Release User Group Agenda

April 24th, 2018   *10:00 a.m.–11:00 a.m.* (Pacific Time)

Web Conference Information	Conference Call Information
Web Address: https://caiso.webex.com/meet/RUG Meeting Number: 960 941 245 Audio connection instructions will be available after connecting to the web conference. When prompted, select "Call me" and enter the phone number you will use during the call. You will be called by the conference shortly.	Dial-in Number: 866-528-2256 International Dial-in: 216-706-7052 Access Code: 291 426 5
The ISO is now recording the RUG and TUG calls and will be posting the recordings on the Release Planning webpage for stakeholders to listen to at their convenience.	

Release User Group Agenda

April 24th, 2018   *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	Joanne Alai Sandhya Balasubramanian Brett Bruderer Eureka Cullado Marcelo Da Costa Ayman Fattah Jami Herguth Cynthia Hinman Elli Johnston Mohan Koya Deann MacDougall Christopher McIntosh LeAnne McLaughlin Indu Nambiar Prince Phillip Raymond Riley LuAnn Rivera Marci Stuckey Craig Williams John Williams Justin Wong

California ISO

The ISO offers innovative training programs

Date	Training All classes are offered at our Folsom, CA campus unless noted otherwise
May 8-9	Get to Know the ISO
May 10	Settlements 101
May 11	Settlements 201

New Release Training materials currently posted
Welcome to the ISO recorded webinar
Resource Interconnection Management System Generation Module
Scheduling Infrastructure Business Rules (SIBR) User Interface (UI) Update
RSI: Outage Substitution and RAAIM Pre-Calc
Energy Imbalance Market Winter Release 2017
Reliability Services Initiative (RSI) Training Phase 1B & 2

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

Visit our **Learning Center** web page to access our training calendar, register for courses and find other useful resources, including computer based training courses, recorded webinars and new release training materials at:

http://www.caiso.com/participate/Pages/LearningCenter/default.aspx

Contact us: CustomerTraining@caiso.com

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Release Plan Summary: 2018

Independent 2018
- Resource Interconnection Management System (RIMS) Functional Enhancements
- Deactivation of Transport Layer Security (TLS) 1.0 & 1.1
- Commitment Cost Enhancement (CCE) Phase 3

Spring 2018
- Resource Adequacy Availability Incentive Mechanism (RAAIM) Calculation Modifications
- Reliability Services Initiative (RSI) 2017
- Scheduling Infrastructure and Business Rules (SIBR) User Interface (UI) Upgrade

Fall 2018
- Green House Gas (GHG) Enhancements for EIM
- Contingency Modeling Enhancements - Transmissions
- Commitment Costs and Default Energy Bid Enhancements (CCDEBE)
- Settlements Performance Improvements
- Energy Storage and Distributed Energy Resources (ESDER) Phase 2
- Generator Contingency and Remedial Action Scheme (RAS) Modeling
- Automated Dispatch System (ADS) User Interface (UI) Replacement
- Congestion Revenue Right (CRR) Auction Efficiency 1A
- EIM 2018 Enhancements

Release Plan Summary: 2019 – Spring 2020

Independent 2019

- Black Start and System Restoration Phase 2

Spring 2019

- Energy Imbalance Market (EIM) 2019 Balancing Authority of Northern California (BANC) / Sacramento Municipal Utility District (SMUD)

Fall 2019 – tentative, subject to impact assessment

- Flexible Resource Adequacy Criteria and Must-offer Obligation (FRACMOO) Phase 2
- Energy Storage and Distributed Energy Resources (ESDER) Phase 3
- Review of Transmission Access Charge (TAC) Billing Structure
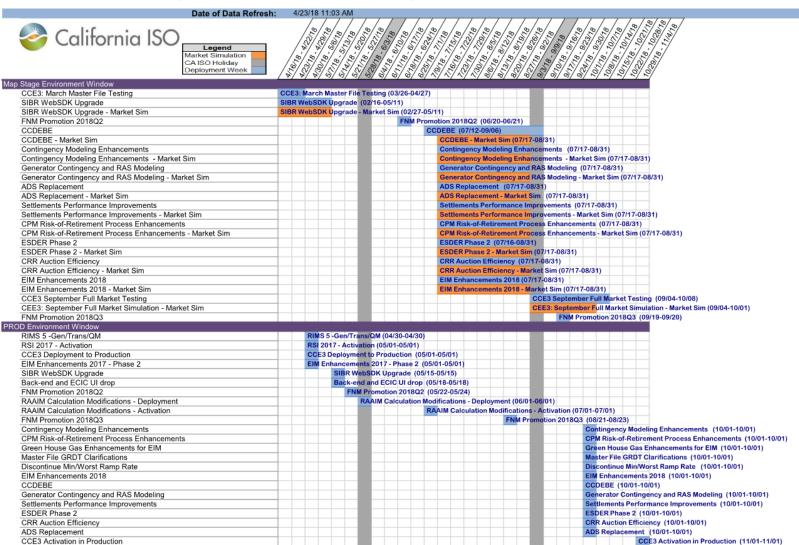- Day-Ahead Market Enhancements

Spring 2020

- Energy Imbalance Market (EIM) 2020 Salt River Project
- Energy Imbalance Market (EIM) 2020 Seattle City Light
- Energy Imbalance Market (EIM) 2020 Los Angeles Dept. of Water and Power

TBD – tentative, subject to impact assessment

- Imbalance Conformance Enhancements (ICE)
- Congestion Revenue Right Auction Efficiency 1B
- Clarification of Tariff Rules Regarding Following DOT
- Review of RMR and CPM
- Storage as a Transmission Facility
- Intertie Deviation Settlement
- EIM Offer Rules
- Capacity Procurement Mechanism (CPM) – Risk-of-Retirement

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Release Schedule - 2018

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Date of Data Refresh: 4/23/18 11:03 AM

Legend
- Market Simulation
- CA ISO Holiday
- Deployment Week

Map Stage Environment Window

Task	Schedule
CCE3: March Master File Testing	CCE3: March Master File Testing (03/26-04/27)
SIBR WebSDK Upgrade	SIBR WebSDK Upgrade (02/16-05/11)
SIBR WebSDK Upgrade - Market Sim	SIBR WebSDK Upgrade - Market Sim (02/27-05/11)
FNM Promotion 2018Q2	FNM Promotion 2018Q2 (06/20-06/21)
CCDEBE	CCDEBE (07/12-09/06)
CCDEBE - Market Sim	CCDEBE - Market Sim (07/17-08/31)
Contingency Modeling Enhancements	Contingency Modeling Enhancements (07/17-08/31)
Contingency Modeling Enhancements - Market Sim	Contingency Modeling Enhancements - Market Sim (07/17-08/31)
Generator Contingency and RAS Modeling	Generator Contingency and RAS Modeling (07/17-08/31)
Generator Contingency and RAS Modeling - Market Sim	Generator Contingency and RAS Modeling - Market Sim (07/17-08/31)
ADS Replacement	ADS Replacement (07/17-08/31)
ADS Replacement - Market Sim	ADS Replacement - Market Sim (07/17-08/31)
Settlements Performance Improvements	Settlements Performance Improvements (07/17-08/31)
Settlements Performance Improvements - Market Sim	Settlements Performance Improvements - Market Sim (07/17-08/31)
CPM Risk-of-Retirement Process Enhancements	CPM Risk-of-Retirement Process Enhancements (07/17-08/31)
CPM Risk-of-Retirement Process Enhancements - Market Sim	CPM Risk-of-Retirement Process Enhancements - Market Sim (07/17-08/31)
ESDER Phase 2	ESDER Phase 2 (07/16-08/31)
ESDER Phase 2 - Market Sim	ESDER Phase 2 - Market Sim (07/17-08/31)
CRR Auction Efficiency	CRR Auction Efficiency (07/17-08/31)
CRR Auction Efficiency - Market Sim	CRR Auction Efficiency - Market Sim (07/17-08/31)
EIM Enhancements 2018	EIM Enhancements 2018 (07/17-08/31)
EIM Enhancements 2018 - Market Sim	EIM Enhancements 2018 - Market Sim (07/17-08/31)
CCE3 September Full Market Testing	CCE3 September Full Market Testing (09/04-10/08)
CEE3: September Full Market Simulation - Market Sim	CEE3: September Full Market Simulation - Market Sim (09/04-10/01)
FNM Promotion 2018Q3	FNM Promotion 2018Q3 (09/19-09/20)

PROD Environment Window

Task	Schedule
RIMS 5 -Gen/Trans/QM	RIMS 5 -Gen/Trans/QM (04/30-04/30)
RSI 2017 - Activation	RSI 2017 - Activation (05/01-05/01)
CCE3 Deployment to Production	CCE3 Deployment to Production (05/01-05/01)
EIM Enhancements 2017 - Phase 2	EIM Enhancements 2017 - Phase 2 (05/01-05/01)
SIBR WebSDK Upgrade	SIBR WebSDK Upgrade (05/15-05/15)
Back-end and ECIC UI drop	Back-end and ECIC UI drop (05/18-05/18)
FNM Promotion 2018Q2	FNM Promotion 2018Q2 (05/22-05/24)
RAAIM Calculation Modifications - Deployment	RAAIM Calculation Modifications - Deployment (06/01-06/01)
RAAIM Calculation Modifications - Activation	RAAIM Calculation Modifications - Activation (07/01-07/01)
FNM Promotion 2018Q3	FNM Promotion 2018Q3 (08/21-08/23)
Contingency Modeling Enhancements	Contingency Modeling Enhancements (10/01-10/01)
CPM Risk-of-Retirement Process Enhancements	CPM Risk-of-Retirement Process Enhancements (10/01-10/01)
Green House Gas Enhancements for EIM	Green House Gas Enhancements for EIM (10/01-10/01)
Master File GRDT Clarifications	Master File GRDT Clarifications (10/01-10/01)
Discontinue Min/Worst Ramp Rate	Discontinue Min/Worst Ramp Rate (10/01-10/01)
EIM Enhancements 2018	EIM Enhancements 2018 (10/01-10/01)
CCDEBE	CCDEBE (10/01-10/01)
Generator Contingency and RAS Modeling	Generator Contingency and RAS Modeling (10/01-10/01)
Settlements Performance Improvements	Settlements Performance Improvements (10/01-10/01)
ESDER Phase 2	ESDER Phase 2 (10/01-10/01)
CRR Auction Efficiency	CRR Auction Efficiency (10/01-10/01)
ADS Replacement	ADS Replacement (10/01-10/01)
CCE3 Activation in Production	CCE3 Activation in Production (11/01-11/01)

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

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UI and API Changes

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Product View - CMRI UI and API changes

Release	Project	Change Type	External Impact	MP Action	UI Change	Service Name & Major Version	Minor Version	MAP Stage	Production Activation	Artifacts Package	Tech Spec Version
Fall 2018	CCE3	New	CAISO Market	Adopt when ready	Tab: Default Bids New Report: Actual Limitation Values	retrieveActualLimitationValues_v1 retrieveActualLimitationValues_v1_DocAttach	20171001	September 2018	11/1/2018	v1.0 (Fall)	3.6.3
Fall 2018	CCE3	New	CAISO Market	Adopt when ready	Tab: Default Bids New Report: Resource Opportunity Costs	retrieveResourceOpportunityCost_v1 retrieveResourceOpportunityCost_v1_DocAttach	20171001	September 2018	11/1/2018	v1.0 (Fall)	3.6.3

Product View - OASIS UI and API changes

Release	Project	Change Type	External Impact	MP Action	UI Change	Web Service	MAP Stage	Production Activation	Artifacts Package	Tech Spec Version
Winter 2017	RSI	New	CAISO Market	Adopt when ready	Tab: Public Bids New Report: CSP Offer	PUB_CSP_OFFER_SET	12/5/2017	5/1/2018	V1.2	5.1.1

Application access: **http://www.caiso.com/participate/Pages/ApplicationAccess/Default.aspx**

CAISO new developer site: **https://developer.caiso.com**

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Product View - Master File changes

Release	Project	Change Type	External Impact	MP Action	UI Change	Web Service	Major Version	Minor Version	MAP Stage	Production Activation	Artifacts Package	Tech Spec Version
Spring 2018	BRE-B CCE3 RSI	Modify	CAISO & EIM Market	Required to provide CCE3 values		retrieveGeneratorRDT	4	20180501	March 2018	5/1/2018	v4.1.2	V4.1.1
Spring 2018	BRE-B CCE3 RSI	Modify	CAISO & EIM Market	Required to provide CCE3 values		submitGeneratorRDT	4	20180501	March 2018	5/1/2018	V4.1.2	V4.1.1
Spring 2018	CCE3	Modify	CAISO Market	Required for ULPDT at Config Level	Upload Tab: ULPDT similar to RDT	N/A	N/A	N/A	March 2018	5/1/2018	N/A	N/A
Spring 2018	CCE3	Modify	CAISO Market	Required for ULPDT at Config Level	Reports Tab: ULPDT similar to RDT	N/A	N/A	N/A	March 2018	5/1/2018	N/A	N/A

Application access: **http://www.caiso.com/participate/Pages/ApplicationAccess/Default.aspx**

CAISO new developer site: **https://developer.caiso.com**

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Master File Updates & Clarifications

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.

Spring Release of MF GRDT 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 was updated in December to include recent changes (e.g. ICE Hub)
- GRDT Highlights (Following slide has the time lines)
  - RESOURCE tab – Add Electric Region (R/O), Market Max Daily Starts (R/W), COM MW (R/O), Power Price Hub (R/O)
  - 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

Master File GRDT Clarifications

	Active in Master File	Active in Market
Electric Region	Fall 2017 (BREB)	Fall 2017
COM MW	Fall 2017 (RSI)	Fall 2017
Market Max Daily Starts	Spring 2018 SC may update value via the GRDT/Master File UI, but no market impact until Fall 2018	Fall 2018
Power Price Hub	Spring 2018 CAISO will populate	Fall 2018
Market Ramp Rate (Operational, Operating Reserve, Regulation)	Spring 2018 SC may update value via the GRDT/Master File UI, but no market impact until Fall 2018	Fall 2018
Min/Worst Ramp Rate to be discontinued	Values remain active in market until Fall 2018	Discontinued Fall 2018
Configuration: Implied Starts	Spring 2018 SC may update value via the GRDT/Master File UI, but no market impact until Fall 2018	Fall 2018
Transition: Market Max Transitions	Spring 2018 SC may update value via the GRDT/Master File UI, but no market impact until Fall 2018	Fall 2018
Transition: Implied Starts	Spring 2018 Value is derived from Configuration Implied Starts. No market impact until Fall 2018	Fall 2018

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2018 Independent Projects

2018 – RIMS 5 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 reqired	N/A	
External BRS	External BRS not Required	N/A	
Tariff	No Tariff Required	N/A	
Config Guides	Configuration Guides not required	N/A	
BPMs	Generator Interconnection and Delivery Allocation	Apr 29, 2016	✓
Tech Spec	No Tech Specifications Required	N/A	
Training	Train the PTOs	Feb 13, 2018	✓
	WebEx Training on Generation Module	Apr 18, 2018	✓
Production Activation	RIMS5	Apr 30, 2018	
	RIMS5 App & Study	Mar 21, 2016	✓

2018 – Deactivation of TLS 1.0 & 1.1

Info	Details/Date
Summary	The California ISO will deactivate Transport Layer Security (TLS) 1.0 and 1.1 in the market and performance (MAP) stage environment on **February 20, 2018**, in the production environment on **April 23, 2018**, and only TLS 1.2 will remain active. It is necessary for market participants to enable TLS 1.2 as soon as possible in browsers and APIs.
Details	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 **February 20, 2018** onwards, and to continue to access the production environment from **April 23 onwards**, as only TLS 1.2 will remain active. Market participants can enable TLS 1.2 immediately; the MAP stage and production environments currently allow TLS 1.2. Note: There is no need to *disable* TLS 1.0 and 1.1 in browsers and APIs because the versions are backward compatible. 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 (UIs) and APIs prior to the production environment deactivation, which will be the same on April 23, 2018. The deactivation of TLS 1.0 and 1.1 is in order to align with industry best practices for security and data integrity. 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**. **Note: Automated Dispatch System (ADS) users on versions older than 6.1.0.0 will need to upgrade to the current version, as older versions are not compatible with TLS 1.2.** Update the ADS client through the production Market Participant Portal (MPP) installation package download at **https://mpp.caiso.com/ads_install**. Find more information and the mandatory ADS upgrade market notice announcement **here**. This market notice reflects the updated deactivation dates from the previous **market notice** announcement.
Market Notice	http://www.caiso.com/Documents/UpdateDeactivation-TransportLayerSecurityTLS10_11.html

Milestone Type	Milestone Name	Dates	Status
MAP-Stage	Deactivate TLS 1.0 & 1.1 in MAP-Stage	Feb 26, 2018	✔
Production	Deactivate TLS 1.0 & 1.1 in Production	Apr 23, 2018	✔

2018 - Commitment Cost Enhancements Phase 3

Project Info	Details/Date

Application Software Changes	**Scope:**
	1. Clarify use-limited registration process and documentation to determine opportunity costs
	2. Determine if the ISO can calculate opportunity costs
	    • ISO calculated; Modeled limitation Start/run hour/energy output
	    • Market Participant calculated; Negotiated limitation
	3. Clarify definition of "use-limited"; *add MSG Configuration ID to ULPDT*
	4. Change Nature of Work attributes (Outage cards)
	    • Modify use-limited reached for RAAIM Treatment
	    • Allow PDR to submit use-limit outage card for fatigue break.
	5. Market Characteristics *(to be added to GRDT)*
	    • Maximum Daily Starts
	    • Maximum MSG transitions
	    • Ramp rates
	Impacted Systems:
	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	• Manage Market & Reliability Data & Modeling • Manage Markets & Grid

2018 - Commitment Cost Enhancements Phase 3 (cont)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors (BOG) Approval	Mar 25, 2016	✔
External BRS	Post Updated External BRS	Aug 21, 2017	✔
Tech Spec	Publish Updated Technical Specifications	Nov 30, 2017	✔
Tariff	File Tariff	Mar 23, 2018	✔
Config Guides	Config Guide	May 17, 2018	
BPMs	Post Draft BPM changes	Aug 17, 2018	
External Training	Deliver External Training	Aug 28, 2018	
Market Simulation	March Master File Market Simulation Testing	Mar 26, 2018 - Apr 27, 2018	
	September Full Market Simulation	Sep 04, 2018 - Oct 01, 2018	
Production Activation	Deployment to Production	Nov 01, 2018	

California ISO

2018 Spring Release

Spring 2018 – RAAIM Calculation Modifications

Project Info	Details/Date
Application Software Changes	**RAAIM (Resource Adequacy Availability Incentive Mechanism)** – California ISO intends to release a new RAAIM Calculation Modifications within the Settlements system. The fix properly weights flexible capacity for both relative (in percent) and absolute (in MW) availability, as compared to generic capacity in a resource's total availability. For Configuration Guides, please refer to CG PC RA Availability Incentive Mechanism v5.4, CC 8830 v5.2, and CC 8831 v5.1.

Milestone Type	Milestone Name	Dates	Status
Configuration Guide	Draft Technical Documents (Draft Settlements BPM)	Nov 8, 2017	✔
Configuration Output File	Draft Configuration Output File (updated version will be provided prior to Market Sim)	Nov 22, 2017	✔
BPMs	Post BPM Changes - Settlements & Billing	Feb 7, 2018	✔
External Validation	New calculation will be deployed into Production as advisory beginning 5/1/2018	May 1, 2018	
Market Sim	Market Simulation (Additional trade date 3/7 and 3/8 Includes mini-monthly)	Jan 16 – Mar 8, 2018	✔
Production Deployment	Implement and deploy into Production revised charge codes per Winter release deployment plan.	May 1 – Jun 30, 2018	
Production Activation	Revised RAAIM penalties and incentives become financially binding on 7/1/2018 going forward.	July 1, 2018	

Spring 2018 - Reliability Services Initiative 2017

Project Info	Details/Date

Application Software Changes	**Scope:**
	Redesign of Replacement Rule for System RA and Monthly RA Process.
	• 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
	Impacted Systems:
	    • OASIS
	    • Settlements
	    • CIRA
	CIRA:
	• 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.
	Settlements:
	• Splitting local from system in upstream RA system impacts the RAAIM Pre calculation.

BPM Changes	• Reliability Requirements: Changes to the monthly RA process • Settlements and Billing
Business Process Changes	**Manage Market & Reliability Data & Modeling** • Manage Monthly & Intra-Monthly Reliability Requirements • Manage Yearly Reliability Requirements

Spring 2018 - Reliability Services Initiative 2017

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	May 12, 2015	✔
External BRS	Post Updated External BRS v1.1 (RSI 2)	Apr 07, 2017	✔
	Post RSI 2017 External BRS v2.0	Apr 19, 2017	✔
	Post Updated External BRS v1.3 (RSI 1B)	Mar 03, 2017	✔
Tariff	File Tariff	Sep 29, 2017	✔
	Receive FERC Order	Jan 18, 2018	✔
	Receive FERC Approval tor Delay/Waiver	Mar 01, 2018	✔
	Waiver Filing to Delay Implementation	Feb 14, 2018	✔
Config Guides	Config Guide	Jun 23, 2017	✔
BPMs	Post Draft BPM Changes - Reliability Requirements	Dec 05, 2017	✔
	Post Draft BPM Changes - Settlements & Billing	Aug 30, 2017	✔
	Post Final BPM - Settlements & Billing	Feb 07, 2018	✔
	Post Final BPM - Reliability Requirements	Apr 24, 2018	
Tech Spec	Publish Technical Specifications	Apr 03, 2017	✔
Training	External Training - Session 1	Jan 10, 2018	✔
	External Training - Session 2	Jan 17, 2018	✔
Market Sim	Market Simulation	Dec 05, 2017 - Jan 31, 2018	✔
Production Deployment	Production Deployment	Mar 05, 2018	✔
Production Activation	Production Activation	May 01, 2018	

Spring 2018 – SIBR UI Upgrade

Project Info	Details/Date
Application Software Changes	**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.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board Approval	N/A	
External BRS	Post Draft BRS	N/A	
Config Guides	Configuration Guide	N/A	
BPMs	Publish Final Business Practice Manuals	N/A	
Tech Spec	Publish Tech Specs	N/A	
User Guide	SIBR User Guide "Draft"	Dec 14, 2017	✓
External Training	Conduct External Training	Feb 21, 2018	✓
Market Sim	Market Sim Window	Feb 27, 2018 - May 11, 2018	
Production Activation	SIBR WebSDK Upgrade	May 15, 2018	

2018 Fall Release

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Fall 2018 Release – Overview

	Board Approval	External BRS	Config Guide	Tech Spec	Tariff	Draft BPMs	External Training	Market Sim	Activation
Fall 2018 Release - Overview	**01/01/18**	**04/06/18**	**05/18/18**	**05/18/18**	**06/15/18**	**07/02/18**	**07/13/18**	**Jul 17, 2018 - Aug 31, 2018**	**10/01/18**
Green House Gas Enhancements for EIM	12/14/17	TBD	TBD	TBD	TBD	TBD	TBD	TBD	10/01/18
Contingency Modeling Enhancements	12/14/17	04/27/18	TBD	TBD	06/15/18	TBD	TBD	Jul 17, 2018 - Aug 31, 2018	10/01/18
CCDEBE	03/22/18	04/27/18[1]	05/18/18	05/18/18	TBD	TBD	TBD	Jul 17, 2018 - Aug 31, 2018	10/01/18
Settlements Performance Improvements	*N/A*	02/20/18	*N/A*	*N/A*	*N/A*	*N/A*	TBD	Jul 17, 2018 - Aug 31, 2018	10/01/18
ESDER Phase 2	07/26/17	03/01/18	05/18/18	05/18/18	04/09/18	6/4/2018	07/11/18	Jul 17, 2018 - Aug 31, 2018	10/01/18
Generator Contingency and RAS Modeling	09/19/17	03/16/18	TBD	*N/A*	05/25/18	6/12/2018	TBD	Jul 17, 2018 - Aug 27, 2018	10/01/18
ADS Replacement	*N/A*	05/02/18	*N/A*	TBD	*N/A*	TBD	TBD	Jul 17, 2018 - Aug 31, 2018	10/01/18
CRR Auction Efficiency	03/22/18	04/26/18	TBD	TBD	04/09/18	5/25/2018	TBD	Jul 17, 2018 - Aug 31, 2018	10/01/18
EIM Enhancements 2018	*N/A*	04/27/18	*N/A*	05/18/18	TBD	TBD	TBD	Jul 17, 2018 - Aug 31, 2018	10/01/18

Notes:

1. ISO published the business rules for CCDEBE on Jan 31. Find document under stakeholder processes – Current meeting page
http://www.caiso.com/Documents/BusinessRules-CommitmentCosts-DefaultEnergyBidEnhancements.pdf

*TBD items may be inapplicable, or they may have undetermined dates
Items in BLUE are complete
Items in RED indicate a ***new*** date which is later than the target date listed on the Overview line.

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Fall 2018 - Green House Gas Enhancements for EIM

Project Info	Details/Date
Application Software Changes	We are seeking additional stakeholder input given the concerns with the two pass solution that have been identified. At this time, application software changes are not yet known.
BPM Changes	Market Instruments Energy Imbalance Market (EIM)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Present report to BOG	Dec 14, 2017	✔
External BRS	Complete External BRS & Post for MPs	TBD	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	Receive FERC Order	TBD	
Config Guides	Post Configuration Guides	TBD	
BPMs	Publish Final Business Practice Manuals	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	TBD	
Production Activation	Green House Gas Enhancements for EIM	Oct 01, 2018	

Fall 2018 – Contingency Modeling Enhancements Transmissions

Project Info	Details/Date

Application Software Changes	• Positions available resources so that the ISO has sufficient capability to respond to contingency events and return facilities to normal ratings within the emergency rating time frame
	• Enhances the LMP formulation to provide market price signal related to this reliability constraint
	• Creates a Locational Marginal Capacity Price (LMCP) which reflects:
	    • A resource's opportunity costs
	    • Marginal congestion cost savings, and/or
	    • The marginal capacity value to follow dispatch
	Systems:
	• ADS - Modified to display corrective capacity awards similar to AS
	• CMRI - New or modified reports to display LMCP prices and awards
	• IFM/RTM - Model new capacity awards and Locational Marginal Capacity Price (LMCP).
	• Integration
	• OASIS - New or modified reports to display LMCP prices and awards
	• PCA
	• Settlements

BPM Changes	Market Operations, Market Instruments, Definitions and Acronyms, Settlements and Billing
Business Process Changes	• Manage Operations Planning • Manage Day-Ahead Market • Manage Operations Engineering Support • Manage Real Time Operations - Transmission & Electric System • Manage Market Billings & Settlements

Fall 2018 – Contingency Modeling Enhancements Transmissions

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval (BOG - 12/04/17)	Dec 14, 2017	✓
External BRS	Complete and Post External BRS	Apr 27, 2018	
Tariff	File Tariff	Jun 15, 2018	
Config Guides	Design review - BPM and Tariff SMEs	TBD	
BPMs	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
External Training	Training Complete	Jul 13, 2018	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 31, 2018	
Production Activation	Contingency Modeling Enhancements -Transmission	Oct 01, 2018	

Project Info	Details/Date
Application Software Changes	**Scope:** Enhances the ability to submit market-based commitment cost bids in order to reflect unique costs and volatility: • Support integration of renewable resources through incentivizing flexible resources participation during tight fuel supply • Account for costs of flexible resources (gas and non-gas) to reduce risk of insufficient cost recovery • Encourage participation of non-RA and voluntary EIM resources; compliance with FERC Order 831 • Raises energy bid cap from $1,000/MWh to $2,000/MWh: • Requires supporting verified costs of energy bids above $1,000/MWh • Introduces market power mitigation (MPM) measures for commitment costs. **Impacted Systems:** • SIBR: Incorporate negotiated default commitment bids, allow the submittal of Ex Ante cost adjustments. Increase commitment cost caps, increase energy bid caps, incorporate soft energy bid cap. Allow for hourly submittal of minimum load bids into day-ahead market. • IFM/RTM: Add MPM tests for commitment costs. Mitigate commitment costs where tests indicate market power. Incorporate MPM (both energy and commitment) in short term unit commitment process. Recalibrate the penalty price parameters in response to raising energy bid cap to $2,000/MWh. • CMRI: Provide resource-specific reporting on mitigation results for commitment costs. Provide additional source information for default bids. • MQS/PCA: Incorporate mitigation of commitment costs for specific exceptional dispatch (ED) types. Incorporate bid locking of commitment costs for ED instructions and for certain cases where resources are uneconomic to operating. • Master File: Allow submittal of resource-specific minimum load costs for costs that are independent of the Pmin level. Add the ability to indicate preference for new negotiated cost basis type. Provide a view of resource-specific scalars used for validating Ex-Ante cost adjustments. • CIDI: Incorporate templates for submitting request for manual consultation and ex-post default bid adjustments.

Fall 2018 – Commitment Cost and Default Energy Bid Enhancements

Project Info	Details/Date
BPM Changes	• Market Instruments • Market Operations
Business Process Changes	• Maintain Major Maintenance Adders (MMG LIII) • Maintain Negotiated Default Energy Bids (MMG LIII) • Maintain Negotiated O_Ms (MMG LIII) • Manage Day Ahead Market (MMG LII) • Manage Market Billing Settlements (MOS LII) • Manage Real Time Hourly Market (RTPD) (MMG LII) • Manage Real Time Operations – Maintain Balance Area (MMG LII)

Milestone Type	Milestone Name	Dates	Status
Draft Policy	Publish Draft Business Rules externally	Jan 31, 2018	✓
Board Approval	Obtain Board of Governors Approval	Mar 22, 2018	✓
External BRS	Complete and Post External BRS	Apr 27, 2018	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	File Tariff	TBD	
	Receive FERC Order	TBD	
Config Guides	Post Draft Config Guides	TBD	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 31, 2018	
Production Activation	CCDEBE	Oct 01, 2018	

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Fall 2018 – Settlement Performance Improvements

Project Info	Details/Date

Application Software Changes	The scope of the Settlements Performance Improvements include:
	• Performance improvements for Post Bill Determinant Mapping process - Non-production storage issue causing delays to the statement publication
	• Performance improvements of Statement Generation (BD File Size issue):
	      Daily Statements generation
	      Monthly Statements and Invoice generation
	Systems: Settlements

BPM Changes	Settlements and Billing
Business Process Changes	Settlements & Billing: Application Flow should be reviewed for possible changes

Config Guides	Milestone Name	Dates	Status
External BRS	Complete and Post External BRS	Feb 20, 2018	✓
Tariff	File Tariff	N/A	
Config Guides	Design review - BPM and Tariff SMEs	N/A	
BPMs	Publish Final Business Practice Manuals	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
OTHER	Settlement Interface Specification for Scheduling Coordinators	Mar 16, 2018	✓
External Training	External Training Complete	Jul 13, 2018	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 31, 2018	
Production Activation	Settlements Performance Improvements	Oct 01, 2018	

Fall 2018 – ESDER Phase 2

Project Info	Details/Date

Application Software Changes	**Settlements:**
	• Alternative Baselines:
	  • 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.
	ECIC:
	• EIM Net Benefits Testing:
	  • Code modification to calculation to accommodate addition of all applicable gas price indices.
	MRI-S:
	• Alternative Baselines:
	  • 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	**Market Instruments:**
	• EIM Net Benefits Testing:
	  • Changes will include addition of all gas price indices used in calculation.
	Metering:
	• Alternative Baselines:
	  • Need to revise the BPM to explain new baselines and changes to existing systems.
	• Station Power:
	  • 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.
	Definitions & Acronyms:
	• Station Power:
	  • Revision of Station Power definition to match Tariff language.
	Settlements & Billing:
	• Alternative Baselines:
	  • Possible changes to reflect settlements configuration changes.

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Fall 2018 – ESDER Phase 2

Project Info	Details/Date
Business Process Changes	• 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	Obtain Board of Governors Approval	Jul 26, 2017	✓
External BRS	Post External BRS	Oct 17, 2017	✓
	Post Revised External BRS	Mar 01, 2018	✓
Tariff	Post Draft Tariff	Nov 17, 2017	✓
	Post Updated Draft Tariff (based on feedback)	Apr 09, 2018	✓
CPG	Next CPG Meeting	Apr 25, 2018	
Tech Spec	Publish ISO Interface Spec (Tech spec)	May 18, 2018	
Config Guides	Settlements Config Guides	May 18, 2018	
BPMs	Post Draft BPM changes	Jun 04, 2018	
External Training	Deliver External Training	Jul 11, 2018	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 31, 2018	
Production Activation	ESDER Phase 2	Oct 01, 2018	

Fall 2018 – Generator Contingency and Remedial Action Scheme Modeling

Project Info	Details/Date

Application Software Changes	• Enhance the Security Constrained Economic Dispatch
	   • Model generation/load loss in the dispatch
	   • Model transmission loss along and generation/load loss due to RAS operation dispatch
	   • Model transmission reconfiguration due to RAS operation in the dispatch
	• Update the congestion component of LMP so that it considers the cost of positioning the system to account for generator contingencies and RAS operations
	• Enhance DAM, RTM and EIM to support generator contingencies
	Impacted systems:
	• IFM/RTM, CRR, MF

BPM Changes	• Managing Full Network Model • CRR • Market Operations • EIM
Business Process Changes	• Manage Congestion Revenue Rights (MMR LII) • Manage Operations Planning • Manage Real Time Operations - Transmission & Electric System (MMG LII)

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Fall 2018 – Generator Contingency and Remedial Action Scheme Modeling

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sep 19, 2017	✓
External BRS	Complete and Post External BRS	Mar 16, 2018	✓
Tariff	File Tariff	May 25, 2018	
Config Guides	Design review - BPM and Tariff SMEs	TBD	
BPMs	Post Draft BPM changes	Jun 12, 2018	
	Publish Final Business Practice Manuals	Jul 02, 2018	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
External Training	Deliver external business training	Jul 13, 2018	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 27, 2018	
Production Activation	Generator Contingency and RAS Modeling	Oct 01, 2018	

Fall 2018 – ADS Replacement

Project Info	Details/Date
Application Software Changes	• Transition to web-based user interface to eliminate the need to install thick client • Transition ADS provisioning to the Access and Identity Management (AIM) application including Resource Level Access Controls (RACL) access • Move historical ADS data to CMRI adding query tool functionality to CMRI also • Move near-term transactions for FERC-764 15-minute awards to ADS; This will include user interface and a new B2B service; Historical transactions will stay in CMRI. • Various user interface enhancements adding content per Operation's request • Eliminate the ECN requirement for ADS B2B services (remove adsta.caiso.com) • ADS B2B services will not otherwise change.
BPM Changes	To Be Determined
Business Process Changes	To Be Determined

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Post External BRS	May 02, 2018	
Tariff	File Tariff	N/A	
Config Guides	Design review - BPM and Tariff SMEs	N/A	
BPMs	Publish Final Business Practice Manuals	TBD	
Tech Spec	Publish Technical Specifications	TBD	
External Training	Conduct External Training	TBD	
Market Sim	Market Sim Window	TBD	
Production Activation	ADS Replacement	Oct 01, 2018	

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Fall 2018 - CRR Auction Efficiency – Track 1A

Project Info	Details/Date	
Application Software Changes	CRR Auction Efficiency project is focused on enhancements to: • Information received and used for the CRR allocations and auction • CRR software to support a mechanism to allow market participants to sell previously acquired CRRs into subsequent auctions System Impacts: CRR, OMS, OASIS.	
BPM Changes	• CRR • Credit Management and Market Clearing • Market Instruments	• Outage Management • Settlements & Billing
Business Process Changes	• Manage Market & Reliability Data & Modeling (MMR) • Manage Markets & Grid (MMG)	

Milestone Type	Milestone Name	Dates	Status
Board Approval	BOG Presentation and Approval	Mar 22, 2018	✓
External BRS	Post External BRS	Apr 26, 2018	
Tariff	File Tariff	Apr 09, 2018	✓
Config Guides	Design review - BPM and Tariff SMEs	TBD	
BPMs	Post Draft BPM changes	May 25, 2018	
	Publish Final Business Practice Manuals	Jul 02, 2018	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
External Training	Deliver external training	TBD	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 31, 2018	
Production Activation	CRR Auction Efficiency	Oct 01, 2018	

Fall 2018 – EIM Enhancements 2018

Project Info	Details/Date

Application Software Changes	• Markets to enforce new ETSR Ramp Rate constraints (both single and aggregate)
	• Markets to exclude Flex Ramp provision of EIM BAAs undergoing contingency
	• ISO Enhancement to BAAOP EIM operator screens to review active market data; all BAA operators receive notifications when ETSR limits enforced in real-time
	
	Systems:
	
	• BAAOP – New display screens presenting active market data for market data submissions; ETSR enforcements notification for all BAAs (includes constraint information)
	
	• Market Applications
	   • Include ETSR ramping constraints at both Individual and Aggregate levels
	   • Exclude Flex Ramp Product provision for EIM BAAs undergoing contingency (FRU/FRD awards and prices set to zero); EIM Area footprint's FRP requirements are reduced by a diversity benefit pro rata amount based on excluded EIM BAAs
	
	• Master File – Registration supported of single and aggregate ETSR ramping constraints by associated EIM BAAs
	
	• OASIS – new report displays real-time intervals where BAAs (ISO and EIM) are in contingency
	
	• Integration – No CMRI B2B API impacts; OASIS API will support new report

BPM Changes	Energy Imbalance Market (EIM), Market Instruments, Market Operations
Business Process Changes	• Manage Entity & Resource Maintenance Updates • Manage Real Time Interchange Scheduling • Manage Real Time Operations- Maintain Balancing Area • Perform Price Validation, Manage Price Corrections • Manage Market Billings & Settlements

Fall Release – EIM Enhancements 2018

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors Approval	N/A	
External BRS	Post External BRS	Apr 27, 2018	
Config Guides	Post Config Guides	TBD	
BPMs	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	May 18, 2018	
Market Sim	Market Sim Window	Jul 17, 2018 - Aug 31, 2018	
External Training	Deliver external training	TBD	
Production Activation	EIM Enhancements 2018	Oct 01, 2018	

2019 Spring Release

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Spring 2019 – EIM BANC/SMUD

Project Info	Details/Date
Application Software Changes	Implementation of SMUD as an EIM Entity
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during implementation and feedback from SMUD.
Market Simulation	December 3, 2018 – January 31, 2019
Parallel Operations	February 1, 2019 – March 30, 2019

Config Guides	Milestone Name	Dates	Status
Tariff	File Readiness Certification	Mar 01, 2019	
Market Sim	Market Sim Window	Dec 03, 2018 - Jan 30, 2019	
Parallel Operations	Parallel Operations	Mar 30, 2019	
Production Activation	EIM - BANC-SMUD	Apr 03, 2019	

2019 Fall Release

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Fall 2019 – Day Ahead Market Enhancements

Project Info	Details/Date
Application Software Changes	This are preliminary impact assessments DAM Enhancements include change the day-ahead market from hourly to 15 minute granularity, combine IFM and RUC, procure imbalance reserves • Calculate Imbalance Reserve (IR) Requirements in 15 minute interval (DAM) • EIM interface to submit Base schedule in 15 minute interval (BSAP) • EIM balance test, capacity test and sufficient test in 15 minute interval (RTM) • Report DAM market results in 15 minute Interval (CMRI) • MP can bid IRU and IRD price in SIBR • DAM co-optimize Energy, AS and IR in 15 minute intervals (DAM) • Remove RUC • Get as self-scheduled 15 minute DAM award of energy in RTM if no real time bids (RTM) • Calculate Settlement DAM Expected Energy in 15 minute interval (RTM) • Calculate Bid cost recovery (MQS) • Settle DAM based on 5 minute interval schedules (Settlement) • Settle CRR in DAM 15 minute intervals (Settlement) • Publish DAM energy and AS requirements and prices in 15 minute interval in OASIS
BPM Changes	Market Instruments, Market Operations, Settlements & Billing, Energy Imbalance markets
Business Process Changes	• Manage Day Ahead Market • Manage D+X analysis • Manage Real Time Operations- Maintain Balancing Area • Manage Market Billings & Settlements

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Fall 2019 – Day Ahead Market Enhancements

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors Approval	September 5-6, 2018	
External BRS	Post External BRS	TBD	
Config Guides	Post Config Guides	TBD	
BPMs	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Market Sim	Market Sim Window	TBD	
External Training	Deliver external training	TBD	
Production Activation	EIM Enhancements 2018	Fall, 2019	

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- Visit the Release Planning page
  - http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx

- Attend meetings
  - Release Users Group (RUG) bi-weekly meetings
    - Initiative status updates
    - System change updates on independent releases
  - Market Simulation calls
    - Visit the ISO calendar at www.caiso.com for meeting dates and times and add events to your calendar
    - Typically held on Mondays and Thursdays
    - Market sim calls for major releases will be market noticed
  - Market Performance and Planning Forum
    - Bi-monthly review of market performance issues
    - High level discussion of release planning, implementation and new market enhancements

What to look for on the calendar…

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