

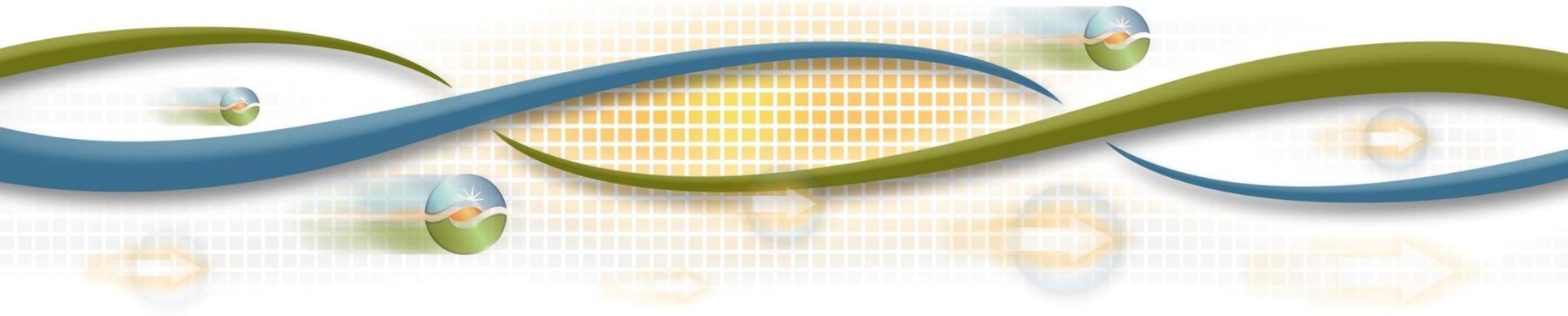


## Release User Group Agenda

February 14<sup>th</sup>, 2017

10:00 a.m.–11:00 a.m. (Pacific Time)

Web Conference Information	Conference Call Information
URL: <a href="https://www.connectmeeting.att.com">https://www.connectmeeting.att.com</a> Meeting Number: 8665282256 Access Code: 5251941	Domestic Call In: (866) 528-2256 International Call In: (216) 706-7052 Access Code: 5251941



# Release User Group Agenda

February 14<sup>th</sup>, 2017

10:00 a.m. – 11:00 a.m. (Pacific Time)

<b>Time</b>	<b>Topic</b>	<b>Facilitator</b>
10:00 – 10:05	Agenda & ISO Roll call	Adrian Chiosea
10:05 – 10:45	Release Plan	Janet Morris Jeremy Malekos Jim Barber Roxann Hall Michael Lucas John Williams Joanne Alai Marcelo Da Costa Marci Stuckey Christopher McIntosh Jami Herguth Prince Phillip Sandhya Balasubramanian Eureka Cullado Indu Nambiar Justin Wong Sunitha Srinivasan LuAnn Rivera Cynthia Hinman Trang Deluca

# The ISO offers comprehensive training programs

Date	Training
March 1 & 2	Get to Know the ISO (Folsom)
April 6	Welcome to the ISO (webinar)

Training calendar - <http://www.caiso.com/participate/Pages/Training/default.aspx>

Contact us - [markettraining@caiso.com](mailto:markettraining@caiso.com)

# Release Plan 2017

## Independent 2017

- Settlements Release - Spring 2017
- MRI-S ACL Groups + CPG Enhancements (formerly OMAR Replacement)
- Reactive Power Requirements and Financial Compensation
- Administrative Pricing Policy Update
- RIMS Functional Enhancements

## Spring 2017 (4/1/17)

- Acceptable Use Policy – CMRI
- RTD Local Market Power Mitigation (LMPPM) Enhancements
- CRR Clawback Modifications
- Forecasting & Data Transparency Improvements ( PIRP System Decommissioning)
- Metering Rules Enhancement

## Fall 2017 (11/1/17)

- EIM Portland General Electric (PGE) – 10/1/17
- Bidding Rules Enhancements – Part B
- Reliability Services Initiative Phase 1B
- Reliability Services Initiative Phase 2
- Commitment Cost Enhancement Phase 3
- RM & EIM 2017 Enhancements
- Gas Burn Report

# Release Plan – 2018 and subject to further planning

## Spring 2018

- EIM 2018 Idaho Power Company

## Fall 2018 – tentative, subject to impact assessment

- Bid Cost Recovery Enhancements
- Generation Contingency and Remedial Action Scheme
- Flexible Resource Adequacy Criteria and Must-offer Obligation Phase 2
- Frequency Response Phase 2
- Contingency Modeling Enhancements
- Commitment Costs and Default Energy Bid Enhancements
- ADS User Interface Replacement

## Spring 2019

- EIM 2019 Seattle City Light

## Subject to further release planning:

- ESDER Phase 2
- Stepped Transmission Constraints
- Regional Resource Adequacy
- Regional Integration and EIM Greenhouse Gas Compliance
- Transmission Access Charge Options



# Settlements Release – Spring 2017

ISSUE SUMMARY	BPM IMPACTED
Update configuration guide to compare the Balancing Authority Area Meter Load Quantity to the Balancing Authority Area Base Load Schedule instead of comparing Balancing Authority Area Meter Demand Quantity to Balancing Authority Area Base Load Scheduling when assessing Over and Under Scheduling EIM Settlement.	PRR TBD: (CC 6045)
Update Pre-calculation RTM Net Amount to resolve two issues that relate to (1) the application of the Persistent Deviation Metric (PDM) and (2) the determination of BCR bid cost for a net-settled MSS.	PRR TBD: (RTM Net Amount PC)
Settlement BPM and Charge Code updates for T+33M Settlement Statement implementation (Documentation Only)	PRR TBD: (CC 7989, CC 7999, Settlement Main Body BPM)
RAAIM - Flex Categories 2 and 3 Assessment Hour Updates (Documentation Only)	PRR TBD: (RA Availability Incentive Mechanism PC)

# Settlements Release – Spring 2017

Milestone	Date	Status
Configuration Guides Posted	TBD pending Legal review	
DRAFT Configuration Output File Posted	March 6, 2017	
Pre-Production DRAFT Configuration Output File Posted	March 20, 2017	
Production Deployment	March 27, 2017	
FINAL Configuration Output File Posted	March 27, 2017	

# 2017 - MRI-S ACL Groups+ CPG Enhancements

Project Info	Details/Date
Application Software Changes	<p>The MRI-S metering (MRI-S) application cannot currently support ACL (Access Control List) groups functionality for defining a subset of resources belonging to an SCID. Enhancements to the Application Identity Management (AIM) application will enable the use of ACL groups for SCID-level read-only access for MRI-S.</p> <p>There will be no market simulation of AIM ACL groups but this functionality will be live in production to support the MRI-S Metering CPG enhancements market simulation. A customer partnership group will be scheduled to address the upcoming market sim.</p>
BPM Changes	None
Business Process Changes	<p>Potential Level-II business process changes under –</p> <ul style="list-style-type: none"> <li>• Manage Market &amp; Reliability Data &amp; Modeling</li> <li>• Manage Operations Support &amp; Settlements</li> </ul>

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
BPMs	Business Practice Manuals	N/A	
External BRS	Post External BRS	Nov 14, 2016	✓
Tariff	Pre-Tariff Filing QRB	N/A	
Config Guides	Configuration Guide	N/A	
Tech Spec	Publish Tech Specs	Nov 02, 2016	✓
Market Simulation	MRI-S ACL Groups + Metering Enhancements	Mar 02, 2017 - Mar 29, 2017	
Production Activation	Phase 1 - ACL Groups	Mar 02, 2017	
	Phase 2 - MRI-S Metering Enhancements	Mar 29, 2017	

# MRI-S ACL Groups + CPG Enhancements

#	System	Summary	Status	Estimated Fix Date
1	MRI-S	CIDI 183777, 183993 - MRI-S for Metering Limitation of 100,000 records.	In process	See previous slide
2	MRI-S	Option to choose UOM is missing on the UI		
3	MRI-S	CIDI 184018 - Time zone is missing on the UI		
4	MRI-S	CIDI 183777, 183993 - Modification to AUP policy on data retrieval to include querying by last updated time		
5	MRI-S	Option to request for data in various time interval in UI		
6	MRI-S	Ability to view log files within the same organization		
7	MRI-S	Ability to provide SC ID in the data retrieve request		
	MRI-S	*ACL Group – filter read-only at the resource level	In process	See previous slide

\* ACL group creation to filter for a read only role at the resource level is not currently available

Per last fall's Customer Partnership Group discussions, the ISO will not be performing any user access migration, including the current third party access in OMAR to AIM because:

- The platform and business logic for third party access are completely different between OMAR and AIM, so no automation is possible
- Any effort by the ISO would be manual, and would require heavy market participant involvement due to data integrity questions around security and third-party access concerns
- The data in OMAR is historical (aged) and therefore must be vetted by the Scheduling Coordinators to ensure its validity

# 2017 – Reactive Power Requirements and Financial Compensation

Project Info	Details/Date
Application Software Changes	<b>None</b>
BPM Changes	<b>None</b>
Business Process Changes	<b>Develop Infrastructure (DI) (80001)</b> <ul style="list-style-type: none"> <li>Level II - Manage Generator Interconnection Process (GIP) (Logical Group):</li> </ul>

Milestone Type	Milestone Name	Dates	Status
Board Approval	BOG Approval	N/A	
BPMs	Post Draft BPM Changes	N/A	
External BRS	Post External BRS	N/A	
Tariff	File Tariff	Dec 6, 2016	✓
	FERC Approval	Feb 6, 2017	
Configuration Guides	Prepare Draft Configuration Guides	N/A	
Tech Spec	Publish Tech Specs	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Reactive Power Requirements and Financial Compensation	Mar 06, 2017 pending FERC approval	

# 2017 – Administrative Pricing Policy Updates

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"> <li>• <b>MQS:</b> <ul style="list-style-type: none"> <li>• <i>Part 1 (used under normal market conditions):</i> If there are less than 12 RTDs and 4 RTPDs missing – leverage existing process (last price used)</li> <li>• <i>Part 2 (used under normal market conditions):</i> If RTD prices are available copy over to RTPD; RTPD prices available copy over RTD. If neither RTPD or RTD prices are available use DA prices</li> <li>• <i>Part 3 (used Market Suspension conditions):</i> Use DA prices. If we don't have DA prices, revert to prior DA prices (awards and prices)</li> </ul> </li> </ul>
Business Process Change	<ul style="list-style-type: none"> <li>• Manage Markets and Grid</li> </ul>
BPMs	Market Instruments, Market Operations

Milestone Type	Milestone Name	Dates	Status
Board Approval	BOG Approval	Dec 10, 2014	✓
BPMs	Post Draft BPM changes	Feb 16, 2017	
External BRS	Post External BRS	Mar 20, 2015	✓
Tariff	Tariff Approval	Jan 30, 2017	✓
Config Guides	Post Draft Configuration Guides	Dec 2, 2016	✓
Tech Spec	Publish Tech Specs	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Admin Pricing Policy Updates	Apr 01, 2017	

# 2017 – RIMS Functional Enhancements

Project Info	Details/Date	Status
Application Software Changes	Functional enhancements resulting from the Customer Partnership Group CPG. More details to be provided in the future.	
BPM Changes	Generator Interconnection and Deliverability Allocation Procedures Generator Interconnection Procedures Managing Full Network Model Metering Generator Management Transmission Planning Process	
Customer Partnership Group	10/16/15	✓
Application and Study Webinar	3/31/16	✓

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board approval not required	N/A	
BPMs	Generator Interconnection and Delivery Allocation	Apr 29, 2016	✓
External BRS	External BRS not Required	N/A	
Tariff	No Tariff Required	N/A	
Tech Spec	No Tech Specifications Required	N/A	
Production Activation Ph1	RIMS5 App & Study	Mar 21, 2016	✓
Production Activation Ph2	RIMS5 Queue Management, Transmission and Generation	12/14/2017	

# Spring 2017 Release – Overview

	Board Approval	BPMs	External BRS	Tariff	Config Guide	Tech Spec	Market Sim	Production Activation
<b>Spring 2017 Release</b>								
<b>Acceptable Use Policy - CMRI</b>	N/A	N/A	N/A	N/A	N/A	N/A	8/23/16 - 9/23/16	4/1/17
<b>RTD LMPM Enhancements</b>	3/24/16	11/4/16	4/5/16	11/8/16	N/A	4/14/16	2/7/17 - 2/24/17	
<b>CRR Clawback Modifications</b>	6/28/16	3/3/17	11/29/16	3/21/17	N/A	N/A	N/A	
<b>Forecasting and Data Transparency Improvements (PIRP Decommissioning)</b>	N/A	9/6/16	6/29/15	N/A	N/A	4/15/16	3/6/17 - 3/20/17	
<b>Metering Rules Enhancement</b>	12/14/16	2/2/17	N/A	2/7/17	N/A	N/A	N/A	4/3/17

COMPLETE
N/A

# Spring 2017 – Acceptable Use Policy – CMRI

Project Info	Details/Date
Application Software Changes	Scope includes enforcement of Acceptable Use Policy for CMRI services to support the full implementation of 1 call per service per identity (as designated by certificate) every 5 seconds. An error code of 429 will be returned for any violation instance of the use policy.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
BPMs	BPMs	N/A	
External BRS	External BRS	N/A	
Tariff	Tariff	N/A	
Config Guides	Config Guide	N/A	
Tech Spec	Tech Spec	N/A	
Market Sim	Market Sim Window	Aug 23, 2016 - Sep 23, 2016	✓
Production Activation	Acceptable Use Policy - CMRI	Apr 01, 2017	

# Spring 2017 - Real Time Dispatch Local Market Power Mitigation

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"> <li>• <b>CMRI</b> – Display mitigated bids from RTD process</li> <li>• <b>OASIS (Open Access Sametime Information System)</b>: Display RTD reports for Market Clearing, the Pnode clearing, similar to current RTPD reports</li> <li>• <b>RTM (Real Time Market)</b> <ul style="list-style-type: none"> <li>• <b>RTPD</b>: Perform the LMPM run as an integral part of the binding interval RTPD run</li> <li>• <b>RTD</b>: Proposed mitigation in RTD run would work the same way as the current RTPD run</li> </ul> </li> </ul>
BPM Changes	<ul style="list-style-type: none"> <li>• Energy Imbalance Market (EIM): under the proposed RTD method, bids are not necessarily mitigated for the whole hour</li> <li>• RTD MPM will work the same way as the current RTPD MPM</li> </ul>
Business Process Changes	<ul style="list-style-type: none"> <li>• Manage Markets &amp; Grid</li> <li>• ATF – System Operations: Add MPM Application to Real Time and annotate inputs and outputs</li> <li>• ATF – System Operations, Real Time: Add MPM to diagram with inputs and outputs</li> <li>• Level II – Manage Real Time Operations – maintain balancing area</li> </ul>

# Spring 2017 - Real Time Dispatch Local Market Power Mitigation

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) approval	Mar 24, 2016	✓
BPMs	Posted Market Operations BPM PRR 945	Nov 04, 2016	✓
External BRS	Post External BRS	Apr 05, 2016	✓
Tariff	Received FERC approval	Nov 08, 2016	✓
	Received FERC approval for 4/1	Jan 27, 2017	✓
Tech Spec	Publish Technical Specification - OASIS	Apr 08, 2016	✓
	Publish Technical Specification - CMRI	Apr 14, 2016	✓
Map Stage	MAP Stage Environment Window	Feb 24, 2017	✓
Market Sim	Market Sim Window	Feb 06, 2017 - Feb 24, 2017	
Production Activation	RTD - Local Market Power Mitigation Enhancement	Apr 01, 2017	

## Updated OASIS technical specifications 4.3.5

- [http://www.caiso.com/Documents/OASIS-InterfaceSpecification\\_v4\\_3\\_5Clean\\_Spring2017Release.pdf](http://www.caiso.com/Documents/OASIS-InterfaceSpecification_v4_3_5Clean_Spring2017Release.pdf)
- Updated the following MPM Services ( Spring 2017)
  - Updated PRC\_MPM\_RTM\_REF\_BUS to add support for RTD LMPM.
  - Updated PRC\_MPM\_RTM\_NOMOGRAM\_CMP to add support for RTD LMPM.
  - Updated PRC\_MPM\_CNSTR\_CMP to add support for RTD LMPM.

# Spring 2017 – Congestion Revenue Rights (CRR) Clawback

Project Info	Details/Date
Application Software Changes	<p><b>MQS/CRR Clawback:</b></p> <p>If import bid <math>\leq</math> day-ahead price, then the import is not considered a virtual award.            If export bid <math>\geq</math> day-ahead price, then the export is not considered a virtual award.            If an import/export bid/self-schedule in real-time market is less than the day-ahead schedule, then the difference shall be still subject to CRR Clawback rule.</p> <p>CRR Clawback rule should include convergence bids cleared on trading hubs and load aggregation points in the flow impact used to determine if the 10% threshold is reached.</p> <p>Inform Market Participants of CRR annual allocation/auction for 2017.</p>
BPM Changes	<b>Market Operations</b> Appendix F
Business Process Changes	TBD

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors Approval	Jun 28, 2016	✓
BPMs	Publish Final Business Practice Manuals	Mar 3, 2017	
External BRS	Post External BRS	Nov 29, 2016	✓
Tariff	File Tariff	Jan 25, 2017	✓
	Receive FERC order	Mar 21, 2017	
Production Activation	CRR Clawback Modification	Apr 01, 2017	

# Spring 2017 – Forecasting and Data Transparency Improvements (PIRP System Decommissioning)

Project Info	Details/Date
<p>Application Software Changes: <b>PIRP/CMRI</b></p>	<ul style="list-style-type: none"> <li>• Forecast Data Reporting (resource-level) that was performed in PIRP will be done in CMRI. Rolling Hour Ahead, Locked Hour Ahead, and Rolling Day-Ahead forecasts.</li> <li>• PIRP Decommissioning to occur in 2017</li> <li>• CMRI to receive the Electricity Price Index for each resource and publish it to the Market Participants.</li> <li>• 60 Day PIRP / CMRI parallel production to start when AIM/ACL becomes available.</li> </ul>
<p>BPM Changes</p>	<p>CMRI Technical Specification; New APIs will be described.</p>
<p>Data Transparency</p> <ul style="list-style-type: none"> <li>• Independent changes, won't impact existing services</li> <li>• Will be made available in Production and cutover schedule is discretionary</li> </ul>	<p>Atlas Reference:</p> <ol style="list-style-type: none"> <li>1. Price Correction Messages (ATL_PRC_CORR_MSG)</li> <li>2. Scheduling Point Definition (ATL_SP)</li> <li>3. BAA and Tie Definition (ATL_BAA_TIE)</li> <li>4. Scheduling Point and Tie Definition (ATL_SP_TIE)</li> <li>5. Intertie Constraint and Scheduling Point Mapping (ATL_ITC_SP)</li> <li>6. Intertie Scheduling Limit and Tie Mapping (ATL_ISL_TIE)</li> </ol> <p>Energy</p> <ul style="list-style-type: none"> <li>• EIM Transfer Limits By Tie (ENE_EIM_TRANSFER_LIMITS_TIE)</li> <li>• Wind and Solar Summary (ENE_WIND_SOLAR_SUMMARY)</li> </ul> <p>Prices</p> <ul style="list-style-type: none"> <li>• MPM Default Competitive Path Assessment List (PRC_MPM_DEFAULT_CMP)</li> </ul>
<p>Business Process Changes</p>	<p>MPs will receive the VER reports from CMRI rather than PIRP.</p>

# Spring 2017 – Forecasting and Data Transparency Improvements (PIRP System Decommissioning)

Project Info	Details/Date
<p>User-Provisioning process for CMRI in preparation of Market Simulation and subsequently for production</p>	<ul style="list-style-type: none"><li>• Client Services will reach out to the User Access Administrator (UAA)</li><li>• Updated AIM User Guide, detailing how to create new ACL groups, will be available no later than February 24, 2017</li><li>• If a user is at the SC level, there is no need to provision ACL access</li><li>• Exceptions - (Non-SC Level Users) – provisioning via AIM will be required</li><li>• Provisioning will be required to be done prior to Market Simulation</li><li>• Provisioning for PIRP via AARF will discontinue on Feb 16, 2017 for Map Stage and Mar 20, 2017 for Production.</li><li>• Participants should begin to download their PIRP data (all reports) as soon as possible as the data will not be available after June 1, 2017</li><li>• PIRP application including all the UI and API reports will be decommissioned June 1, 2017</li><li>• If you have any questions please contact your client services representative</li></ul>

# Spring 2017 – Forecasting and Data Transparency Improvements (PIRP System Decommissioning)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
BPMs	Publish Draft Business Practice Manuals (Market Instruments; PRR 936)	Sep 06, 2016	✓
External BRS	External Business Requirements	Jun 29, 2015	✓
Tariff	Tariff Filing Activities	N/A	
Config Guides	Settlements Configuration	N/A	
Tech Spec	Publish Technical Specifications (CMRI; Wind and Solar)	Apr 15, 2016	✓
	Publish Technical Specifications (CMRI: PIRP Decommissioning)	Feb 05, 2016	✓
Market Sim	CMRI Reports; VER Forecast & EPI (Fall 2016 Release)	Aug 23, 2016 - Sep 23, 2016	✓
	New Renewables CMRI reports and APIs Market Simulation	Mar 06, 2017 - Mar 20, 2017	
Production Activation	CMRI Reports; VER Forecast & EPI (Fall 2016 Release)	Oct 01, 2016	✓
	OASIS API Enhancements; 9 Reports	Dec 20, 2016	✓
Download PIRP Data	Download PIRP Historical Data	Feb 14, 2017 – Jun 01, 2017	
User Guide	AIM User Guide (Includes creation of new ACLs)	Feb 24, 2017	
	New Renewables CMRI reports and APIs Production Deployment	Apr 01, 2017	
PIRP Decommission	PIRP System Decommissioning	Jun 01, 2017	

# Spring 2017 – Metering Rules Enhancements

Project Info	Details/Date
Application Software Changes	N/A
BPM Changes	<p><b>Metering</b></p> <ul style="list-style-type: none"> <li>• Metering BPM will be updated to reflect the ISO ME vs SC ME role options, changes to the metering entity election process, and impacts for metering data access via the metering data submission portal.</li> <li>• EIM BPM will be updated to explain Metering data reporting access based on transitions from ISOME to SCME (shall transition to submission of SQMD meter data to Metering Data submission portal) or SCME to ISOME (shall be able to review historical meter data in MRI-S when resource was SCME).</li> </ul> <p><b>Definitions &amp; Acronyms BPM Changes</b></p> <ul style="list-style-type: none"> <li>• New Tariff and Business Process/System acronyms.</li> </ul>
Business Process Changes	<ul style="list-style-type: none"> <li>• <b>Manage Transmission &amp; Resource Implementation</b></li> <li>• <b>Manage Market &amp; Reliability Data &amp; Modeling (MMR) (80004)</b> <ul style="list-style-type: none"> <li>• ISO Meter Certification (MMR LII)</li> <li>• Metering Systems Access (Production) (MMR LII)</li> <li>• Metering System Configuration for Market Resources (MMR LII)</li> <li>• Station Power Implementation (MMR LIII)</li> </ul> </li> <li>• <b>Application Flow - Billing &amp; Settlements</b></li> <li>• <b>Analyze Missing Measurement Report (MOS LIII)</b></li> <li>• <b>Manage Market Billing &amp; Settlements (MOS LII)</b></li> <li>• <b>Manage Market Quality System (MOS LII)</b></li> <li>• <b>Manage Rules of Conduct (MOS LII)</b></li> <li>• <b>Meter Data Acquisition &amp; Processing (MOS LII)</b></li> <li>• <b>SCME Self Audit (MOS LII)</b></li> </ul>

# Spring 2017 – Metering Rules Enhancements

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) approval	Dec 14, 2016	✓
BPMs	Metering BPM	Feb 02, 2017	✓
	Energy Imbalance Market BPM	Feb 02, 2017	✓
External BRS	External Business Requirements	N/A	
	N/A	N/A	
Tariff	Tariff Filing at FERC	Feb 08, 2017	✓
Config Guides	N/A	N/A	
Tech Spec	N/A	N/A	
Production Activation	Metering Rules Enhancements	Apr 03, 2017 upon FERC approval	

# Fall 2017 Release – Overview

	Board Approval	BPMs	External BRS	Tariff	Config Guide	Tech Spec	Market Sim	Production Activation
<b>Fall 2017 Release</b>								
EIM Portland General Electric	N/A	N/A	N/A	8/31/17	N/A	N/A	6/6/17 - 7/6/17	10/1/17
Bidding Rules Enhancements - Part B	3/25/16	6/15/17	1/13/17	6/1/17	4/3/17	4/3/17	8/8/17 - 9/8/17	11/1/17
Reliability Services Initiative Phase 1B	5/12/15		12/23/16					
Reliability Services Initiative Phase 2	10/27/16		1/31/17					
Commitment Cost Enhancement Phase 3	3/25/16		1/6/17	TBD				
RM & EIM 2017 Enhancements	TBD	TBD	2/14/17 (Updates)	TBD				
Gas Burn Reports	N/A	N/A	7/29/16	N/A	N/A		N/A	

COMPLETE
N/A

# Fall 2017 – EIM Portland General Electric

Project Info	Details/Date
Application Software Changes	Implementation of Portland General Electric as an EIM Entity.
BPM Changes	EIM BPM will be updated to reflect new modeling scenarios identified during PGE implementation and feedback from PGE.
Market Simulation	ISO promoted market network model including PGE area to non-production system and allow PGE exchange data in advance of Market Simulation.
Parallel Operations	August 1 – September 30, 2017

Milestone Type	Milestone Name	Dates	Status
Tariff	File Readiness Certification	Aug 31, 2017	
Market Sim	Market Sim Window	Jun 6, 2017 – Jul 6, 2017	
Parallel Operations	Parallel Operations Window	Aug 1, 2017 – Sep 30, 2017	
Production Activation	EIM - Portland General Electric	Oct 01, 2017	

# Fall 2017 - Bidding Rules Enhancements – Part B

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"> <li>• <b>MasterFile:</b> <ul style="list-style-type: none"> <li>• Electric Region added to GRDT as non-modifiable</li> </ul> </li> <li>• <b>OASIS:</b> <ul style="list-style-type: none"> <li>• Publish fuel regions (public information)</li> </ul> </li> </ul>
Business Process Change	<ul style="list-style-type: none"> <li>• Manage Transmission &amp; Resource Implementation</li> <li>• Manage Entity &amp; Resource Maintenance Updates</li> <li>• Manage Full Network Model Maintenance</li> </ul>
BPMs	Market Instruments, Reliability Requirements

Milestone Type	Milestone Name	Dates	Status
Board Approval	BOG Approval	Mar 25, 2016	✓
BPMs	Post Draft BPM changes	Jun 15, 2017	
External BRS	Post External BRS	Jan 13, 2017	✓
Tariff	File Tariff	Jun 01, 2017	
Config Guides	Prepare Draft Configuration Guides	Apr 03, 2017	
Tech Spec	Publish CMRI Tech Specs	Apr 03, 2017	
Market Sim	Market Sim Window	Aug 08, 2017 - Sep 08, 2017	
Production Activation	Bidding Rules Part B	Nov 01, 2017	

# Fall 2017 - Reliability Services Initiative Phase 1B

Project Info	Details/Date	Status
Application Software Changes	<p>Developments under consideration include:</p> <p><b>Scope:</b></p> <ul style="list-style-type: none"> <li>• Default flexible qualifying capacity provisions for phase 2 consideration (we might need data collection performed in order to support RSI Phase 2)</li> <li>• Redesign of Replacement Rule for System RA and Monthly RA Process</li> <li>• RA Process and Outage Rules for implementation for 2017 RA year</li> <li>• Scope not delivered in RSI Phase 1A (Grandfathered Contracts, RAAM Decommissioning – SCP &amp; CPM screens from RAAM to CIRA, Acquired Contracts, OASIS reporting, web services related to APIs for CSP offers, APIs for Generic/Flex Substitutions, and Release of Generic/Flex Subs – UI &amp; API)</li> <li>• COM MW added to GRDT as non-modifiable</li> </ul> <p><b>Impacted Systems:</b></p> <ul style="list-style-type: none"> <li>• CIRA</li> <li>• OASIS</li> <li>• Integration (B2B)</li> <li>• Settlements</li> <li>• Master File</li> <li>• Decommission RAAM</li> </ul>	
Business Process Changes	Manage Market & Reliability Data & Modeling	

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	May 12, 2015	✓
BPMs	Post Draft BPM changes	Jun 15, 2017	
External BRS	Post External BRS	Dec 23, 2016	✓
Tariff	File Tariff	Jun 01, 2017	
Config Guides	Config Guide	Apr 03, 2017	
Tech Spec	Publish Technical Specifications	Apr 03, 2017	
Market Sim	Market Sim Window	Aug 08, 2017 - Sep 08, 2017	
Production Activation	Reliability Services Initiative Phase 1B	Nov 01, 2017	

# Fall 2017 – Reliability Services Initiative Phase 2

Project Info	Details/Date
Application Software Changes	<p><b>CIRA –</b></p> <ul style="list-style-type: none"> <li>• Modifications to the RA and Supply Plan to show breakdown of local and system. Validation rules need to be updated.</li> <li>• Update planned/forced outage substitution rules</li> <li>• Allow market participants to select how much system/local MWs to substitute.</li> <li>• Modification of UI screens to accommodate system/local MW split.</li> <li>• Enhance system to handle EFC monthly updates similar to NQC (workflow change)</li> <li>• Enhance system to allow exemption from submission of RA Plans for LSE that have a RA obligation &lt; 1 MW for a given capacity product.</li> </ul> <p><b>Settlements –</b></p> <ul style="list-style-type: none"> <li>• Splitting local from system in upstream RA system could potentially impact the RAAIM calculation.</li> </ul>
BPM Changes	<ul style="list-style-type: none"> <li>• Reliability Requirements: Changes to the monthly RA process</li> <li>• Settlements and Billing</li> </ul>
Business Process Changes	<p><b>Manage Market &amp; Reliability Data &amp; Modeling</b></p> <ul style="list-style-type: none"> <li>- Manage Monthly &amp; Intra-Monthly Reliability Requirements</li> <li>- Manage Yearly Reliability Requirements</li> </ul>

# Fall 2017 – Reliability Services Initiative Phase 2

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governor's Approval	Oct 27, 2016	✓
BPMs	Post Draft BPM changes	Jun 15, 2017	
External BRS	Post External BRS	Jan 31, 2017	✓
Tariff	File Tariff	Jun 01, 2017	
Config Guides	Config Guide	Apr 03, 2017	
Tech Spec	Publish Technical Specifications	Apr 03, 2017	
Market Sim	Market Sim Window	Aug 08, 2017 - Sep 08, 2017	
Production Activation	Reliability Services Initiative Phase 2	Nov 01, 2017	

# Fall 2017 - Commitment Cost Enhancements Phase 3

Project Info	Details/Date
Application Software Changes	<p><b><u>Scope:</u></b></p> <ol style="list-style-type: none"> <li>1. Clarify use-limited registration process and documentation to determine opportunity costs</li> <li>2. Each submission evaluated on a case-by-case basis to determine if the ISO can calculate opportunity costs               <ul style="list-style-type: none"> <li>• ISO calculated; Modeled limitation</li> <li>• Market Participant calculated; Negotiated limitation</li> </ul> </li> <li>3. Enhanced definition of “use-limited” in response to FERC’s rejection of the proposed definition in Cost Commitment Enhancements Phase 2</li> <li>4. Change Nature of Work attributes (Outage cards)               <ol style="list-style-type: none"> <li>1. Modify use-limited reached for RAAIM Treatment</li> <li>2. Add new demand response nature of work attribute for RDRR and PDR</li> </ol> </li> <li>5. Market Characteristics               <ol style="list-style-type: none"> <li>1. Maximum Daily Starts</li> <li>2. Maximum MSG transitions</li> <li>3. Ramp rates</li> </ol> </li> </ol> <p><b><u>Impacted Systems:</u></b></p> <ol style="list-style-type: none"> <li>1. CIRA</li> <li>2. CMRI</li> <li>3. IFM/RTN</li> <li>4. SIBR</li> <li>5. MasterFile</li> <li>6. OASIS</li> <li>7. OMS</li> <li>8. Settlements</li> </ol>
BPM Changes	Market Instruments, Outage Management, Reliability Requirement, Market Operations, Settlements & Billing
Business Process Changes	Level II – Manage Reliability Requirements Level II – Manage Day Ahead Market

# Fall 2017 - Commitment Cost Enhancements Phase 3 (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) Approval	Mar 25, 2016	✓
BPMs	Post Draft BPM changes	Jun 15, 2016	
	Publish Final Business Practice Manuals	TBD	
External BRS	Post External BRS	Jan 06, 2016	✓
Tariff	File Tariff	TBD	
	Receive FERC order	TBD	
Config Guides	Config Guide	Apr 03, 2017	
Tech Spec	Create ISO Interface Spec (Tech spec)	Apr 03, 2017	
Market Sim	Market Sim Window	Aug 08, 2017 – Sep 8, 2017	
Production Activation	Commitment Costs Phase 3	Nov 01, 2017	

# Fall 2017 – RM& EIM Enhancements 2017

Project Info	Details/Date
Application Software Changes	<p>Address enhancements identified by policy, operations, technology, business and market participants.</p> <p>The following requirements are being evaluated:</p> <ul style="list-style-type: none"><li>• EIM Entity access reports</li><li>• BAAOP provisioning in AIM</li><li>• EIM data report enhancements to support market participant and EIM entity shadow settlements</li><li>• Shared BAA Resource Modeling</li><li>• Change to ETSR formulation to separate base energy transfer to distinct non-optimizable ETSRs.</li></ul>
BPM Changes	TBD
Business Process Changes	TBD

# Fall 2017 – RM & EIM Enhancements 2017 (cont.)

Milestone Type	Milestone Name	Dates	Status
BPMs	Draft BPM changes	TBD	
	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
External BRS	Post Updated External BRS	Feb 14, 2017	
Tariff	File Tariff	TBD	
	Receive FERC order	TBD	
Config Guides	Design review - BPM and Tariff SMEs	Apr 03, 2017	
Tech Spec	Fall 2017 - Technical Specifications due to external clients	Apr 03, 2017	
Market Sim	Market Sim Window	Aug 08, 2017 – Sep 8, 2017	
Production Activation	EIM Enhancements 2017	Nov 01, 2017	

# Fall 2017 – Gas Burn Reports

Project Info		Details/Date	
Application Software Changes		CMRI - implement ISO Market software functionality to calculate and present gas burn estimates to gas companies serving electric generation located within the CAISO BAA	
Business Process Change		<ul style="list-style-type: none"> <li>• Develop Infrastructure</li> <li>• Manage Market &amp; Reliability Data &amp; Modeling</li> </ul>	
Milestone Type	Milestone Name	Dates	Status
Board Approval	BOG Approval	N/A	
BPMs	Post Draft BPM changes	N/A	
External BRS	External Business Requirements	Jul 29, 2016	✓
Tariff	Receive FERC order	N/A	
Config Guides	Prepare Draft Config Guide	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec) - Masterfile	Apr 03, 2017	
Market Sim	Market Sim Window	N/A	
Production Activation	GenDB MF Consol and Gas Burn Report	Nov 01, 2017	

# Spring 2018 – EIM Idaho Power Company

Project Info	Details/Date
Application Software Changes	Implementation of Idaho Power Company as an EIM Entity.
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during Idaho Power implementation and feedback from Idaho Power.
Market Simulation	The ISO approved the Idaho Power network model and continues to make progress integrating the Idaho model into the ISO non-production environment in preparation for integration testing.
Parallel Operations	February 1, 2018 – March 30, 2018

Milestone Type	Milestone Name	Dates	Status
Tariff	File Readiness Certification	Feb 28, 2018	
Market Sim	Market Sim Window	Dec 01, 2017 - Jan 31, 2018	
Parallel Operations	Parallel Operations Window	Feb 01, 2018 - Mar 30, 2018	
Production Activation	EIM - Idaho Power	Apr 04, 2018	

# Short-Term Plan OASIS

## OASIS API New Versions - Transition Schedule :

Market Simulation Testing : Available from 1/3/2017

Production Deployment – 2/2/2017

Production Transition Period : 2/02/2017 – 3/31/2017

XML Report Name	Market Run ID	Group Name	Version	Transition Period in Production	After Transition Period(4/1/2017 onwards)
PRC_INTVL_LMP	RTM	RTM_LMP_GRP	1	Supported	Not Supported/ Invalid Request
PRC_INTVL_LMP	RTM	RTM_LMP_GRP	2	Supported	Not Supported/ Invalid Request
PRC_INTVL_LMP	RTM	RTM_LMP_GRP	3	Supported	Supported
PRC_HASP_LMP	HASP	HASP_LMP_GRP	1	Supported	Not Supported/ Invalid Request
PRC_HASP_LMP	HASP	HASP_LMP_GRP	2	Supported	Not Supported/ Invalid Request
PRC_HASP_LMP	HASP	HASP_LMP_GRP	3	Supported	Supported
PRC_RTPD_LMP	RTPD	RTPD_LMP_GRP	1	Supported	Not Supported/ Invalid Request
PRC_RTPD_LMP	RTPD	RTPD_LMP_GRP	2	Supported	Not Supported/ Invalid Request
PRC_RTPD_LMP	RTPD	RTPD_LMP_GRP	3	Supported	Supported
PRC_SPTIE_LMP	DAM,RTD,RTPD	DAM_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP	3	Supported	Not Supported/ Invalid Request
PRC_SPTIE_LMP	DAM,RTD,RTPD	DAM_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP	4	Supported	Not Supported/ Invalid Request
PRC_SPTIE_LMP	DAM,RTD,RTPD	DAM_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP	5	Supported	Supported

# Short-Term Plan OASIS

The updated OASIS Technical Specifications v4.3.3 include changes noted below:

API Report Name	Existing	Proposed Changes
<b>PRC_INTVL_LMP- Changes apply to Group Zip Only</b>	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG	New Version -Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
<b>PRC_RTPD_LMP - Changes apply to Group Zip Only</b>	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG	New Version -Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
<b>PRC_HASP_LMP - Changes apply to Group Zip Only</b>	One file with all price components within the same zip file- LMP, Congestion , Energy and Loss	New Version -Separate file for each price component within the same zip file - LMP, Congestion , Energy and Loss
<b>PRC_SPTIE_LMP(DAM,RTD,RTPD)- Changes apply to Group Zip only</b>	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG	New Version - Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
<b>TRNS_CURR_USAGE</b>	Request allows for past , current and future trade dates	Existing Version - No change to current and future trade dates . System will throw - "Invalid Request Error" for requests with past trade dates.
<b>TRNS_CURR_USAGE &amp; TRNS_USAGE</b>	No restriction on number of transmission id's requested in single zip.	Existing Version - System will throw error 1017 which is "Please select a maximum of 10 nodes or use the ALL option." when you are requesting data for more than 10 transmission id's for single zip.

# Short-Term Plan OASIS

OASIS API changes based on query type:

XML Report Name	Market Run ID	Version	Query Type	Response file
PRC_INTVL_LMP	RTM	3	Single node	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_INTVL_LMP	RTM	3	ALL_APNODES	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_INTVL_LMP	RTM	3	ALL	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
PRC_HASP_LMP	HASP	3	Single node	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_HASP_LMP	HASP	3	ALL_APNODES	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_HASP_LMP	HASP	3	ALL	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
PRC_RTPD_LMP	RTPD	3	Single node	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_RTPD_LMP	RTPD	3	ALL_APNODES	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_RTPD_LMP	RTPD	3	ALL	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
PRC_SPTIE_LMP	DAM,RTD,RTPD	5	Single node	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_SPTIE_LMP	DAM,RTD,RTPD	5	ALL_APNODES	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG
PRC_SPTIE_LMP	DAM,RTD,RTPD	5	ALL	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG

# CAISO Web Layer Maintenance

- Deployment 2/27, cutover 3/6
- CAISO is in the process of upgrading UI, web services, and ads web layer technology to newer versions
  - Maintain vendor recommended and supported software versions
    - Linux Operating System, Apache, Actional Intermediary
  - Add support for newer security protocols
    - TLS 1.1 and TLS 1.2
  - Improve supportability – Add additional logging forensics and diagnostics to help address Production issues

# CAISO Web Layer Maintenance

- URL's which will be affected by this upgrade:
  - Note: MAPStage has already been upgraded!

MAPStage	Production
<a href="https://portalmap.caiso.com">https://portalmap.caiso.com</a>	<a href="https://portal.caiso.com">https://portal.caiso.com</a>
<a href="https://portaleimmap.caiso.com">https://portaleimmap.caiso.com</a>	<a href="https://portaleim.caiso.com">https://portaleim.caiso.com</a>
<a href="https://wsmap.caiso.com">https://wsmap.caiso.com</a>	<a href="https://ws.caiso.com">https://ws.caiso.com</a> <a href="https://wsstas.caiso.com:4445">https://wsstas.caiso.com:4445</a>
<a href="https://idpmap.caiso.com">https://idpmap.caiso.com</a>	<a href="https://idp.caiso.com">https://idp.caiso.com</a>
<a href="https://reportingmap.caiso.com">https://reportingmap.caiso.com</a>	<a href="https://reporting.caiso.com">https://reporting.caiso.com</a>
<a href="https://adsmmap.caiso.com:447">https://adsmmap.caiso.com:447</a>	<a href="https://adssta.caiso.com:447">https://adssta.caiso.com:447</a> <a href="https://ads.caiso.com:447">https://ads.caiso.com:447</a>

# CAISO Web Layer Maintenance

- Changes participants should expect:
  - Brief system failovers (will communicate and keep to a minimum)
  - HTTP error page look/feel will be standardized
  - B2B WSDL's generated by the new software @ CAISO may have slight formatting differences or namespace declarations.
  - **RESOLVED:** SOAPAction HTTP header is now required to be set for web service transactions
    - Note: This item was required as a vendor product default setting; we have disabled. Sorry for the confusion
- What will not be changing:
  - oasis.caiso.com and [www.caiso.com](http://www.caiso.com) sites will not be upgraded as part of this effort
  - AUP (Acceptable Use Policy)
    - Additional enforcement is not scheduled to be implemented alongside this work; but will be communicated via a separate market notices. May go in around the same time.
    - AUP violation HTTP return code will remain using HTTP code 429
  - URL's, naming conventions. We will keep all the same current domain names, and URI' as provided in the System Access Information document
  - IP Addresses including ECN traffic, routing, and AT&T NAT addressing will not change

# CAISO Web Layer Maintenance

- What we would like from you now:
  - Please test your critical web service calls in MAPStage
  - We would like help testing MNS messages as before
- Other upcoming web layer changes scheduled or proposed for 2017:
  - The Legacy webservices URL <https://wsstas.caiso.com:4445> **will be scheduled for decommission soon.** These URL's will all work when pointed to <https://ws.caiso.com>
    - Exact date/process will be scheduled and communicated.
  - The Production alias <https://adssta.caiso.com:447> will be retired in 2017. We would like to ensure all clients are using <https://ads.caiso.com:447>. This may require an ADS client upgrade.
    - Exact date/process will be scheduled and communicated.
  - Support for TLS 1.0 will be removed in 2017.
    - Exact date/process will be scheduled and communicated.

# CAISO Web Layer Maintenance

- Questions???
  - Please create CIDI tickets for tracking purposes
  - You may call the CAISO Help Desk @ 916-351-2309
  - You may reach John Huetter, Systems Integration @ 916-608-5839

For all support tickets, please provide (the more information, the quicker we can resolve):

- CAISO URL you attempted
- Error Message, Error Code, Screenshot
- Time of transaction, please include seconds if possible
- Certificate Used
- Source IP (If available)