



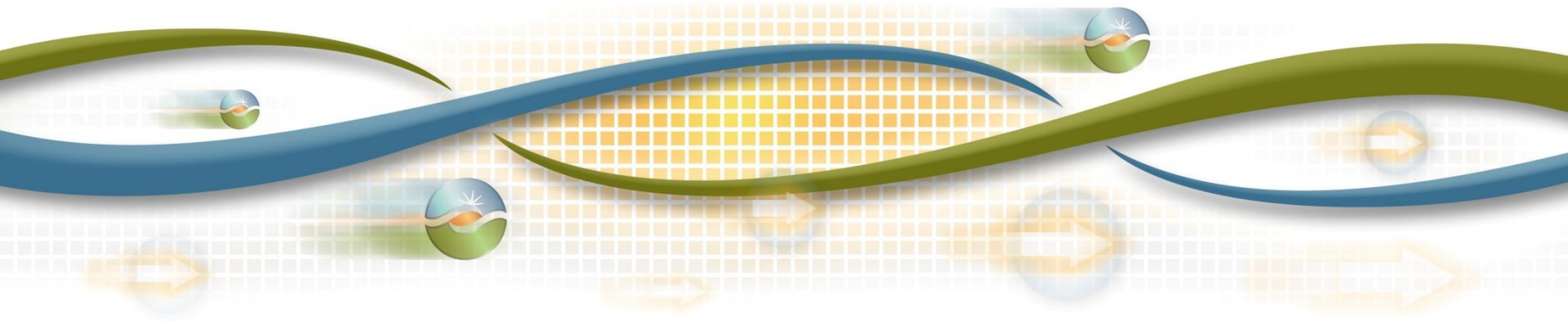
Market Simulation – Spring and Independent 2017 Releases

Trang Deluca

Sr. Change and Release Planner

Spring and Independent 2017 Releases Market Simulation

April 17, 2017



Agenda

- Spring and Independent 2017 MAP Stage Availability
- Spring and Independent 2017 Market Simulation Initiatives and Timelines
- Initiatives
 - LMPM Enhancements
 - PIRP System Decommissioning
 - MRI-S ACL Groups and CPG Enhancements
- Known Issues
- Next Steps
- Reference Slides

Spring and Independent 2017 Releases MAP Stage Availability

MAP Stage Scheduled Maintenance –

Upcoming maintenance –

MRI-S GUI only offline, available May 1, 2017

MAP Stage Daily Maintenance Window - Tuesday, Wednesday, Thursday and Friday 16:00 – 20:00

MAP Stage Weekly Maintenance Window - Monday 08:00 – Tuesday 09:00

Please refer to the MAP Stage portal at <https://portalmap.caiso.com> for specific application availability information.

Spring and Independent 2017 Releases Market Simulation Initiatives and Timelines

<u>Spring and Independent 2017 Releases 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>Spring 2017 Release Market Simulation</u>					
RTD LMPM	2/6/17	2/7/17	2/24/17	N/A	EIM Entities and ISO MPs
PIRP System Decommissioning	4/4/17	N/A	4/18/17	N/A	ISO MPs
<u>Independent 2017 Release Market Simulation</u>					
MRI-S ACL Groups and CPG Enhancements	3/13/17	N/A	5/26/17	N/A	EIM Entities and ISO MPs

Market Simulation Plan -

http://www.caiso.com/Documents/MarketSimulationPlan_Spring_Independent2017Releases.pdf

Local Market Power Mitigation (LMPM) Enhancements Simulation

LMPM Enhancements Market Simulation timeline - Complete

CMRI Tech Spec –

http://www.caiso.com/Documents/CMRI-InterfaceSpecification_v3_5_4Clean_Fall2016Release.pdf

OASIS Tech Spec –

http://www.caiso.com/Documents/OASIS-InterfaceSpecification_v4_3_5Clean_Spring2017Release.pdf

OASIS LMPM Enhancements reports deployed to MAP Stage March 15, 2017 –

1. PRC_MPM_RTM_NOMOGRAM_CMP RTD - now has data for TD 3/23 Intervals 8-12. This report will only have data when the nomogram is binding, thus will be intermittent.
2. PRC_MPM_CNSTR_CMP - RTD - this report has data TD 3/22 starting HE12
3. PRC_MPM_RTM_REF_BUS - RTD - this report has data TD 3/22 starting HE12

PIRP System Decommissioning Simulation

PIRP System Decommissioning Market Simulation timeline –

- PIRP System Decommissioning Simulation - April 4, 2017 – April 18, 2017

CMRI Tech Spec –

- http://www.caiso.com/Documents/CMRI-InterfaceSpecification_v3_5_4Clean_Fall2016Release.pdf

MRI-S ACL Groups and CPG Enhancements Simulation

MRI-S ACL Groups and CPG Enhancements Market Simulation timeline –

- MRI-S ACL Groups and CPG Enhancements Simulation - March 13, 2017 – May 26, 2017
Unstructured

MRI-S Tech Spec –

- http://www.caiso.com/Documents/OMAROnlineReplacementTechnicalSpecificationCleanV1_10.pdf

AIM ACL Training –

- http://www.caiso.com/Documents/Access_IdentityManagementAccessControlListTraining-Jan_2017.pdf

AIM User Guide –

- <http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=EBFDD87D-9926-4BFE-8DBD-09AA3D1E5CC5>

Known Issues

#	System	Summary	Status	Estimated Fix Date
1	MRI-S	Implementation of the requirement stated in MRIS-BRQ085 for allowing users within the same organization to view the batch submission status is being delayed in market simulation pending further security validations.	Open	5/1/2017
2	MRI-S	The error description for error code 1028 incorrectly has X and Y instead of the actual meter value and PMAX, respectively.	Open	5/1/2017
3	MRI-S	Intermittent issues with Export function in the UI not returning expected results.	Open	5/1/2017
4	MRI-S	UpdateSinceDateTime does not allow time input	Open	5/1/2017
5	MRI-S	IntervalEndTime for 3/12/2017 (DST Date) is not displaying correctly	Open	5/1/2017
6	MRI-S	Error generated when data is submitted for a resource that is valid till the end of the day in GMT	New	5/1/2017
7	AIM	AIM existing ACL group issue, for PIRP Decommissioning please only provision ACL groups that conform to the following format EXC_xxxx_xxx	New	TBD

Next Steps

- The next teleconference will take place @ 14:00 PPT on Thursday April 20, 2017

Reference Slides

Transmission B2B Service Changes

- Production activation, April 5, 2017
- Transmission B2B Service Changes
 - V1 supported, V2 to be added
 - NoW Enumerations: RIMS_OUTAGE, RIMS_TESTING,
 - New Equipment Type – SYNCHRONOUS_MACHINE and Multiple instances of Adjusted Operational Limit per Equipment

Nature of Work	Switch Modeling	Equipment Derate	Overlaps Allowed	Exclusive Nature of Work
RIMS Outage	A	A	Yes	Yes
RIMS Testing	A	A	Yes	Yes
Out of service	R	A	Yes	Yes
Energized Work			Yes	Yes
Relay work		A	Yes	Yes
Special Setup	A	A	Yes	Yes
Test Program	A	A	Yes	Yes
Equipment Derate		R	Yes	Yes
Equipment Abnormal	A	A	Yes	Yes
Path Limitation	A	A	Yes	Yes
Communications			Yes	Yes
Out of Service with Special Setup	A	A	Yes	Yes

Settlements Calendar for Settlements Production Release (sample statement)

Calendar Day	CMRI T+1B	Publish Initial Statement T+4B
04-Mar-17		
05-Mar-17		
06-Mar-17		
07-Mar-17		
08-Mar-17		
09-Mar-17	8-Mar	
10-Mar-17		
11-Mar-17		
12-Mar-17		
13-Mar-17		
14-Mar-17		8-Mar
15-Mar-17		
16-Mar-17		
17-Mar-17		

Draft Configuration Output File has been posted under “***Settlements technical documentation***” at:

<http://www.caiso.com/market/Pages/Settlements/Default.aspx>

Settlements Calendar for Spring Release 2017

Calendar Day	CMRI T+1B	Publish Initial Statement T+4B
13-Feb-17		
14-Feb-17		
15-Feb-17		
16-Feb-17	15-Feb	
17-Feb-17		
18-Feb-17		
19-Feb-17		
20-Feb-17	ISO Holiday	
21-Feb-17		
22-Feb-17		15-Feb
23-Feb-17		
24-Feb-17		
25-Feb-17		
26-Feb-17		

February 15, 2017 TD statement was published on time.

FMM and RTD Market Execution Reports

Link -

<http://www.caiso.com/Pages/documentsbygroup.aspx?GroupID=DB357A9C-87C9-4BDF-8020-29C5E40A7A82>

Mitigation Status

<http://oasismap.caiso.com/mrioasis/logon.do>

Market Power Mitigation Status

File Edit View Favorites Tools Help

CQ HP QC IOOC MAPStage MAPStageBAAOP MAPTest BAAOP MapTest Stage BAAOP (EIM)

California ISO OASIS

OASISUI MAPStag

ATLAS REFERENCE REPORT DEFINITION PRICES TRANSMISSION SYSTEM DEMAND ENERGY ANCILLARY SERVICES CONGESTION REVENUE RIGHTS

Date From: 02/15/2017 To: 02/15/2017 Market/Process: RTM Execution Type: RTD BAA ID: [ALL]

Download XML Download CSV

Market Power Mitigation Status

Balancing Authority Area ID	Market	Opr Date	Execution Type	Opr Interval	HE01	HE02	HE03	HE04	HE05	HE06	HE07	HE08	HE09	HE10	HE11	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20	HE21	HE22	HE23
CISO	RTM	02/15/2017	RTD	1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y			Y	Y						
CISO	RTM	02/15/2017	RTD	2	N	Y	Y	Y	Y	Y		Y	Y	Y	Y		Y	Y	Y		Y	Y					
CISO	RTM	02/15/2017	RTD	3	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	N		Y	Y	Y		Y	N					
CISO	RTM	02/15/2017	RTD	4	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y					
CISO	RTM	02/15/2017	RTD	5	N	N	N	N	N	N	Y		Y	Y			Y	Y			N	N					
CISO	RTM	02/15/2017	RTD	6	N	N	N	N	N	N	Y			Y	Y		Y										
CISO	RTM	02/15/2017	RTD	7	N	Y	Y	Y	N	Y	Y		Y	Y			Y				Y	Y					
CISO	RTM	02/15/2017	RTD	8	N	N	N	N	N	Y	Y		Y			Y			N	N							
CISO	RTM	02/15/2017	RTD	9	N	N	N	N	N	Y	Y		Y			Y					Y						
CISO	RTM	02/15/2017	RTD	10	N	Y	Y	Y	N	Y	Y	Y					Y				N	Y					
CISO	RTM	02/15/2017	RTD	11	N	N	N	N	N	N	Y		Y			Y					N						
CISO	RTM	02/15/2017	RTD	12	N	N	N	N	N	N	Y		Y		Y			N	Y	N							

For RT Interval 17:45 - LMP for | SMEC=

CONNECTED QUICK LINKS

OASIS Home System Operating Messages LMP Price Contour Maps Trading Hub Real-Time Prices Historical ACE SYSTEM HELP WWW.CAISO.COM Support System Technical Information 02/15/2017 17:45 PST

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MPM Not Competitive constraints on Oasis

The screenshot displays the OASIS web application interface. At the top, the browser address bar shows the URL: <http://oasismap.caiso.com/mrioasis/logon.do>. The page header includes the California ISO logo and the OASIS title. Below the header, there are navigation tabs: ATLAS REFERENCE, REPORT DEFINITION, PRICES, TRANSMISSION, SYSTEM DEMAND, ENERGY, ANCILLARY SERVICES, and CONGESTION REVENUE RIGHTS. The 'PRICES' tab is currently selected.

The main content area is divided into several sections:

- Date Range:** Date From: 02/15/2017 To: 02/15/2017
- Download Options:** Download XML, Download CSV
- Market Power Mitigation Status Table:**

Balancing Authority Area ID	Market	Opr Date	Execution Type	Opr Inter
CISO	RTM	02/15/2017	RTD	1
CISO	RTM	02/15/2017	RTD	2
CISO	RTM	02/15/2017	RTD	3
CISO	RTM	02/15/2017	RTD	4
CISO	RTM	02/15/2017	RTD	5
CISO	RTM	02/15/2017	RTD	6
CISO	RTM	02/15/2017	RTD	7
CISO	RTM	02/15/2017	RTD	8
CISO	RTM	02/15/2017	RTD	9
CISO	RTM	02/15/2017	RTD	10
CISO	RTM	02/15/2017	RTD	11
CISO	RTM	02/15/2017	RTD	12
- Report Generated:** 02/16/2017 01:44:00
- CONNECTED QUICK LINKS:** OASIS Home, System Operating Messa
- Disclaimer:** The contents of these pages are subject to change without notice. Copy

The right-hand side of the interface shows a list of constraints and their status for various hours (HE14 to HE23). The constraints listed include:

- Locational Marginal Prices
- Scheduling Point/Tie Combination Locational Marginal Prices
- Interval Locational Marginal Prices
- Interval Scheduling Point/Tie Combination Locational Marginal Prices
- Nomogram/Branch Shadow Prices
- AS Clearing Prices
- Interval AS Clearing Prices
- Intertie Constraint Shadow Prices
- HASP Locational Marginal Prices
- FMM Locational Marginal Prices
- FMM Scheduling Point/Tie Combination Locational Marginal Prices
- Fuel Prices
- Interval Intertie Constraint Shadow Prices
- Interval Nomogram/Branch Shadow Prices
- Reference Prices
- Nodal Group Constraints
- Flexible Ramping Constraint Results
- Contingency Dispatch Locational Marginal Prices
- Contingency Dispatch Scheduling Point/Tie Combination Locational Marginal Prices
- Contingency Dispatch Intertie Constraint Shadow Prices
- Contingency Dispatch Nomogram/Branch Shadow Prices
- MPM DA Locational Marginal Prices
- MPM RT Locational Marginal Prices
- MPM Nomogram/Branch Shadow Prices
- MPM Nomogram/Branch Competitive Paths
- MPM Intertie Constraint Shadow Prices
- MPM Intertie Constraint Competitive Paths
- MPM Reference Bus
- Greenhouse Gas Allowance Index Prices
- MPM Default Competitive Path Assessment List

The status for these constraints is shown in a grid format for hours HE14 through HE23. For example, 'Interval Intertie Constraint Shadow Prices' shows 'Y' for HE16 and HE17, and 'N' for HE18 and HE19. 'Reference Prices' shows 'Y' for HE18 and HE19. 'Nodal Group Constraints' shows 'N' for HE18 and HE19. 'Flexible Ramping Constraint Results' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'Contingency Dispatch Locational Marginal Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'Contingency Dispatch Scheduling Point/Tie Combination Locational Marginal Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'Contingency Dispatch Intertie Constraint Shadow Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'Contingency Dispatch Nomogram/Branch Shadow Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM DA Locational Marginal Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM RT Locational Marginal Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM Nomogram/Branch Shadow Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM Nomogram/Branch Competitive Paths' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM Intertie Constraint Shadow Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM Intertie Constraint Competitive Paths' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM Reference Bus' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'Greenhouse Gas Allowance Index Prices' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17. 'MPM Default Competitive Path Assessment List' shows 'N' for HE14 and HE15, and 'Y' for HE16 and HE17.

At the bottom of the page, there is a footer with the California ISO logo and the text "Page 16".

Not competitive constraints for 02/15/2017 HE13

HE	Interval	Not competitive Interface	Type of constraint
13		17755 SOL5_NG	Nomogram
		PATH26_BG	
13		1TCOR	
13		1PACW	EIM XFER
13		1PSEI	EIM XFER
13		225406_J.HINDS _230_24806_MIRAGE _230_BR_1 _1	LINE
13		2NEVP	EIM XFER
13		2AZPS	EIM XFER
13		2PSEI	EIM XFER
13		2PACE	EIM XFER
13		2PACW	EIM XFER
13		325406_J.HINDS _230_24806_MIRAGE _230_BR_1 _1	LINE
		PATH26_BG	
13		3TCOR	
13		3SUMMIT_BG	TCOR
13		3NEVP	EIM XFER
13		3PSEI	EIM XFER
13		3PACE	EIM XFER
13		3PACW	EIM XFER
13		425406_J.HINDS _230_24806_MIRAGE _230_BR_1 _1	LINE
13		4SUMMIT_BG	TCOR
13		4NEVP	EIM XFER
13		4AZPS	EIM XFER
13		4PSEI	EIM XFER
13		4PACE	EIM XFER
13		4PACW	EIM XFER
13		47755 SOL5_NG	Nomogram

Not competitive constraints for 02/15/2017 HE13

13	5 25406_J.HINDS_230_24806_MIRAGE_230_BR_1_1	LINE
13	5 NEVP	EIM XFER
13	5 AZPS	EIM XFER
13	5 PSEI	EIM XFER
13	5 PACE	EIM XFER
13	5 PACW	EIM XFER
13	6 25406_J.HINDS_230_24806_MIRAGE_230_BR_1_1	LINE
13	6 NEVP	EIM XFER
13	6 AZPS	EIM XFER
13	6 PSEI	EIM XFER
13	6 PACE	EIM XFER
13	6 PACW	EIM XFER
13	7 25406_J.HINDS_230_24806_MIRAGE_230_BR_1_1	LINE
13	7 NEVP	EIM XFER
13	7 AZPS	EIM XFER
13	7 PSEI	EIM XFER
13	7 PACE	EIM XFER
13	7 PACW	EIM XFER
13	12 NEVP	EIM XFER
13	12 AZPS	EIM XFER
13	12 PSEI	EIM XFER
13	12 PACE	EIM XFER
13	12 PACW	EIM XFER

Key points

- Input bid from corresponding RTPD is used in RTD LMPM. It can be market bid, or mitigated in RTPD bid.
- RTPD mitigated bid can be mitigated farther in RTD.
- RTD LMPM evaluates second interval. If bids are mitigated, they will be used for binding interval of next RTD.
- Mitigated bids will be used within quarter of the hour (15 min interval corresponding to RTPD interval).
Corresponding RTPD input bids used at the beginning of every quarter.
- EIM bids will be mitigated if EIM MCP is higher than CAISO MCP.

ISO System Access Documentation

- http://www.caiso.com/Documents/SystemAccessInformation_MarketParticipants.pdf

ISO Market Simulation Support

- **Hours** - 09:00 - 18:00, PPT (Monday through Friday)
- **ISO's 24X7 Help Desk** - (916) 351-2309 (Connectivity - GUI or API)
- **Email** - MarketSim@caiso.com

Market Simulation Issue Management

- Submit all issues to the ISO CIDI case management system
 - CIDI tickets will need to have
 - ‘Functional Environment’ = “Market Simulation Spring 2017”
 - Or ‘Functional Environment’ = “Independent Market Simulation 2017”
- to be reviewed by ISO SME’s