



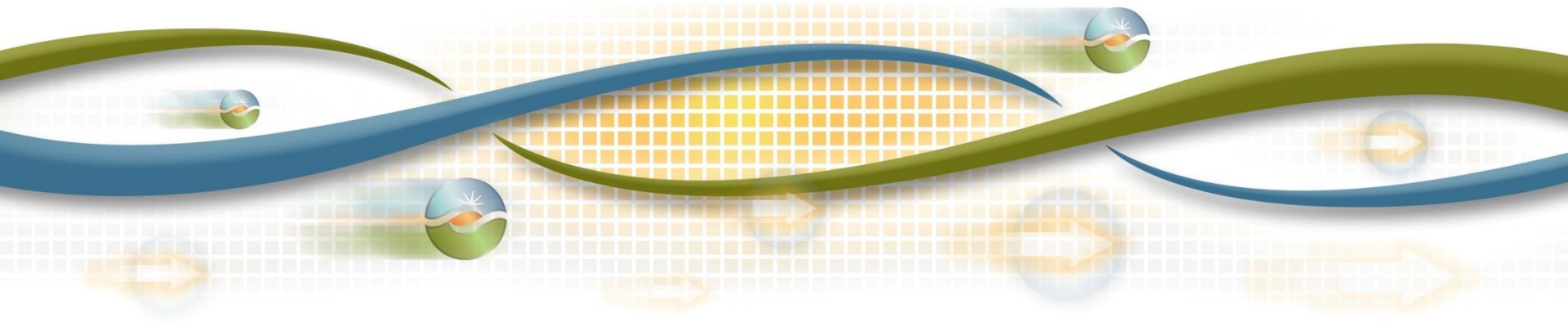
Market Simulation – Spring and Independent 2017 Releases

Christopher McIntosh

Lead Market Simulation Coordinator

Spring and Independent 2017 Releases Market Simulation

May 11, 2017



Agenda

- Spring and Independent 2017 MAP Stage Availability
- Spring and Independent 2017 Market Simulation Initiatives and Timelines
- Initiatives
 - 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 –

MRIS Monday May 15, 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

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 | Error generated when data is submitted for a resource that is valid till the end of the day in GMT | Open | 5/12/2017 |
| 2 | MRI-S | API retrieval using UpdateSinceDateTime does not work | Open | 5/12/2017 |
| 3 | MRI-S | CSV file validation is failing for TIE resource types | New | 5/12/2017 |

Next Steps

- The next teleconference will take place @ 14:00 PPT on Monday, May 15, 2017

Reference Slides

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.aiso.com/Documents/CMRI-InterfaceSpecification_v3_5_4Clean_Fall2016Release.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

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

Market Power Mitigation Status

California ISO OASIS

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](#) [WWW.CAISO.COM](#) [Support System Technical Information](#) 02/15/2017 17:45 PST

SYSTEM HELP

The contents of these pages are subject to change without notice. Decisions based on information contained within the California ISO web site are the visitor's sole responsibility.
 Copyright © 2005-2017 California ISO. All rights reserved. [Privacy](#) [Legal](#) Software Version 6.11.0

MPM Not Competitive constraints on Oasis

The screenshot displays the OASIS web interface for Market Power Mitigation (MPM) status. The main content area is divided into two columns. The left column lists various MPM constraints, and the right column shows a grid of 'Y' (Yes) and 'N' (No) values for specific hours (HE14-HE23).

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

Constraint List (Left Column):

- 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

Constraint Grid (Right Column):

| | HE14 | HE15 | HE16 | HE17 | HE18 | HE19 | HE20 | HE21 | HE22 | HE23 |
|-----------------------------------------------------------------|------|------|------|------|------|------|------|------|------|------|
| Intertie Constraint Shadow Prices | | | Y | Y | | | | | | |
| HASP Locational Marginal Prices | Y | | Y | Y | | | | | | |
| FMM Locational Marginal Prices | Y | | Y | Y | N | | | | | |
| FMM Scheduling Point/Tie Combination Locational Marginal Prices | | | N | N | | | | | | |
| Interval Intertie Constraint Shadow Prices | | | Y | Y | | | | | | |
| Interval Nomogram/Branch Shadow Prices | N | N | | | | | | | | |
| Reference Prices | | | | Y | | | | | | |
| Nodal Group Constraints | | | | N | Y | | | | | |
| Flexible Ramping Constraint Results | N | Y | N | | | | | | | |

CONNECTED QUICK LINKS
[OASIS Home](#) [System Operating Messa](#)
 The contents of these pages are subject to the California ISO Terms and Conditions. The user's use of this web site are the visitor's sole responsibility. Version 6.11.0

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