

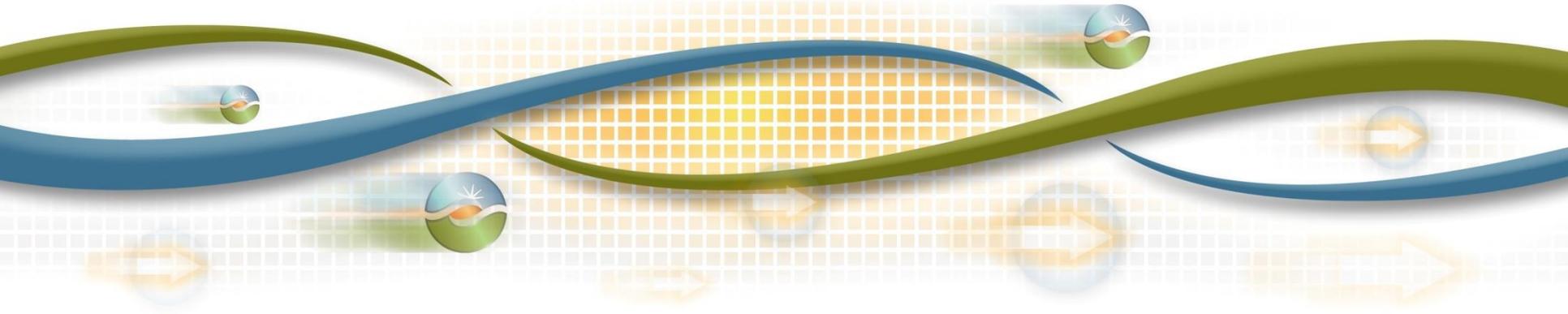


Release User Group Agenda

January 31st, 2017

10:00 a.m.–11:00 a.m. (Pacific Time)

Web Conference Information	Conference Call Information
URL: https://www.connectmeeting.att.com 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

January 31st, 2017

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

Time	Topic	Facilitator
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
February 7	Settlements 101 (Folsom)
February 8	Settlements 201 (Folsom)

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

Contact us - markettraining@caiso.com

Release Plan 2017

Independent 2017

- Settlements Release - January 2017
- MRI-S ACL Groups + CPG Enhancements (formerly OMAR Replacement)
- Reactive Power Requirements and Financial Compensation – no system changes
- 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

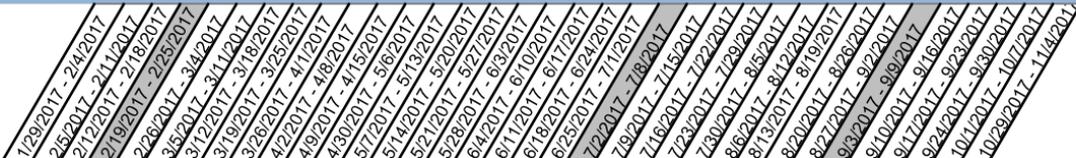
Release Schedule 2016 - 2017

Date of Data Refresh: 1/31/17 8:25 AM



California ISO

Legend	
Market Simulation	Orange
CA ISO Holiday	Blue
Deployment Week	Grey



MAP Stage Environment Window

RTD - Local Market Power Mitigation Enhancement - Market Sim	RTD - Local Market Power Mitigation Enhancement - Market Sim (02/06-02/24)
FNM Promotion 2017Q1	FNM Promotion 2017Q1 (02/22-02/22)
PIRP Decom: New Renewables CMRI reports and APIs - Market Sim	PIRP Decom: New Renewables CMRI reports and APIs - Market Sim (03/06-03/20)
MRI-S Metering Enhancements - Market Sim	MRI-S Metering Enhancements - Market Sim (03/06-03/31)
FNM Promotion 2017Q2	FNM Promotion 2017Q2 (05/23-05/23)
EIM - Portland General Electric - Market Sim	EIM - Portland General Electric - Market Sim (06/06-07/06)
Bidding Rules Part B - Market Sim	Bidding Rules Part B - Market Sim (08/08-09/08)
Reliability Services Initiative Phase 1B - Market Sim	Reliability Services Initiative Phase 1B - Market Sim (08/08-09/08)
Reliability Services Initiative Phase 2 - Market Sim	Reliability Services Initiative Phase 2 - Market Sim (08/08-09/08)
Commitment Costs Phase 3 - Market Sim	Commitment Costs Phase 3 - Market Sim (08/08-09/08)
RM & EIM 2017 Enhancements - Market Sim	RM & EIM 2017 Enhancements - Market Sim (08/08-09/08)
FNM Promotion 2017Q3	FNM Promotion 2017Q3 (08/22-08/22)

Parallel Operations Environment Window

EIM - Portland General Electric - Parallel Operations	EIM - Portland General Electric - Parallel Operations (08/01-09/30)
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Production Environment Window

FNM Promotion 2017Q1	FNM Promotion 2017Q1 (02/14-02/16)
MRI-S Metering Enhancements Phase 1 - ACL Groups	MRI-S Metering Enhancements Phase 1 - ACL Groups (03/03-03/03)
Reactive Power Requirements and Financial Compensation	Reactive Power Requirements and Financial Compensation (03/06-03/06)
MRI-S Metering Enhancements Phase 2 - MRI-S	MRI-S Metering Enhancements Phase 2 - MRI-S (03/31-03/31)
Administrative Pricing Policy Updates	Administrative Pricing Policy Updates (04/01-04/01)
Acceptable Use Policy - CMRI	Acceptable Use Policy - CMRI (04/01-04/01)
RTD - Local Market Power Mitigation Enhancement	RTD - Local Market Power Mitigation Enhancement (04/01-04/01)
CRR Clawback Modification	CRR Clawback Modification (04/01-04/01)
PIRP Decom: New Renewables CMRI reports and APIs	PIRP Decom: New Renewables CMRI reports and APIs (04/01-04/01)
Metering Rules Enhancements	Metering Rules Enhancements (04/01-04/01)
FNM Promotion 2017Q2	FNM Promotion 2017Q2 (05/16-05/18)
PIRP Decom: PIRP System Decommissioned	PIRP Decom: PIRP System Decommissioned (06/01-06/01)
MRI-S Metering Enhancements - OMAR Decommissioned	MRI-S Metering Enhancements - OMAR Decommissioned (07/05-07/05)
FNM Promotion 2017Q3	FNM Promotion 2017Q3 (08/15-08/17)
EIM - Portland General Electric	EIM - Portland General Electric (10/01-10/01)
Bidding Rules Part B	Bidding Rules Part B (11/01-11/01)
Reliability Services Initiative Phase 1B	Reliability Services Initiative Phase 1B (11/01-11/01)
Reliability Services Initiative Phase 2	Reliability Services Initiative Phase 2 (11/01-11/01)
Commitment Costs Phase 3	Commitment Costs Phase 3 (11/01-11/01)
RM & EIM Enhancements 2017	RM & EIM Enhancements 2017 (11/01-11/01)
Gas Burn Report	Gas Burn Report (11/01-11/01)

<http://www.caiso.com/Documents/ReleaseSchedule.pdf>

Settlements Release – January 2017

ISSUE SUMMARY	BPM IMPACTED
Update BPM for charge code 6478 real-time system imbalance energy offset and CC 6985 real-time marginal losses offset to align the documentation with the current active settlement configuration	PRR 946: (CC 6478 and CC 6985) Documentation Only
Updated BPM for metered energy adjustment factor pre-calculation to clarify conversion of ramp rate in minutes to MWh	PRR 947: (PC Metered Energy Adjustment Factor)
Updated capacity procurement mechanism (CPM) related configuration guides to re-formulate the eligible CPM capacity designation quantity and pass through bill functionality	PRR 948: (PC Metered Demand over TAC Area, CC 7891, and CC 7896)
Update BPM configuration guide for spin non-spin no pay pre-calculation to retroactively adjust calculation impacting resources without regulation schedules	PRR 949: (PC Spin Non-Spin No-Pay)
Update BPMs for start-up and minimum load cost and integrated forward market net amount pre-calculation to implement bidding rules enhancement Pmin rerate Pmax derate settlements	PRR 955: (PC Start-up Metered Energy Adjustment Factor v.5.14, and PC IFM Net Amount)
Update configuration guides in accordance with administrative pricing initiative to settle congestion revenue rights at the average hourly fifteen minute market price when specific conditions are triggered	PRR 956: (CC 6700)
Update existing BPM for real-time net amount pre-calculation to exclude hourly block bid opted intertie resources flex ramp product settlement amounts in bid cost recovery	PRR 957: (PC RTM Net Amount)
Update real time market net amount pre-calculation for regulation up and regulation down bid cost recovery costs	PRR# 958 (PC RTM Net Amount)
Updated calculation of day ahead and real time self-scheduled bids for resource adequacy availability incentive mechanism	PRR# 959 (PC RA Availability Incentive Mechanism)
Updated calculations and business rules for RA Availability Incentive Mechanism settlement	PRR# 960 (PC RA Availability Incentive Mechanism, CC 8830, and CC 8831)

Settlements Release – January 2017

Milestone	Date	Status
Configuration Guides Posted	December 13, 2016	✓
First DRAFT Configuration Output File Posted	December 15, 2016	✓
Second DRAFT Configuration Output File Posted	January 13, 2017	✓
Pre-Production DRAFT Configuration Output File Posted	January 18, 2017	✓
Production Deployment	January 24, 2017	✓
FINAL Configuration Output File Posted	January 24, 2017	✓

2017 - MRI-S ACL Groups+ CPG Enhancements

Project Info	Details/Date
Application Software Changes	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.
BPM Changes	None
Business Process Changes	Potential Level-II business process changes under – <ul style="list-style-type: none"> • Manage Market & Reliability Data & Modeling • Manage Operations Support & Settlements

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
BPMs	Metering BPM Changes	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	Phase 2 - MRI-S Metering Enhancements	Mar 06, 2017 - Mar 31, 2017	
Production Activation	Phase 1 - ACL Groups	Mar 03, 2017	
	Phase 2 - MRI-S Metering Enhancements	Mar 31, 2017	
Decommission	OMAR Decommissioned	July 5, 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.	Under review	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

MRI-S ACL Groups + CPG Enhancements

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	None
BPM Changes	None
Business Process Changes	Develop Infrastructure (DI) (80001) <ul style="list-style-type: none"> Level II - Manage Generator Interconnection Process (GIP) (Logical Group):

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	

2017 – Administrative Pricing Policy Updates

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"> • MQS: <ul style="list-style-type: none"> • <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) • <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 • <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)
Business Process Change	<ul style="list-style-type: none"> • Manage Markets and Grid
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, 2017	✓
Tariff	File Tariff	Nov 23, 2016	✓
Config Guides	Prepare Draft Configuration Guides	Dec 2, 2016	✓
Tech Spec	Publish CMRI 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	TBD	

Spring 2017 Release – Overview

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

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

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	✓
Tech Spec	Publish Technical Specification - OASIS	Apr 08, 2016	✓
	Publish Technical Specification - CMRI	Apr 14, 2016	✓
Market Sim	Market Sim Window	Feb 06, 2017 - Feb 24, 2017	
Production Activation	RTD - Local Market Power Mitigation Enhancement	Apr 01, 2017	

Project	CMRI	OASIS	ADS
RTD LMPM	Update (add RTD results): MPMResults v3	Update (add RTD results)- -ENE_MPM	N/A

Spring 2017 – Congestion Revenue Rights (CRR) Clawback

Project Info	Details/Date
Application Software Changes	<p>MQS/CRR Clawback:</p> <p>If import bid \leq day-ahead price, then the import is not considered a virtual award. If export bid \geq 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	Market Operations 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	Feb 15, 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: PIRP/CMRI</p>	<ul style="list-style-type: none"> • 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. • PIRP Decommissioning to occur in 2017 • CMRI to receive the Electricity Price Index for each resource and publish it to the Market Participants. • 60 Day PIRP / CMRI parallel production to start when AIM/ACL becomes available.
<p>BPM Changes</p>	<p>CMRI Technical Specification; New APIs will be described.</p>
<p>Data Transparency</p> <ul style="list-style-type: none"> • Independent changes, won't impact existing services • Will be made available in Production and cutover schedule is discretionary 	<p>Atlas Reference:</p> <ol style="list-style-type: none"> 1. Price Correction Messages (ATL_PRC_CORR_MSG) 2. Scheduling Point Definition (ATL_SP) 3. BAA and Tie Definition (ATL_BAA_TIE) 4. Scheduling Point and Tie Definition (ATL_SP_TIE) 5. Intertie Constraint and Scheduling Point Mapping (ATL_ITC_SP) 6. Intertie Scheduling Limit and Tie Mapping (ATL_ISL_TIE) <p>Energy</p> <ul style="list-style-type: none"> • EIM Transfer Limits By Tie (ENE_EIM_TRANSFER_LIMITS_TIE) • Wind and Solar Summary (ENE_WIND_SOLAR_SUMMARY) <p>Prices</p> <ul style="list-style-type: none"> • MPM Default Competitive Path Assessment List (PRC_MPM_DEFAULT_CMP)
<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)

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	✓
	New Renewables CMRI reports and APIs Production Deployment	Apr 01, 2017	
	PIRP System Decommissioning	Jun 01, 2017	

Spring 2017 – Metering Rules Enhancements

Project Info	Details/Date
Application Software Changes	N/A
BPM Changes	<p>Metering</p> <ul style="list-style-type: none"> • 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. • 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). <p>Definitions & Acronyms BPM Changes</p> <ul style="list-style-type: none"> • New Tariff and Business Process/System acronyms.
Business Process Changes	<ul style="list-style-type: none"> • Manage Transmission & Resource Implementation • Manage Market & Reliability Data & Modeling (MMR) (80004) <ul style="list-style-type: none"> • ISO Meter Certification (MMR LII) • Metering Systems Access (Production) (MMR LII) • Metering System Configuration for Market Resources (MMR LII) • Station Power Implementation (MMR LIII) • Application Flow - Billing & Settlements • Analyze Missing Measurement Report (MOS LIII) • Manage Market Billing & Settlements (MOS LII) • Manage Market Quality System (MOS LII) • Manage Rules of Conduct (MOS LII) • Meter Data Acquisition & Processing (MOS LII) • SCME Self Audit (MOS LII)

Spring 2017 – Metering Rules Enhancements

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) approval	Dec 14, 2016	✓
BPMs	Market Operations BPM	Feb 02, 2017	
	Energy Imbalance Market BPM	Feb 02, 2017	
External BRS	External Business Requirements	N/A	
Tariff	Tariff Filing at FERC	Feb 07, 2017	
Config Guides	Config Guides	N/A	
Tech Spec	Tech Spec	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Metering Rules Enhancements	Apr 03, 2017	

Fall 2017 Release – Overview

	Board Approval	BPMs	External BRS	Tariff	Config Guide	Tech Spec	Market Sim	Production Activation
Fall 2017 Release								
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	1/20/17	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 EIM 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"> • MasterFile: <ul style="list-style-type: none"> • Provide ability to submit requests for new fuel regions (Policy Section 8.1.1.3) • Include resource-specific start-up electricity costs in proxy costs based on wholesale projected electricity price, unless resource verifies costs incurred are retail rates (RDT change) • Allow ability to submit a weighting when using a more than one fuel region. • Automation of the Aliso Canyon process for creating NEW Fuel Regions • OASIS: <ul style="list-style-type: none"> • Publish fuel regions (public information)
Business Process Change	<ul style="list-style-type: none"> • Manage Transmission & Resource Implementation • Manage Entity & Resource Maintenance Updates • Manage Full Network Model Maintenance • Manage Market Quality System (MQS)
BPMs	Market Instruments, Market Operations, 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	Mar 31, 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>Scope:</p> <ul style="list-style-type: none"> • Default flexible qualifying capacity provisions for phase 2 consideration (we might need data collection performed in order to support RSI Phase 2) • Redesign of Replacement Rule for System RA and Monthly RA Process • RA Process and Outage Rules for implementation for 2017 RA year • Scope not delivered in RSI Phase 1A (Grandfathered Contracts, RAAM Decommissioning – SCP & 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 & API) <p>Impacted Systems:</p> <ul style="list-style-type: none"> • CIRA • OASIS • Integration (B2B) • Settlements • Decommission RAAM 	
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>CIRA –</p> <ul style="list-style-type: none"> • Modifications to the RA and Supply Plan to show breakdown of local and system. Validation rules need to be updated. • Update planned/forced outage substitution rules • Allow market participants to select how much system/local MWs to substitute. • Modification of UI screens to accommodate system/local MW split. • Enhance system to handle EFC monthly updates similar to NQC (workflow change) • Enhance system to allow exemption from submission of RA Plans for LSE that have a RA obligation < 1 MW for a given capacity product. <p>Settlements –</p> <ul style="list-style-type: none"> • Splitting local from system in upstream RA system could potentially impact the RAAIM calculation.
BPM Changes	<ul style="list-style-type: none"> • Reliability Requirements: Changes to the monthly RA process • Settlements and Billing
Business Process Changes	<p>Manage Market & Reliability Data & Modeling</p> <ul style="list-style-type: none"> - Manage Monthly & Intra-Monthly Reliability Requirements - Manage Yearly Reliability Requirements

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><u>Scope:</u></p> <ol style="list-style-type: none"> 1. Clarify use-limited registration process and documentation to determine opportunity costs 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"> • ISO calculated; Modeled limitation • Market Participant calculated; Negotiated limitation 3. Enhanced definition of “use-limited” in response to FERC’s rejection of the proposed definition in Cost Commitment Enhancements Phase 2 4. Change Nature of Work attributes (Outage cards) <ol style="list-style-type: none"> 1. Modify use-limited reached for RAAIM Treatment 2. Add new demand response nature of work attribute for RDRR and PDR 5. Market Characteristics <ol style="list-style-type: none"> 1. Maximum Daily Starts 2. Maximum MSG transitions 3. Ramp rates <p><u>Impacted Systems:</u></p> <ol style="list-style-type: none"> 1. CIRA 2. CMRI 3. IFM/RTN 4. SIBR 5. MasterFile 6. OASIS 7. OMS 8. Settlements
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, 2017	
	Publish Final Business Practice Manuals	TBD	
External BRS	Post External BRS	Jan 06, 2017	✓
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. Requirements are being evaluated for the following:</p> <ul style="list-style-type: none">• EIM Entity access reports• BAAOP provisioning in AIM• EIM data report enhancements to support market participant and EIM entity shadow settlements• Joint Owned Units modeling• Allow MSG resource to send actual configuration in telemetry for RTM• Comprehensive model for startup and transition energy in DAM, RTM, RTBS, MQS• Combine the import/export under/over-scheduling histograms to a single net interchange under/over-scheduling histogram
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 External BRS	Jan 20, 2017	✓
Tariff	File Tariff	TBD	
	Receive FERC order	TBD	
Config Guides	Config Guides	Apr 03, 2017	
Tech Spec	Technical Specifications	Apr 03, 2017	
Market Sim	Market Sim Window	Aug 08, 2017 – Sept 08, 2017	
Production Activation	RM & 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"> • Develop Infrastructure • Manage Market & Reliability Data & Modeling

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	
Configuration Guides	Prepare Draft Configuration 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	December 1, 2017 – January 31, 2018 ISO and Idaho Power continue progress to integrate the Idaho Power network model with the ISO model in a non-production environment to allow Idaho Power to exchange data in advance of Market Simulation. Initial integration testing is expected to begin in August 2017.
Parallel Operations	February 1, 2018 – March 31, 2018

Milestone Type	Milestone Name	Dates	Status
Tariff	File EIM 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 31, 2018	
Production Activation	EIM - Idaho Power	Apr 04, 2018	

Short-Term Plan OASIS

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

API Report Name	Existing Version(XML & CSV)	Proposed New Version(XML & CSV)
PRC_INTVL_LMP- Changes apply to Group Zip Only	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
PRC_RTPD_LMP - Changes apply to Group Zip Only	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
PRC_HASP_LMP - Changes apply to Group Zip Only	One file with all price components within the same zip file- LMP, Congestion , Energy and Loss	Separate file for each price component within the same zip file - LMP, Congestion , Energy and Loss
PRC_SPTIE_LMP(RTD,RTPD)- Changes apply to Group Zip only	One file with all price components within the same zip file- LMP, Congestion , Energy, Loss and GHG	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG
TRNS_CURR_USAGE	Request allows for past , current and future trade dates	No change to current and future trade dates . System will throw - "Invalid Request Error" for requests with past trade dates.
TRNS_CURR_USAGE & TRNS_USAGE	No restriction on number of transmission id's requested in single zip.	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	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	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	RTD,RTPD	5	ALL	Separate file for each price component within the same zip file - LMP, Congestion , Energy, Loss and GHG

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(tentative) : 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	RTD,RTPD	DAM_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP	3	Supported	Not Supported/ Invalid Request
PRC_SPTIE_LMP	RTD,RTPD	DAM_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP	4	Supported	Not Supported/ Invalid Request
PRC_SPTIE_LMP	RTD,RTPD	DAM_SPTIE_LMP_GRP, RTD_SPTIE_LMP_GRP, RTPD_SPTIE_LMP_GRP	5	Supported	Supported

CAISO Web Layer Maintenance

- 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
https://portalmap.caiso.com	https://portal.caiso.com
https://portaleimmap.caiso.com	https://portaleim.caiso.com
https://wsmap.caiso.com	https://ws.caiso.com https://wsstas.caiso.com:4445
https://idpmap.caiso.com	https://idp.caiso.com
https://reportingmap.caiso.com	https://reporting.caiso.com
https://adsmmap.caiso.com:447	https://adssta.caiso.com:447 https://ads.caiso.com:447

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 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)