

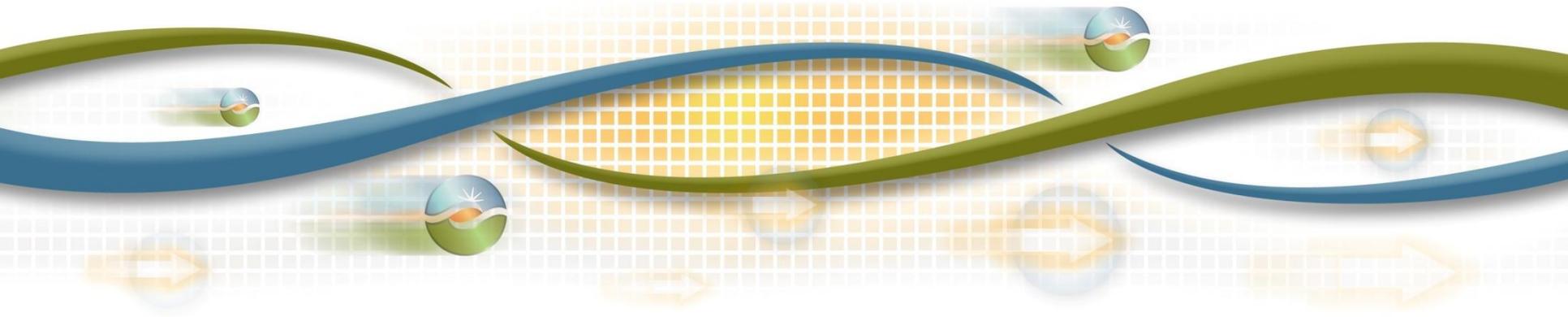


Release User Group Agenda

October 10, 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

October 10, 2017

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

Time	Topic	Facilitator
10:00 – 10:05	Agenda & ISO Roll call	Janet Morris
10:05 – 10:45	Release Plan	Adrian Chiosea Brett Bruderer Michael Lucas Joanne Alai Marcelo Da Costa Raymond Riley Marci Stuckey John Williams Christopher McIntosh Jami Herguth Prince Phillip Sandhya Balasubramanian Eureka Cullado Indu Nambiar Justin Wong LuAnn Rivera Craig Williams Trang Deluca

The ISO offers innovative training programs

Date	Training*
Oct 11-12	Get to Know the ISO
Nov 8	Settlements 101
Nov 9	Settlements 201

*All classes are offered at our Folsom, CA location unless noted otherwise.



The ISO's External Training & Readiness team provides quality training and readiness programs that successfully prepare Stakeholders to effectively engage with the ISO.

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

Contact us: CustomerTraining@caiso.com

EIM computer based training courses: <https://www.westerneim.com/Pages/Resources.aspx>



Release Plan 2017 - 2018

Independent 2017

- Black Start and System Restoration Phase 2
- Imperial Valley Phase Shifter Modeling
- Bidding Rules Enhancements – Part B
- Gas Burn Report
- SIBR UI Upgrade
- EIM 2017 Enhancements

Winter 2017

- RIMS Functional Enhancements
- EIM 2017 Enhancements
- EIM Winter 2017 Enhancements
- Energy Storage and DER Phase 1C
- EIM 2018 Idaho Power Company
- EIM 2018 Powerex
- Reliability Services Initiative 2017

Spring 2018

- Commitment Cost Enhancement Phase 3
- Energy Storage and DER Phase 2
- EIM greenhouse gas compliance
- Capacity Procurement Mechanism – risk-of-retirement (no system changes expected)

Release Plan – 2018 and subject to further planning

Fall 2018 – tentative, subject to impact assessment

- Contingency Modeling Enhancements
- Commitment Costs and Default Energy Bid Enhancements – Ph. 1
- Temporary Shutdown of Resource Operations
- Aliso Canyon Phase 3

Spring 2019

- EIM 2019 Seattle City Light
- EIM 2019 Balancing Authority of Northern California (BANC) / SMUD
- EIM 2019 LADWP

Fall 2019 – tentative, subject to impact assessment

- Frequency Response Phase 2
- Commitment Costs and Default Energy Bid Enhancements – Ph. 2 (MPM)
- Generation Contingency and Remedial Action Scheme
- Congestion Revenue Right auction efficiency
- Flexible Resource Adequacy Criteria and Must-offer Obligation Phase 2
- Real-Time Market Enhancements
- Transmission Access Charge billing structure
- ADS User Interface Replacement

Spring 2020

- EIM 2020 Salt River Project

2017- Black Start and System Restoration Phase 2

Project Info	Details/Date
Application Software Changes	<p>Settlements:</p> <ul style="list-style-type: none"> • Modifications to existing charge codes for Black Start capacity and Black Start allocations will need to occur. <p>MPP (Market Participant Portal):</p> <ul style="list-style-type: none"> • Possibility to use current functionality for receiving RMR invoices for Black Start units.
BPM Changes	<p>Definitions & Acronyms:</p> <ul style="list-style-type: none"> • Revision of the following definitions to match the Tariff language: Ancillary Services (AS), Black Start Generator, Black Start Generating Unit, Interim Black Start Agreement, Reliability Services Costs <p>Settlements & Billing:</p> <ul style="list-style-type: none"> • Pending Settlements review. Revisions will be directly based on Tariff changes.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board approval	May 1, 2017	✓
BPMs	BPM Changes Required	TBD	
External BRS	External BRS not Required	N/A	
Tariff	Draft tariff - Web Conference to finalize tariff	May 1, 2017	✓
	File tariff	May 15, 2017	✓
	Filed tariff amendment related to cost allocation	Aug 3, 2017	✓
	Tariff approval	Nov 1, 2017	
Request for Proposal (RFP)	Posted request for proposal documents	June 15, 2017	✓
RFP bids	Closure of RFP	July 31, 2017	✓
Production	Awards and final report	December 1, 2017	

2017 – Imperial Valley Phase Shifter Modeling

Project Info	Details/Date
Application Software Changes	<p>Allow Market control the Phase Shifter (PST) and manage the power flow</p> <p>MF: No MF system changes, only data changes to: define PST ID, tap max/min number, tap position change limit, parallel PST set</p> <p>EMS: Send the market optimized PST tap position to PST device operator through EMS for binding interval at the binding interval time stamp</p> <p>DAM/RTM: provide configuration option for PST optimization for each market Set Tap position as Integer Control Variable Include PST tap position movement from initial position impact on transmission flow constraint Enforce limits on tap position, enforce constraint for tap position movement Enforce constraint for Phase shifter's designated as parallel must be optimized at same tap position Publish Tap position for PST</p> <p>CMRI: Publish market solution of PST tap position for binding and advisory intervals for IFM, RTPD and RTD</p>
BPM Changes	Market Operations

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
BPMs	Post BPM changes	09/01/2017	✓
External BRS	External Business Requirements	09/15/2017	✓
Tariff	File Tariff	N/A	
	Receive FERC order	N/A	
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Imperial Valley Phase Shifter Modeling	November 16, 2017	

2017/Winter 2017/Spring 2017 CMRI/OASIS/MF API Change Summary

System	Change Type	Service Type	Service	Major Version	Minor Version	RDT	Release	Project	MAP Stage	Activation
CMRI	New	Retrieve	Daily Electricity Price Index	1	20171001	2017	2017	BRE-B	9/8/17	11/1/2017
CMRI	New	Retrieve	Actual Limitation Values	1	20171001	Spring 2018	Spring 2018	CCE-3	March 2017	5/1/2018
CMRI	New	Retrieve	Resource Opportunity Cost	1	20171001	Spring 2018	Spring 2018	CCE-3	March 2017	5/1/2018
CMRI	New	Retrieve	External Default Commitment Cost	1	20171001	2017	2017	EIM 2017	October 2017	11/1/2017
CMRI	New	Retrieve	Gas Burn Resource Data	1	20171001	2017	2017	Gas Burn	10/10/17	11/1/2017
CMRI	New	Retrieve	Gas Burn Summary Data	1	20171001	2017	2017	Gas Burn	10/10/17	11/1/2017
CMRI	Modify	Retrieve	EIM Entity Market Base Schedules	1	20171001	2017	2017	Enhancement	October 2017	11/1/2017
CMRI	Modify	Retrieve	Market Base Schedules	1	20171001	2017	2017	Enhancement	October 2017	11/1/2017
OASIS	New		PUB_CSP_OFFER_SET				Winter 2017	RSI	12/6/17	4/1/2018
OASIS	New		ENE_EIM_FLEX_RAMP_INPUT				Fall 2017	EIM 2017	October 2017	11/1/2017
OASIS	New		PRC_RTM_LAP				Winter 2017	EIM 2017 Winter	12/1/17	4/1/2018
OASIS	New		Control Area Generating Capability List				2017	Gas Burn	10/10/17	11/1/2017
MF	Modify	Retrieve	GeneratorRDT	4	20180201	11.0	Winter 2017	EIM Winter 2017	12/1/17	4/1/2018
MF	Modify	Submit	GeneratorRDT	4	20180201	11.0	Winter 2017	EIM Winter 2017	12/1/17	4/1/2018
MF	Modify	Retrieve	GeneratorRDT	TBD	20180501	12.0	Spring 2018	BRE-B CCE-3 RSI	March 2017	5/1/2018
MF	Modify	Submit	GeneratorRDT	TBD	20180501	12.0	Spring 2018	BRE-B CCE-3 RSI	March 2017	5/1/2018

Master File Updates & Clarifications

Fall Release includes updated Fuel Regions

- Master File will “freeze” external data updates
 - 10/20 last day to submit RDT with effective date prior to 11/1
 - Resume RDT submittals on 10/30 (earliest effective date will be 11/6)
 - RDTs submitted between 10/20 and 10/30 will be rejected
 - Downloads to view data will be allowed during the freeze
- Electric Regions will not be viewable in RDT until Spring; to request information on Electric Regions assigned to Generators, contact RDT@caiso.com.

Winter Release includes a new Fuel Type enumeration (GNRC) to identify generic NGRs

- There will be no structural changes to the RDT
 - GRDT spreadsheet version 11 will continue to be the production version
- An updated Tech Spec will be posted by 10/10
 - The Tech Spec will only be updated to include the new Fuel Type enumeration.

Master File Updates & Clarifications

Spring Release includes CCE3, BREB, and RSI attributes

- GRDT version 12 and Tech Spec 4.1.1 have been posted since June
- The Spring RDT and Tech Spec will be updated in December to include recent changes (e.g. ICE Hub)
- GRDT Highlights
 - RESOURCE tab – Add Electric Region (R/O), Market Max Daily Starts (R/W), COM MW (R/O), **ICE Hub (R/W)**
 - Ramp Tabs (Resource & Configuration : Operational, Regulation, and Op Reserve) – Add Market Ramp Rate (R/W); discontinue supporting Min/Worst Ramp Rate (submitted values will be ignored)
 - CONFIGURATION tab – Add Implied Starts (previously documented as CT Starts) (R/W)
 - TRANSITION tab – Add Market Max Daily Transitions (R/W), Implied Starts (R/O)
- ULPDT Highlights
 - Add Configuration ID
 - ULPDT will be loaded via Batch Process with automated Batch Status notification
 - Compare Report available
 - Validation Rules will continue to appear on UI, not in a separate Validation Report

2017 - Bidding Rules Enhancements – Part B

Project Info	Details/Date
Application Software Changes	<ul style="list-style-type: none"> • Master File: <ul style="list-style-type: none"> • Electric Region added to GRDT as non-modifiable (to be released with CCE3) • CMRI: <ul style="list-style-type: none"> • Resource-level monthly EPI (calculated on daily basis) based on wholesale or retail electric region type. • CAISO.COM: <ul style="list-style-type: none"> • Only publish total monthly fuel region GPI (existing) and eliminate publishing the monthly fuel region GPI components as PDF file. (public information) • SIBR: <ul style="list-style-type: none"> • Real-time commitment costs will be allowed to re-bid, except if there is a DA commitment for that hour, or there is a RTM commitment and the Minimum Up Time has not been met.
Business Process Change	<ul style="list-style-type: none"> • Manage Transmission & Resource Implementation • Manage Entity & Resource Maintenance Updates • Manage Full Network Model Maintenance
BPMs	Market Instruments

2017 - Bidding Rules Enhancements – Part B

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) Approval	Mar 25, 2016	✓
External BRS	Post External BRS	Jan 13, 2017	✓
BPMs	Post Draft BPM changes	Aug 31, 2017	✓
Configuration Guides	Prepare Draft Configuration Guides	N/A	
Tech Spec	Publish MF Tech Specs	Apr 03, 2017	✓
	Publish updated MF Tech Specs	Jun 30, 2017	✓
	Publish CMRI Tech Specs	Apr 25, 2017	✓
	Publish updated CMRI Tech Specs	Jun 28, 2017	✓
Market Simulation	Market Simulation window	Sept 22, 2017 – Oct 20, 2017	
Production Activation	Bidding Rules Part B	Nov 01, 2017	

2017 – Gas Burn Report

Project Info	Details/Date
Application Software Changes	<p>CMRI - implement ISO Market software functionality to calculate and present gas burn estimates to gas companies serving electric generation located within the CAISO BAA</p> <p>OASIS - Control Area Generating Capability List report</p>
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	
Config Guides	Configuration Guides	N/A	
Tech Spec	Publish Technical Specifications - CMRI	Apr 26, 2017	✓
	Publish Updated Technical Specifications - CMRI	Jun 28, 2017	✓
	Publish Technical Specifications - OASIS	May 03, 2017	✓
	Publish Updated Technical Specifications - OASIS	Jun 23, 2017	✓
MAP Stage	System available in MAP Stage	Oct 17, 2017	
Production	Production activation	Nov 01, 2017	

2017 – SIBR UI Upgrade

Project Info	Details/Date
Application Software Changes	<p>SIBR – The CASIO will be upgrading the underlying SDK platform utilized for displaying the user interface. This latest SDK version will strengthen the security of the SIBR application and will improve compatibility with the latest version of Internet Explorer. It is anticipated no functional changes or API will be impacted by this upgrade.</p>

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
BPMs	Publish Final Business Practice Manuals	N/A	
External BRS	Post Draft BRS	N/A	
Tariff	Receive FERC order	N/A	
Config Guides	Configuration Guide	N/A	
Tech Spec	Publish Tech Specs	N/A	
	Technical Specifications	N/A	
User Guide	SIBR User Guide	Oct 12, 2017	
MAP Stage	System available in MAP Stage	Oct 17, 2017 – Oct 30, 2017	
Production Activation	SIBR UI Upgrade	Nov 08, 2017	

2017 – RAAIM Production Defects

Project Info	Details/Date
Application Software Changes	<p>RAAIM (Resource Adequacy Availability Incentive Mechanism) – California ISO intends to release several fixes for RAAIM production defects within the Settlements system.</p> <p>It includes formula fixes for</p> <ul style="list-style-type: none"> • Applying outage exemptions for non-Resource Specific System RA Resources • Availability calculations for NGR REM with RA capacity • Exempting RMR resources from RAAIM • Resources being assessed in Real Time when it is a Long Start or Extremely Long Start resource, and also is eligible for RAAIM exemption for being a combined heat and power resource, QF resource, participating load that is pumping load, resource with acquired rights, or have pmax < 1.0 MW. <p>Refer to CG PC RA Availability Incentive Mechanism v5.3</p>

Milestone Type	Milestone Name	Dates	Status
Configuration Guides	Update Configuration Guide	Jun 23, 2017	✓
BPMs	Post Draft BPM Changes - Settlements & Billing	Aug 30, 2017	✓
External Validation	Validation using production data with the new calculation	Sep 12, 2017	✓
Production Deployment	Implement and deploy into Production revised charge codes per Fall release deployment plan.	Nov 1, 2017	
Production Activation	Revised RAAIM penalties and incentives become financially binding with re-settlement of 4/1/2017 going forward. Schedule of re-settlement statements will follow California ISO Payments Calendar	Apr 1, 2017	

2017 – RAAIM Production Defects

External Validation Plan

- Copy production data into map stage using trade dates 4/1/2017 to 4/7/2017
- In map stage:
 - Calculate Daily and Monthly Initial statements using configuration without formula fixes, then publish to MRI-S
 - Calculate Daily and Monthly Recalc statements using configuration with new formula fixes, then publish to MRI-S

2017 – Deactivation of TLS 1.0 & 1.1

Info	Details/Date
Summary	The California ISO will be deactivating Transport Layer Security (TLS) 1.0 and 1.1 in the market and performance (MAP) stage environment on date TBD 2017 , and in the production environment on October 16, 2017 (TBD based on MAP stage). Deactivating these older TLS protocol versions aligns with industry best practices for security and data integrity. It is necessary for market participants to enable TLS 1.2 as soon as possible in browsers and APIs.
Details	<p>The ISO will deactivating TLS 1.0 and 1.1 in the MAP stage environment on date TBD 2017, and in the production environment on October 16, 2017 (TBD based on MAP stage), and only TLS 1.2 will remain enabled. Deactivating these older TLS protocol versions aligns with industry best practices for security and data integrity.</p> <p>It is necessary for market participants to enable TLS 1.2 in browsers and application programming interfaces (APIs) as soon as possible in order to continue to access the MAP stage environment from date TBD onwards, and to continue to access the production environment from October 16 (TBD based on MAP stage) onwards. Market participants can enable TLS 1.2 now as the MAP stage and production environments currently allow TLS 1.2. Note: it isn't necessary for market participants to manually disable TLS 1.0 and 1.1 in browsers and APIs because the TLS handshake will negotiate the highest mutually available version.</p> <p>Once TLS 1.0 and 1.1 are deactivated in the MAP stage environment, the ISO encourages market participants to confirm successful connectivity to the MAP stage portal, portal application's user interfaces (browser UIs) and APIs prior to the production environment deactivation on October 16 (TBD based on MAP stage). Note: After TLS 1.0 and 1.1 are deactivated, market participants who cannot connect due to a version issue may receive errors depending on how they are connecting. Errors will likely include verbiage such as "wrong version", "unsupported negotiation", or "failed handshake".</p> <p>The Systems Access Information for Market Participants document contains the information to access the MAP stage and production environments. This document is available on the ISO website at http://www.caiso.com/Documents/SystemAccessInformation_MarketParticipants.pdf.</p>
Market Notice	http://www.caiso.com/Documents/Deactivation-TransportLayerSecurityTLS10and11.html

Milestone Type	Milestone Name	Dates	Status
MAP-Stage	Disable TLS 1.0 & 1.1 in MAP-Stage	TBD	
Production Disabling	Disable TLS 1.0 & 1.1 in Production	TBD based on MAP stage	

Please refer to <https://portalmap.caiso.com> and market notice for updated MAP-Stage deactivation date

Winter 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	
Config Guides	Configuration Guides not required	N/A	
Tech Spec	No Tech Specifications Required	N/A	
External Training	<ul style="list-style-type: none"> Train the PTOs. 	January 15, 2018	
	<ul style="list-style-type: none"> Provide a half hour intro to the new RIMS App at the Resource Interconnection Fair. 	February 20, 2018	
	<ul style="list-style-type: none"> WebEx full training provided by the Training Team in coordination with the MCI team. 	March 6, 2018	
Production Activation	RIMS5 App & Study	Mar 21, 2016	✓
	RIMS 5 Queue Management, Transmission & Generation	January/February, 2018	

Winter 2017 – EIM Enhancements 2017

Project Info	Details/Date
Application Software Changes	<p>Address enhancements identified by policy, operations, technology, business and market participants.</p> <p>Scope:</p> <ol style="list-style-type: none"> 1. Access & Integration Enhancements: EIM Entity Access in ALFS, MF, OASIS, WebOMS, and CMRI. 2. EIM data report enhancements to support market participant and EIM entity settlements 3. EIM software enhancements 4. Change to ETSR formulation to separate base energy transfer to distinct non-optimizable ETSRs. <p><i>Out of Scope:</i></p> <ol style="list-style-type: none"> 1. BAAOP provisioning in AIM 2. Joint Owned Unit/Shared BAA Resource Modeling
BPM Changes	<p>Energy Imbalance Market: Access & Integration, Data Report</p> <p>Outage Management: Access & Integration</p> <p>Market Instruments: Access & Integration, Data Reports</p> <p>Market Operations: Data Report</p> <p>Settlements & Billing: Data Report</p>
Business Process Changes	N/A

Winter 2017 – EIM Enhancements 2017

Milestone Type	Milestone Name	Dates	Status
External BRS	Post External BRS	Jan 23, 2017	✓
	Post Updated (v1.2) External BRS to public site	Apr 10, 2017	✓
Tech Spec	Publish Technical Specifications (Master File)	Apr 10, 2017	✓
	Publish Updated Technical Specifications (Master File)	Jun 30, 2017	✓
	Publish Technical Specifications (OASIS)	Apr 07, 2017	✓
	Publish Updated Technical Specifications (OASIS)	Jun 23, 2017	✓
	Publish Technical Specifications (CMRI)	Apr 26, 2017	✓
	Publish Updated Technical Specifications (CMRI)	Jun 28, 2017	✓
Configuration Guides	Post Configuration Guides	June 27, 2017	✓
BPMs	Post Draft BPM changes	August 15, 2017	✓
Market Sim	Market Sim Window	Dec 1, 2017 – Jan 31, 2018	
Production Deployment	EIM Enhancements 2017	Feb 13, 2018	
Production Activation	EIM Enhancements 2017	Apr 04, 2018	

Winter 2017 – EIM Enhancements Winter 2017

Project Info	Details/Date
Application Software Changes	<p>Scope and System Impact:</p> <ul style="list-style-type: none"> • Auto-matching for post T–40 Intertie and other EIM Non-Participating Resource (EIMNPR) schedule changes from a single dedicated EIMNPR with the ability to generate or consume energy (MF, RTM) • Auto-mirroring for ISO import/export schedules at ISO Scheduling Points (MF, RTM) • BASE ETSR imbalance energy settlement: LMP at specified financial location (MF, RTM, Settlement) • No-EIM Fee: Exclude EIM administrative fee for non-US transactions after T–40 (MF, RTM, Settlement) • Suppress LMP publication in OASIS for non-US Pnodes (MF, OASIS) • Allow submission of Base Generation Distribution Factors (GDFs) for aggregate EIMNPR (BSAP, RTM) • Allow EIM Entity control to enforce/not enforce EIM BAA internal transmission constraints (MF, RTM) • Report resource ramp capability in CMRI for SCs (BSAP, CMRI) • Allow EIM and other resources modeled as an aggregation using the Generic NGR model that has the ability to generate or consume energy (MF, RTM, Settlement)
BPM Changes	Energy Imbalance Market and Settlements & Billing
Business Process Changes	Manage Real Time Operations - Maintain Balancing Area

Winter 2017 – EIM Enhancements Winter 2017

Milestone Type	Milestone Name	Dates	Status
Board Approval	EIM Governing Body Meeting	Nov 29,2017	
	Board of Governors Meeting	Dec 13-14, 2017	
BPMs	Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
External BRS	External Business Requirements	August 1, 2017	✓
Tariff	File Tariff – Consolidated EIM Initiative	Dec 15, 2017	
	Receive FERC order	Feb 15, 2018	
Configuration Guides	Design review - BPM and Tariff SMEs	Oct 16, 2017	
Tech Spec	Create ISO Interface Spec (Tech spec)	Oct 16, 2017	
Market Sim	Market Sim Window	Dec 1, 2017 – Jan 31, 2018	
Production Deployment	EIM Enhancements Winter 2017	Feb 13, 2018	
Production Activation	EIM Enhancements Winter 2017	Apr 4, 2018	

ESDER 1C – incorporated in the EIM Enhancements Winter 2017

Project Info	Details/Date
Business Requirements Specification	ESDER 1C requirements incorporated in version 1.1 of the BRS for EIM Enhancements Winter 2017. The nine BRQs identified as ESDER 1C requirements related to the Generic NGR model are: BRQ161, BRQ162, BRQ163, BRQ321, BRQ322, BRQ324, BRQ465, BRQ466, BRQ516
Application Software Changes	<p>Allow market participant to registry NGR Generic Resource (Generic, new subtype of NGR, in addition to LESR and DDR) of NGR with load and generation modes without SOC</p> <p>MF: Define NGR resource with subtype Generic</p> <p>SIBR/BSAP/IFM-RTM</p> <ul style="list-style-type: none"> • SC to submit bids for NGR Generic resource • SC to submit EIM Base Schedule for NGR Generic resource • Combine the distributed schedules from multiple aggregated resources that have overlapping aggregation in NA <p>Settlement: Settlement calculation to NGR Generic resources level</p> <p>WebOMS - Include NGR Generic resource outage/de-rate in the market</p>
BPM Changes	<p>Market Operations</p> <p>Energy Imbalance Market</p> <p>Settlements and Billing</p>

Milestone Type	Milestone Name	Dates	Status
ESDER 1C milestones	Same as EIM Winter Enhancements 2017		

Winter 2017 – 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 Idaho Power network model has been integrated into the ISO non-production environment on August 11, 2017. Integration testing is in progress.
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	

Winter 2017 – EIM Powerex

Project Info	Details/Date
Application Software Changes	Implementation of Powerex as an EIM Entity.
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during the Powerex implementation.
Market Simulation	The Powerex model has been integrated into the ISO non-production environment. Integration testing is expected to begin the week of September 25, 2017.
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 - Powerex	Apr 04, 2018	

Winter 2017 - Reliability Services Initiative 2017

Project Info	Details/Date
<p>Application Software Changes</p>	<p><u>Scope:</u> Redesign of Replacement Rule for System RA and Monthly RA Process.</p> <ul style="list-style-type: none"> • RA Process and Outage Rules for implementation for 2017 RA year. • CSP Offer Publication (RSI 1A scope) • Local and system RA capacity designation • RA showing requirements for small load serving entities (LSEs) • RA showing tracking and notification <p><u>Impacted Systems:</u></p> <ul style="list-style-type: none"> • OASIS • Settlements • CIRA <p><u>CIRA:</u></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 allow exemption from submission of RA Plans for LSE that have a RA obligation < 1 MW for a given capacity product. <p><u>Settlements:</u></p> <ul style="list-style-type: none"> • Splitting local from system in upstream RA system could potentially impact the RAIM calculation.
<p>BPM Changes</p>	<ul style="list-style-type: none"> • Reliability Requirements: Changes to the monthly RA process • Settlements and Billing
<p>Business Process Changes</p>	<p><u>Manage Market & Reliability Data & Modeling</u></p> <ul style="list-style-type: none"> • Manage Monthly & Intra-Monthly Reliability Requirements • Manage Yearly Reliability Requirements

Winter 2017 - Reliability Services Initiative 2017

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	May 12, 2015	✓
BPMs	Post Draft BPM Changes - Reliability Requirements	Dec 15, 2017	
	Post Draft BPM Changes - Settlements & Billing	Aug 30, 2017	✓
External BRS	Post Updated External BRS v1.1 (RSI 2)	Apr 07, 2017	✓
	Post Updated External BRS v1.3 (RSI 1B)	Mar 03, 2017	✓
	Post RSI 2017 External BRS 2.0	Apr 19, 2017	✓
Tariff	File Tariff	Sep 29, 2017	✓
Config Guides	Config Guide	Jun 23, 2017	✓
Tech Spec	Publish Technical Specifications	Apr 03, 2017	✓
Market Sim	Market Simulation	Dec 04, 2017 - Jan 25, 2018	
Production Deployment	Production Deployment	Feb 13, 2018	
Production Activation	Production Activation	Apr 01, 2018	

Spring 2018 - 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. Determine if the ISO can calculate opportunity costs <ul style="list-style-type: none"> • ISO calculated; Modeled limitation Start/run hour/energy output • Market Participant calculated; Negotiated limitation 3. Clarify definition of “use-limited”; <i>add MSG Configuration ID to ULPDT</i> 4. Change Nature of Work attributes (Outage cards) <ul style="list-style-type: none"> • Modify use-limited reached for RAAIM Treatment • Allow PDR to submit use-limit outage card for fatigue break. 5. Market Characteristics (<i>to be added to GRDT</i>) <ul style="list-style-type: none"> • Maximum Daily Starts • Maximum MSG transitions • Ramp rates <p><u>Impacted Systems:</u></p> <ol style="list-style-type: none"> 1. Master File: Set use-limited resource types and limits; Set market-based values 2. ECIC: Process use limited resource input values for and Receive opportunity cost adders from opportunity cost tool 3. CIRA: RAAIM exempt rule for “use-limited reached” 4. CMRI: Publish opportunity cost 5. IFM/RTN: Use market-based values MDS, MDMT and RR 6. SIBR: Add Opportunity cost adders on bid caps, remove daily bid RR 7. OMS: “Use-Limited Reached” nature of work attribute for Generation Outage Card 8. Settlements: Publish the actual start up, run hour and energy output for the use-limited resources 9. Opportunity cost calculator (OCC): Calculate and publish opportunity costs for start-up, MLC and DEB
BPM Changes	Market Instruments, Outage Management, Reliability Requirement, Market Operations
Business Process Changes	<ul style="list-style-type: none"> • Manage Market & Reliability Data & Modeling • Manage Markets & Grid

Spring 2018 - 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	Jan 15, 2018	
External BRS	Post External BRS	Jan 06, 2017	✓
	Post Updated External BRS	Jul 13, 2017	✓
	Post Updated External BRS	Aug 21, 2017	✓
Tariff	Post Draft Tariff	Jul 31, 2017	✓
	Post Updated Draft Tariff (based on feedback)	Oct 19, 2017	
	File with FERC	TBD	
Config Guides	Config Guide	Jun 27, 2017	✓
Tech Spec	Publish ISO Interface Spec (Tech spec) – MF	Apr 03, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – MF	Jun 30, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – MF	Nov 30, 2017	
	Publish ISO Interface Spec (Tech spec) – CMRI	Apr 17, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – CMRI	Jun 28, 2017	✓
	Publish Updated ISO Interface Spec (Tech spec) – CMRI	Oct 13, 2017	
Market Sim	Market Sim Start	March, 2018	
Production Deployment	Commitment Costs Phase 3 Production Deployment	May 1, 2018	
Tariff Effective Date	Proposed Tariff Effective Date	November 1, 2018	

Project Info	Details/Date
Application Software Changes	<p>Settlements:</p> <ul style="list-style-type: none"> • Alternative Baselines: <ul style="list-style-type: none"> • Possible system changes to include addition of an automated monitoring tool for performance measurement data received from external participants. • Changes to the DRRS registration system for the selection of the new baselines and allowing for ISO approval prior to use in the market. • Settlement configuration will need to be evaluated and revised to assure PDRs that provide AS services can be calculated correctly based on the submitted SQMD. <p>ECIC:</p> <ul style="list-style-type: none"> • EIM Net Benefits Testing: <ul style="list-style-type: none"> • Code modification to calculation to accommodate addition of all applicable gas price indices. <p>MRI-S:</p> <ul style="list-style-type: none"> • Alternative Baselines: <ul style="list-style-type: none"> • The DRS Decommissioning project seeks to retire the current DRS system. Once this system is retired all current functionality will reside in the MRI-S (Market Results Interface – Settlements) system. It should be noted that all available customer load baseline calculations will be submitted into the MRI-S system once the DRS system is retired.
BPM Changes	<p>Market Instruments:</p> <ul style="list-style-type: none"> • EIM Net Benefits Testing: <ul style="list-style-type: none"> • Changes will include addition of all gas price indices used in calculation. <p>Metering:</p> <ul style="list-style-type: none"> • Alternative Baselines: <ul style="list-style-type: none"> • Need to revise the BPM to explain new baselines and changes to existing systems. • Station Power: <ul style="list-style-type: none"> • Need to revise BPM to provide examples of wholesale/retail uses for generation and storage • Need to revise BPM to clarify permitted/prohibited netting rules. <p>Definitions & Acronyms:</p> <ul style="list-style-type: none"> • Station Power: <ul style="list-style-type: none"> • Revision of Station Power definition to match Tariff language. <p>Settlements & Billing:</p> <ul style="list-style-type: none"> • Alternative Baselines: <ul style="list-style-type: none"> • Possible changes to reflect settlements configuration changes.

Spring 2018 - ESDER Phase 2

Project Info	Details/Date
Business Process Changes	<ul style="list-style-type: none"> • Develop Infrastructure (DI) (80001) • Manage Market & Reliability Data & Modeling (MMR) (80004) • Manage Operations Support & Settlements (MOS) (80007) • Support Business Services (SBS) (80009) • Other

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	July 26-27, 2017	✓
BPMs	Post Draft BPMs	1/15/2018 (To be confirmed)	
External BRS	Post External BRS	10/24/2017	
Tariff	Post Draft Tariff	10/24/2017	
	File with FERC	2/01/2018	
Config Guides	Settlements Configuration	1/15/2018 (To be confirmed)	
Tech Spec	Post Technical Specifications	N/A	
Market Simulation	Market Simulation	3/6/2018 to 3/30/2018	
Production Activation	Production Activation	5/1/2018	

Spring 2018 – EIM Greenhouse Gas Compliance

Project Info	Details/Date
Application Software Changes	<p>The GHG allocation is limited to the dispatch the amount of between Pmax and an economic dispatch reference as “GHG allocation base” The problem is solved in two passes.</p> <p>RTM: Build an activation flag allow operator to turn on/off GHG two pass solution</p> <p>Pass 1 settings and simplification:</p> <ul style="list-style-type: none"> For EIM Participating Resources with California Supply = N: In RTPD, Set the GHG bid capacity $G_{GHGi} = 0$ and the GHG allocation base $\bar{G}_i = 0$. In RTD, set GHG allocation base $\bar{G}_i = 0$ use GHG bid capacity G_{GHGi} For California Supply = Y, GHG bid capacity G_{GHGi} from the Clean Bid shall be used and the GHG allocation base \bar{G}_i shall be set to the corresponding base schedule <p>Pass 2 GHG allocation limited by the GHG bid capacity, the optimal dispatch, and the difference between the upper economic limit and the GHG allocation reference calculated in the first pass for non-CA supply</p> <p>SIBR: Support an hourly California Supply Y/N indicator as part of the GHG Bid Component for EIM Participating Resources</p> <p>CMRI: Publish the GHG allocation reference</p>
BPM Changes	Market Instruments Energy Imbalance Market (EIM)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Q1 2018	
External BRS	External Business Requirements	Nov 2017	
External Report	Report on GHG Attribution Accuracy	Q4 2017	
BPMs	Draft BPM changes	TBD	
	Post Draft BPM changes	TBD	
Tariff	File Tariff	TBD	
	Receive FERC order	TBD	
Config Guides	Design review - BPM and Tariff SMEs	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Market Sim	Market Simulation	TBD	
Production Activation		Spring 2018	