jan-19	Tuesday						
09-Jan-19	Wednesday	8-Jan					
10-Jan-19	Thursday	9-Jan					
11-Jan-19	Friday						
12-Jan-19	Saturday						
13-Jan-19	Sunday						
14-Jan-19	Monday		8-Jan	8-Jan			
15-Jan-19	Tuesday		9-Jan	9-Jan			
16-Jan-19	Wednesday	15-Jan	Monthly Initial 8-Jan - 9-Jan				
17-Jan-19	Thursday	16-Jan				Daily Initial 8-Jan, 9-Dec Monthly Initial 8-Jan - 9-Jan	
18-Jan-19	Friday				8-Jan		
19-Jan-19	Saturday						
20-Jan-19	Sunday						
21-Jan-19	Monday						
22-Jan-19	Tuesday		15-Jan		9-Jan		
23-Jan-19	Wednesday	22-Jan	16-Jan		Monthly Recalc 8-Jan - 9-Jan	Daily Recalc 8-Jan, 9-Dec Monthly Recalc 8-Jan - 9-Jan	
24-Jan-19	Thursday	23-Jan	Monthly Initial 15-Jan - 16-Jan				
25-Jan-19	Friday						
26-Jan-19	Saturday						

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Calendar Day	Day	CMRI T+1B	Publish Initial Statement T+4B	Meter Data by T+4B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice
27-Jan-19	Sunday					
28-Jan-19	Monday		22-Jan			
29-Jan-19	Tuesday		23-Jan			
30-Jan-19	Wednesday					
31-Jan-19	Thursday					

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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” 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 – [\(link\)](#)

4.4 Market Simulation Environment Maintenance

Independent 2018 release and Spring 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 Independent 2018 release and Spring 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

Independent 2018 release and Spring 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.