Release User Group Agenda

January 14th, 2020   *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
Calls and webinars are recorded for stakeholder convenience, allowing those who are unable to attend to listen to the recordings after the meetings. The recordings will be publicly available on the ISO web page for a limited time following the meetings. The recordings, and any related transcriptions, should not be reprinted without the ISO's permission.	

Release User Group Agenda

January 14th, 2020   *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	Trang Deluca Cynthia Hinman Christopher McIntosh Jeremy Malekos Janet Morris

The ISO offers innovative training programs

Date	Training courses and workshops
January 28	ISO Workshop - Introduction to ISO Markets (Folsom)
January 29	ISO Workshop - Market Transactions (Folsom)
January 30	ISO Workshop – ISO Settlements (Folsom)

CustomerTraining@caiso.com

New Modules (recorded webinar and slides)

You can find new initiatives training courses on the learning center web page below.
More resources will be added throughout 2019/2020 in accordance with project schedules.

Computer Based Training

There are more than 20 computer based training modules on the ISO website covering:

- Markets and Operations
- Reference Materials
- Settlements and Metering
- Western Energy Imbalance Market

Visit our **Learning Center** web page to access our training calendar, register for courses and find other informational resources:
http://www.caiso.com/participate/Pages/LearningCenter/default.aspx

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Release Plan Summary: 2020

Independent 2020

- Commitment Costs and Default Energy Bid Enhancements Phase 1
- CRR Data Transparency Enhancements

Spring 2020

- Energy Imbalance Market (EIM) - 2020 Salt River Project
- Energy Imbalance Market (EIM) - 2020 Seattle City Light

Fall 2020

- Contingency Modeling Enhancements - Transmission
- Energy Storage and Distributed Energy Resources Phase 3B
- Dispatch Operating Target Tariff Clarifications
- Intertie Deviation Settlement
- Excess Behind the Meter Production
- Market Settlement Timeline Transformation
- EIM Enhancements 2020
- Import Bidding and Market Parameters, (A.K.A. Import Bid Cost Verification and FERC Order 831) – May 2020 BOG
- Automated Dispatch System (ADS) User Interface (UI) Replacement
- FERC Order 841 – FERC requested adjustments

Release Plan Summary: 2021 - 2022

Spring 2021
- Energy Imbalance Market (EIM) 2021 - Public Service Company of New Mexico
- Energy Imbalance Market (EIM) 2021 - North-Western Energy
- Energy Imbalance Market (EIM) 2021 - Los Angeles Dept. of Water and Power
- Energy Imbalance Market (EIM) 2021 - Turlock Irrigation District
- Energy Imbalance Market (EIM) 2021 – BANC Ph 2/WAPA

Fall 2021 – tentative, subject to impact assessment
- Day Ahead Market Enhancements (BOG Q4 2020)
- RA Enhancements (BOG May/Jun 2020)
- Energy Storage and Distributed Energy Resources Phase 4 (BOG Q1 2020)
- Storage as a Transmission Facility (BOG TBD)
- TAC Structure Enhancements (Q4 - BOG)

Spring 2022
- Energy Imbalance Market (EIM) 2022 - Avista
- Energy Imbalance Market (EIM) 2022 - Tucson Electric Power
- Energy Imbalance Market (EIM) 2022 – Tacoma Power
- Energy Imbalance Market (EIM) 2022 – Bonneville Power Administration

Fall 2022 – tentative, subject to impact assessment
- Commitment Costs and Default Energy Bid Enhancements Phase 2

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Release Schedule 2019-2020

Date of Data Refresh: 1/10/2020

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Legend
- Market Simulation
- External Testing
- CA ISO Holiday
- Deployment Week

MAP Stage Environment Window

Item	Schedule
EIM - Salt River Project - Market Sim	EIM - Salt River Project - Market Sim (12/03-01/31)
EIM - Seattle City Light - Market Sim	EIM - Seattle City Light - Market Sim (12/03-01/31)
MRI-S API Acceptable Use Policy - Market Sim (TBD)	MRI-S API Acceptable Use Policy (12/04-TBD)
CRR Data Transparency Enhancements - Market Sim	CRR Data Transparency Enhancements - Market Sim (01/27-02/20)
API Standardization of Time Format - Market Sim	API Standardization of Time Format - Market Sim (07/27-09/04)
Contingency Modeling Enhancements -Transmission - Market Sim	Contingency Modeling Enhancements -Transmission - Market Sim (07/27-09/04)
ESDER Phase 3b - Load Shift Product - Market Sim	ESDER Phase 3b - Load Shift Product - Market Sim (07/27-09/04)
Dispatch Operating Target Tariff Clarification - Market Sim	Dispatch Operating Target Tariff Clarification - Market Sim (07/27-09/04)
Intertie Deviation Settlement - Market Sim	Intertie Deviation Settlement - Market Sim (07/27-09/04)
Excess Behind the Meter Production - Market Sim	Excess Behind the Meter Production - Market Sim (07/27-09/04)
Market Settlement Timeline Transformation - Market Sim	Market Settlement Timeline Transformation - Market Sim (07/27-09/04)
EIM Enhancements 2020 - Market Sim	EIM Enhancements 2020 - Market Sim (07/27-09/04)
Import Bidding & Market Parameters - Market Sim	Import Bidding & Market Parameters - Market Sim (07/27-09/04)
ADS Replacement - Market Sim	ADS Replacement - Market Sim (07/27-09/04)
FERC841 Adjustments - Market Sim	FERC841 Adjustments - Market Sim (07/27-09/04)

EIM Parallel Operations Environment Window

Item	Schedule
EIM - Salt River Project - EIM Parallel Operations	EIM - Salt River Project - EIM Parallel Operations (02/01-03/31)
EIM - Seattle City Light - EIM Parallel Operations	EIM - Seattle City Light - EIM Parallel Operations (02/01-03/31)

Production Environment Window

Item	Schedule
FERC 841 Effective Date	FERC 841 Effective Date (12/03)
EIM Enhancements 2019 - BSAP (TBD)	EIM Enhancements 2019 - BSAP (TBD)
RMR/CPM Effective Date	RMR/CPM Effective Date (01/01)
MRI-S API Acceptable Use Policy (TBD)	MRI-S API Acceptable Use Policy (TBD)
CRR Data Transparency Enhancements	CRR Data Transparency Enhancements (TBD)
EIM - Salt River Project	EIM - Salt River Project (04/01)
EIM - Seattle City Light	EIM - Seattle City Light (04/01)
CCDEBE Phase 1 (TBD)	CCDEBE Phase 1 (TBD)
Settlements - Spring 2020 Release	Settlements - Spring 2020 Release (05/01)
API Standardization of Time Format	API Standardization of Time Format (10/01)
Contingency Modeling Enhancements -Transmission	Contingency Modeling Enhancements -Transmission (10/01)
ESDER Phase 3b - Load Shift Product	ESDER Phase 3b - Load Shift Product (10/01)
Dispatch Operating Target Tariff Clarification	Dispatch Operating Target Tariff Clarification (10/01)
Intertie Deviation Settlement	Intertie Deviation Settlement (10/01)
Excess Behind the Meter Production	Excess Behind the Meter Production (10/01)
EIM Enhancements 2020	EIM Enhancements 2020 (10/01)
Import Bidding & Market Parameters	Import Bidding & Market Parameters (10/01)
ADS Replacement	ADS Replacement (10/01)
FERC841 Adjustments	FERC841 Adjustments (10/01)
Market Settlement Timeline Transformation (TBD)	Market Settlement Timeline Transformation (TBD)

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

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System Interface Changes

SIBR/BSAP

System	Project	Change Type	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
SIBR	CCDEBE1	Modify	RetrieveCleanBidSet_SIBRv5 RetrieveCleanBidSet_SIBRv5_DocAttach	Oct 16, 2019	2020	13.2
SIBR	CCDEBE1	Modify	RetrieveCurrentBidResults_SIBRv5 RetrieveCurrentBidResults_SIBRv5_DocAttach	Oct 16, 2019	2020	13.2
SIBR	CCDEBE1	Modify	SubmitRawBidSet_SIBRv5 SubmitRawBidSet_SIBRv5_DocAttach	Oct 16, 2019	2020	13.2
BSAP	EIM2019	Modify	RetrieveBalancingTestResults_BSAPv2 RetrieveBalancingTestResults_BSAPv2_DocAttach	Oct 16, 2019	2020	1.7.3

CMRI

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
LMPME CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Energy Bid Curves	RetrieveDefaultBidCurves_CMRIv2 RetrieveDefaultBidCurves_CMRIv2_DocAttach	LMPME - Sep 12, 2019 CCDEBE Nov 6, 2019	LMPME - Nov 13, 2019 CCDEBE - 2020	3.9.3
CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Commitment Costs	RetrieveExternalDefaultCommitmentCost_CMRIv1 RetrieveExternalDefaultCommitmentCost_CMRIv1_DocAttach	Nov 11, 2019	2020	3.9.3

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System Interface Changes (cont.)

MRI-S

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
MRI-S API AUP	AUP	N/A	Retrieve Services: RetrieveMeterData_STLMTv1_AP RetrieveMeterData_STLMTv1_DocAttach_AP	Dec 4, 2019	TBD	2.3

OASIS

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
CRR Data Transparency Enhancements	Modify	Modify Congestion Revenue Rights > CRR Aggregated Revenue Adjustment Data	CRR_AGG_REV_ADJ Add 4 new columns: DIRECTION IFM_NET_FLOW_MW CLAWBACK_REV CIR_SCH_REV	Feb 2020	Mar 2020	5.1.11

DRRS

Project	Change Type	UI Change	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
N/A – Incremental Data Retrieve	New	TBD	TBD	TBD	TBD	TBD

2020 Independent

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2020 – Commitment Cost and Default Energy Bid Enhancements Ph1

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: • Ex-ante cost adjustment requests • Reference Level Adjustments to default commitment cost bids (start-up and minimum load costs) and default energy bids • Make Day Ahead Market process permanent • Make D+2 Process permanent • Use of indices clarification, and Monday Only in DAM and RTM, per LMPME • Conditionally Available Resources (CAR) **Impacted Systems:** • SIBR: Allow the submittal of Ex Ante cost adjustments. • CMRI: Provide additional source information for default bids. Submit requests through CIDI for manual consultation and ex-post default bid adjustments.
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)

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2020 – Commitment Cost and Default Energy Bid Enhancements Ph1 FERC response timeline

- CAISO responded to FERC deficiency letter 22-Nov, per RUG update on Tuesday 19-Nov

- FERC has up to 60 days to respond with a decision

- CCDEBE's revised implementation date is estimated to be approximately +3 months from the date of FERC's response

- CAISO continuing to resolve Known Issues for SIBR

- Market Simulation unstructured testing for original 12/4 scope ended 26 November

- Participants leveraging existing scheduled EIM Settlements Statement run dates to validate results

- CAISO has requested a response from FERC by 21 January 2020

- Presuming FERC response by end of January, targeting April 2020 for production go-live (exact dates TBD)

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2020 – Commitment Cost and Default Energy Bid Enhancements Ph1

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	Publish revised external BRS v1.1	Jan 22, 2019	✔
	Publish External BRS v1.2: Phase 1/Phase 2, clarifications	Mar 29, 2019	✔
	Publish External BRS v1.3: Reference Level Adjustments	Apr 05, 2019	✔
	Publish External BRS v1.4 for CCDEBE tariff traceability	Jul 19, 2019	✔
	Publish External BRS v1.5: implementation notes & clarifications (BRQ046, BRQ035/335), Generic Hub GPI update	Sep 04, 2019	✔
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications	May 17, 2019	✔
	Publish Technical Specification updates for CARs and Electric Pricing Hub weighting	Jun 28, 2019	✔
Tariff	File Tariff - CCDEBE Phase 1	Oct 11, 2019	✔
	Draft Tariff published	May 13, 2019	✔
	Tariff stakeholder walkthrough conference call	Jun 11, 2019	✔
BPMs	Publish draft Market Instruments: Attachment O on CCDEBE Stakeholder Processes page	Oct 04, 2019	✔
	PRR 1203 published: CCDEBE updates to Market Instruments BPM, incl. Attachment O	Oct 18, 2019	✔
External Training	Deliver External Training	Oct 08, 2019	✔
	Finalize external training material	Oct 04, 2019	✔
Market Sim	Market Sim Window	Oct 14, 2019 - Dec 03, 2019	✔
Production Activation	CCDEBE Phase 1	April 2020	

2020 – CRR Data Transparency Enhancements

Project Info	Details/Date

Application Software Changes	**Scope:**
	• This Initiative involves data related to daily CRR payments and credits
	• Scope includes making available to Market Participants additional CRR settlement-related data to support Shadow Settlements
	
	Impacted Systems:
	• IFM:
	    • Publish IFM calculated Net Flow per constraint, contingency and interval
	    • Generate Directional Flag (+) (-) that reflects the prevailing direction of the IFM Net Flow and publish with associated IFM Net Flow MW value
	    • Publish APNode shift factors
	• Clawback (Internal):
	    • Calculate and publish a single value representing the sum total of the Clawback and Circular Scheduling MWs
	• OASIS:
	    • Posting of IFM Net Flow and Directional Flag (+) (-)
	    • Posting of single value representing the sum total of the Clawback and Circular Scheduling MWs
	• MPP Market Modeling Database (MMD):
	    • Storage of APNode shift factors in NDA Folder
	    • Manage authorized access to data through validation of appropriate credentials

BPM Changes	• Market Instruments • Congestion Revenue Rights
Tariff Changes	• N/A • No Tariff changes associated with this initiative. Relevant Tariff provisions made for CRR 1B project

2020 – CRR Data Transparency Enhancements (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Dec 03, 2019	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec Tech Spec - OASIS	Dec 25, 2019	✓
Tariff	File Tariff	N/A	
BPMs	Publish Final Business Practice Manuals	Mar 09, 2020	
	Draft BPM Changes - Market Instruments	Jan 06, 2020	✓
	Draft BPM Change - CRR	Jan 13, 2020	
External Training	External Training	Mar 09, 2020	
Market Sim	Market Sim Window	Jan 27, 2020 - Feb 20, 2020	
Production Activation	CRR Transparency Enhancements	Mar 12, 2020	

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2020 Spring Release

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Spring 2020 – EIM integrations for SCL and SRP

Project Info	Details/Date
Application Software Changes	Implementation of SCL and SRP as EIM Entities
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during implementation and feedback from SCL and SRP.
Market Simulation	December 2019 – January 2020
Parallel Operations	February 2020 – March 2020

Milestone Type	Milestone Name	Dates	Status
Market Sim	Market Sim Window	Dec 3, 2019 – Jan 31, 2020	
Parallel Operations	Parallel Operations	Feb 1, 2020 – Mar 31, 2020	
Tariff	File Readiness Certification	Mar 1, 2020	
Production Activation	EIM – SCL and SRP	Apr 1, 2020	

2020 Fall Release

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Fall 2020 Release – Overview

	BOG	External BRS	Config Guide	Tech Spec	Mkt Sim Scenarios	Draft Tariff*	BPMs	External Training	Market Sim	Production Activation
Fall 2020 Release		**04/01/20**	**05/29/20**	**05/29/20**	**05/29/20**	**06/26/20**	**07/20/20**	**07/20/20**	**Jul 27, 2020 – Sep 4, 2020**	**10/01/20**
Contingency Modeling Enhancements - Transmission	12/14/17								Jul 27, 2020 – Sep 4, 2020	10/01/20
ESDER Phase 3b - Load Shift Product	09/05/18	07/18/19	05/29/20	04/29/20		03/30/20	05/27/20	06/22/20	Jul 27, 2020 – Sep 4, 2020	10/01/20
Dispatch Operating Target Tariff Clarification	07/26/18	12/26/18				09/04/18			Jul 27, 2020 – Sep 4, 2020	10/01/20
Intertie Deviation Settlement	02/07/19								Jul 27, 2020 – Sep 4, 2020	10/01/20
Excess Behind the Meter Production	11/17/18								Jul 27, 2020 – Sep 4, 2020	10/01/20
Market Settlement Timeline Transformation	11/14/19	02/03/20	05/29/20	05/29/20		06/26/20		07/20/20	Jul 27, 2020 – Sep 4, 2020	*TBD*
EIM Enhancements 2020	*N/A*								Jul 27, 2020 – Sep 4, 2020	10/01/20
Import Bidding and Market Parameters	May 2020								Jul 27, 2020 – Sep 4, 2020	10/01/20
ADS UI Replacement	*N/A*	08/06/18							Jul 27, 2020 – Sep 4, 2020	10/01/20
FERC Order 841 – FERC requested adjustments	*N/A*									10/01/20

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Fall 2020 Release – System Impacts

Fall 2020 Release	ADS	CMRI	IFM / RTM	OASIS	OMS	Settlements	FODD	MF	DRRS	CIRA	MRI-S Metering	MRI-S Settlements	CIDI	Monthly Report @ www.caiso.com	BAAOP	BSAP
CME-T	Y	Y	Y	Y	Y	Y	Y									
ESDER3B	Y					Y		Y	Y	Y						
DOTTC	Y		RTM													
IDS	Y					Y										
EBtMP						Y	Y				Y			Y		
Market Settlement Timeline Transf.		Y		Y		Y				Y	Y	Y	Y			
EIM2020		Y	RTM	Y											Y	Y
Import Bidding and Market Parameters(TBD)																
ADS UI Replacement	Y															
FERC Order 841 – FERC requested adjust. (TBD)																

Fall 2020 Release – BPM Impacts

	Market Instruments	Market Operations	Settlements & Billing	Definitions & Acronyms	Outage Management	Reliability Requirement	Metering	Credit Mgmt & Market Clearing	Energy Imbalance Market	Rules of Conduct Admin
Contingency Modeling Enhancements – Transmission	Y	Y	Y	Y	Potential	Potential				
ESDER Phase 3b - Load Shift Product	Y	Y			Y	Y	Y			
Dispatch Operating Target Tariff Clarification	Y	Y								
Intertie Deviation Settlement			Y							
Excess Behind the Meter Production			Y	Y			Y			
Market Settlement Timeline Transformation	Y		Y				Y	Y	Y	Y
EIM Enhancements 2020	Y									
Import Bidding and Market Parameters (TBD)										
ADS UI Replacement	Y	Y								
FERC 841 (TBD)										

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Fall 2020 – Contingency Modeling Enhancements - Transmission

Project Info	Details/Date

Application Software Changes	**Scope:**
	• Resolve temporal transmission system reliability constraints in the market:
	    • Improve economic dispatch
	    • Reduce reliance on ED and MOC constraints
	    • Appropriately value capacity needed to resolve actual transmission system reliability constraints
	    • Introduces the preventive-corrective constraint for use in the market
	    • 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
	    • Pays resource for reserving the capacity at the LMCP
	• Resource paid for Out-Of-Merit (OOM) dispatch to reserve corrective capacity
	
	Impacted 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 preventive-corrective constraint for use in the market, and new
	    • Model new capacity awards and Locational Marginal Capacity Price (LMCP).
	    • Market App implement validation and exceptions to support Market Validation Tools
	    • Update IFM/RTM MPM rules for new corrective capacity commodity market.
	OASIS: New or modified reports to display LMCP prices and awards
	OMS: Potential Impact
	Settlements:
	• New or modified DA and RT charge code(s)/pre-calcs to pay for awarded corrective capacity at LMCP.
	• Modify DA and RT BCR charge code(s)/pre-calcs to include revenue received from corrective capacity awards at LMCP.
	• Potential No-Pay changes and charge code(s)/pre-calcs.
	• Potential; changes to Neutrality charge code(s).
	• Potential inclusion of performance metrics to support Settlements application.
	• Change CRR settlements charge code(s)/pre-calcs.
	FODD: Report new prices and awards to FERC.

Fall 2020 – Contingency Modeling Enhancements – Transmission (cont)

Project Info	Details/Date
BPM Changes	**Market Instruments** (Include CMRI & OASIS changes) **Market Operations** **Settlements & Billing** **Definitions & Acronyms** (New commodity for Corrective Capacity) **Outage** (Potential) **Reliability Requirement** (Potential)
Tariff Change	**Section 27.1** CAISO Markets And Processes

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Fall 2020 – ESDER Phase 3b – Load Shift Product

Project Info	Details/Date
Application Software Changes	**Scope:** The ESDER 3b initiative will include two (2) demand response enhancements: • Addition of a Load Shift Product wherein demand response resources with behind the meter (BTM) storage devices can participate in both load consumption and load curtailment. • Enable sub-metered electric vehicles supply equipment (EVSE) to participate in load curtailment **Impacted Systems (Overview):** **Master File:** • Registration of new PDR Resource Types and business rules for PDRs with BTM storage devices and wanting to participate in both Load Curtailment and Consumption • Two (2) Resource IDs will be assigned to the same Resource to allow Consumption versus Curtailment participation (PDR-LSR) **DRRS:** • Allow two resource IDs to be selected for registrations with LSR baseline methods • New baseline methods for PDR-LSRs and EVSEs • New attribute for locations to indicate BTM device **CIRA:** • Will prevent the request of NQC for PDR-LSR Consumption resources **Settlements**

Fall 2020 – ESDER Phase 3b – Load Shift Product (cont.)

Project Info	Details/Date
BPM Changes	• Market Instruments, Market Operations, Outage Management, Reliability Requirement and Metering
Tariff Change	Sections 4.13, 6.4, 6.5, 11.6, 11.8, 31.3, 34.1,34.4, 34.5, 30.7 and 34.8

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sep 05, 2018	✔
External BRS	Post External BRS v1.4	Jul 18, 2019	✔
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications	Apr 29, 2020	
Tariff	Post Draft Tariff	Mar 30, 2020	
	File Tariff	Jun 11, 2020	
BPMs	Post Draft BPM changes	May 27, 2020	
External Training	External training	Jun 22, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ESDER Phase 3b - Load Shift Product	Oct 01, 2020	

Fall 2020 – Dispatch Operating Target Tariff Clarification

Project Info	Details/Date
Application Software Changes	**Scope:** Allow Energy Intermittent Resources (EIRs) to automate their response to operational instructions that require the resource not to exceed their Dispatch Operating Target. **Impacted Systems:** **RTM:** Operator can select EIR resources, system to send Operating instruction Flag to ADS **ADS:** Receive Operating instruction flag for EIRs. Broadcast message to EIRs operator.
BPM Changes	Market Instruments Market Operations
Tariff Change	Changes tariff language from "Operating Order" to "Operating Instruction" in multiple sections.

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Jul 26, 2018	✓
External BRS	Milestone: Post External BRS	Dec 26, 2018	✓
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	Draft Tariff	Sep 04, 2018	✓
	File Tariff	Oct 29, 2018	✓
BPMs	Post Draft BPM changes	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Dispatch Operating Target Tariff Clarification	Oct 01, 2020	

Fall 2020 – Intertie Deviation Settlement

Project Info	Details/Date
Application Software Changes	**Scope:** Implement a new Under/Over Delivery Charge for intertie deviations from Market Schedule and After-The-Fact (ATF) E-Tag, to replace Decline charge **Impacted Systems:** **Settlements** • Calculate FMM binding intertie award, exclude Curtailment, calculate under/over delivery quantity as deviation of schedule and ATF E-Tag, Charge under/over delivery Charge at 50% of RTD LMP. • Remove the decline charge calculation and Decline Threshold • Allocate Over/Under delivery charge to measured demand **ADS**
BPM Changes	Settlements and Billing
Tariff Change	Section 11.31

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Fall 2020 – Excess Behind the Meter Production

Project Info	Details/Date

Application Software Changes	**Scope:**
	• Clarify the Tariff definition of Gross Load:
	    • Is the instantaneous amount of energy that is delivered to Loads and Scheduling Points by generation, transmission or distribution facilities, and
	    • Should not be net of excess behind the meter production.
	• Establish a new tariff definition for EBtMP:
	    • Energy from an End-Use Customer in excess of its onsite Demand.
	• Establish how EBtMP will be reported and settled:
	    • EBtMP will be paid the locational price where it is reported.
	    • EBtMP will not be 'grossed up' to include losses.
	    • EBtMP will use the same resource ID as load.
	• Determination for Unaccounted For Energy will also need to be updated:
	    • UFE QUANTITY = GENERATION METER + INTERTIE IMPORT METER – ((GROSS LOAD METER – EXCESS BTM PRODUCTION METER) + EXPORT INTERTIE METER + RTD LOSS MW).
	• Applying both loss factors associated with the losses (Distribution Loss Factor DLF) from the transmission-distribution interface and the avoided losses from excess behind the meter production:
	    • Gross Load (with Gross Up) = (Gross Load * (1 + DLF)) – (EBtMP * DLF).
	• Report Gross Load (with Gross Up) and EBtMP under same load resource ID for the DLAP or CLAP, using channel 1 for EBtMP, channel 4 for Gross Load.
	• Publish the EBtMP every other month.

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Project Info	Details/Date

Application Software Changes (cont.)	**Impacted Systems:**
	Settlement - Recognize EBtMP as a measurement type
	• Associated resource ID, meter data for EBtMP, and Gross Load
	• Settle net of gross load and EBtMP as the measured demand
	• No change for MSS
	• Modify Calculation UFE:
	   • NET LOAD = GROSS LOAD METER – EXCESS BTMPRODUCTION METER
	   • UFE QUANTITY = GENERATION METER + INTERTIE IMPORT METER – (NET LOAD METER + EXPORT INTERTIE METER + RTD LOSS MW)
	• Modify follow charge codes to settle based on Gross Load (Reliability based charge codes)
	   • 372 High Voltage Access Charge Allocation (UDC gross load)
	   • 382 High Voltage Wheeling Allocation (Non PTO load)
	   • 383 Low Voltage Wheeling Allocation (Non PTO load)
	   • 591 Emissions Cost Recovery (Measured Demand)
	   • 1101 Black Start Capability Allocation
	   • 1302 Long Term Voltage Support Allocation
	   • 1303 Supplemental Reactive Energy Allocation
	   • 6090 Ancillary Service Upward Neutrality Allocation
	   • 6194 Spinning Reserve Obligation Settlement
	   • 6196 Spinning Reserve Neutrality Allocation
	   • 6294 Non-Spinning Reserve Obligation Settlement
	   • 6296 Non-Spinning Reserve Neutrality Allocation
	   • 6594 Regulation Up Obligation Settlement
	   • 6596 Regulation Up Neutrality Allocation
	   • 6694 Regulation Down Obligation Settlement
	   • 6696 Regulation Down Neutrality Allocation
	   • 7256 Regulation Up Mileage Allocation
	   • 7266 Regulation Down Mileage Allocation
	   • 7896 Monthly CPM Allocation

Project Info	Details/Date

Application Software Changes (cont.)	**Impacted Systems:**
	MRI-S - Meter submission
	• Allow SC to submit Gross Load and EBtMP under the single Resource ID
	    • Add new measurement type: EBtMP
	    • New measurement type: EBtMP will be used for EBtMP
	    • Measurement type:Load will be used for Gross Load (gross-up)
	    • Meter submission UI and API will accept the new measurement type: EBtMP
	    • Publish gross load data and EBtMP to ALFS
	    • The SC will be submitting the data as two separate measurement type
	    • Identify data volume handling for all Settlement systems, ALFS
	Monthly report at www.caiso.com
	• Access gross load and EBtMP through settlement database
	• Publish aggregated EBtMP every other Month under Market Report
	FODD
	• Report to FERC data include Gross load and EBtMP

BPM Changes	**Definitions & Acronyms:** • Update definition of Gross Load • Add Excess Behind the Meter Production **Metering** **Settlements & Billing**
Tariff Change	**Appendix A :** • Clarify Gross Load definition, Update Demand definitions, • Add new term Excess Behind the Meter production **Section 11:** Update reliability based tariff reference sections to be based upon gross load

Fall 2020 – Market Settlement Timeline Transformation

Project Info	Details/Date
Application Software Changes	**Scope:** • The California ISO is proposing changes to its market settlement timeline to reduce market participant financial exposure by producing initial settlement statements that will more closely approximate the final settlement, and allow sufficient time for CAISO and market participants to resolve disputes. • The California ISO's current settlement timeline is compressed, which places potentially avoidable burdens on CAISO and market participants. The compressed timeline causes CAISO to publish initial statements of lower financial quality and to sometimes delay the publication of its settlement statements. These inefficiencies impact market participants as they must bear a financial burden of varying magnitude for many business days. • The California ISO and market participants also devote a large level of effort to correct data, re-calculate, process, and validate relatively small financial adjustments associated with optional re-calculations long after the settlement trade date has passed. • To resolve inefficiencies and issues, CAISO proposes to calculate and publish two settlement statements within seventy (70) business days after a trade date and re-align the due dates for settlement quality meter data. • Additionally, and under certain defined circumstances, CAISO proposes to re-calculate and publish three settlement statements between seventy (70) business days after a trade date and twenty-four (24) months after a trade date thus reducing the normal settlement life cycle from thirty-six to twenty-four months.
Application Software Changes (cont.)	**Impacted Systems:** **CIDI:** The settlements calendar will need to be modified and scripts modified to accommodate the changes. **CIRA:** Data payload timing modification: RAAIM Outage curtailment – DA, RT, T+9 & T+ 67 run **CMRI:** Data retention impact due to reducing from 36 months to 24 months. **MRI-S Metering:** • Impacts to the external data submission windows that currently exist, as well as the data transfers from MV-90 to MRI-S Metering and MRI-S Metering to Settlements. • Data submission/freeze timeline. **MRI-S Settlements:** • Update the Post Date calculation, as the payment calendar will change. • Auto scheduling for statement generation. • Statement posting. **OASIS:** • Data retention impact due to reducing from 36 months to 24 months. • FERC 841 related data availability needs to be vetted. **Settlements**

California ISO

Fall 2020 – Market Settlement Timeline Transformation (cont.)

Project Info	Details/Date	
BPM Changes	Credit Management and Market Clearing Definitions & Acronyms Energy Imbalance Market Market Instruments Metering Reliability Requirement	Rules of Conduct Administration Settlements and Billing • Section 2.3.2 – Schedule for Settlement Statement Publication • Section 2.3.5.1.1 – Dispute Timing • Section 2.3.6 – Billing & Payment • Section 2.4 – Payment Calendars
Tariff Change	Section 10: Metering Section 11: California ISO Settlements and Billing (Publication Contingency document) Section 12: Creditworthiness Section 13: Dispute Resolution	Section 26: Transmission Rates And Charges Section 27: California ISO Markets And Processes Section 29: Energy Imbalance Market Section 37: Rules Of Conduct

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 14, 2019	✔
External BRS	Post External BRS	Feb 03, 2020	
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Create ISO Interface Spec (Tech spec)	May 29, 2020	
Tariff	File Tariff	Jun 26, 2020	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Market Settlement Timeline Transformation	Jan 01, 2021	

Options

- ## Option 1: Trade Date Specific Cutover

TRADE DATES	3B	9B	12B	55B	70B	9M	11M	18M	21M	24M	33M	36M
12/1/2020-forward		🟩			🟩		🟩		🟩	🟩		
11/30/2017 - 11/30/2020	🟨		🟨	🟨		🟨		🟨			🟨	🟨

- ## Option 2: Hybrid Trade Date Cutover

TRADE DATES	3B	9B	12B	55B	70B	9M	11M	18M	21M	24M	33M	36M
12/1/2020-forward		🟩			🟩		🟩		🟩	🟩		
10/1/2020 - 11/30/2020	🟨		🟨		🟩		🟩		🟩	🟩		
3/1/2020- 9/30/2020	🟨		🟨	🟨			🟩		🟩	🟩		
6/1/2019 - 2/28/2020	🟨		🟨	🟨		🟨			🟩	🟩		
11/1/2017 - 5/31/2019	🟨		🟨	🟨		🟨		🟨			🟨	🟨

Option 1: Trade Date Specific Cutover

- Benefits:
  - Straight forward (clean cut) transition
- Challenges:
  - Transition completes in end of year 2023
  - Overlap processing and publication timeline (old and new)
  - 3 years data storage required

Option 2: Hybrid Trade Date Cutover

- **Benefits:**
  - Transition to the new and improved timeline sooner
  - Maintain two timelines for 2 years rather than 3 years (completes in mid-year 2022)
  - Fewer statements to be downloaded, validated, and processed.
  - Resolve disputes and issues sooner (will not have to wait for the T+33).
  - Total number of statements will be reduced
  - Reduction of data storage to 2 years instead of 3 years

- **Challenges:**
  - Will have to pay close attention to the payment calendar. Not as straight forward when the next statement will be posted.

Project Info	Details/Date

Application Software Changes	**Scope:**
	Energy Imbalance Market Enhancements 2020, is to collectively address important issues identified by EIM market participants through Customer Inquiry, Dispute and Information system (CIDI) requests to improve the visibility, functions and features in Energy Imbalance Market (EIM)
	
	Technology team and customer services review the 66 EIM enhancement requests by EIM entities and 4 internal request by ISO market operator. Combine each EIM entities submitted the priority list of 10 enhancements, ISO determine to include total 15 requests in EIM enhancement 2020 project.
	
	Impacted Systems:
	BAAOP
	• Allow EIM entity override activation for the contingencies up to 15 in NA contingency list
	• Add visibility of other adjacent BAA's ETSR locks and reasons
	• Add Static ETSR transfer data to RTD Dispatch Control Display (ETSR tab). Add Static ETSR transfer data to BAAOP ETSR Detail Display (in RTD)
	• Fix/Improve SVG One Lines. Request to be able to view SE and telemetry values for all substation flows and elements.
	• In RTD/RTPD Dispatch Control display, in Dispatch Instruction Review table, add columns for UP and DN remaining ramp capacity (5/15 minute respectively). In addition, include the sum of these columns at bottom of table. Example Calculation: RTD UP Ramp = MIN(5MinRampRate, [UpperLim-CurrentDispatch].
	• Add Supplemental DOT to VER resources to Dispatch Control displays; Detail: In BAAOP RTD/RTPD Dispatch Control, add SUPP DOT column
	• Fix the functionality for Manual Dispatches - users should be able to utilize MSG functions, such as designating a specific configuration, and users should be able to do commitment override
	• Utilize the "information" button in the market UI to connect to Knowledge Articles from CIDI for both ISO and EIM Operator
	• EIM Entities have a notification status of market inputs, showing if BAAOP received the latest payload of critical market inputs. Example Critical data submissions: (not all inclusive)
	    • BAAOP Dynamic Limits
	    • BAAOP RTIS
	    • ALFS (load forecast and/or VER forecast)
	    • ICCP link

Project Info	Details/Date
Application Software Changes (cont.)	**Impacted Systems:** **BSAP** • Add Manual Dispatch information to BSAP Resource Bal Viewer. Add any applicable deviations that used in the test to BSAP BAA Bal Viewer. • For the Bid Range Capacity Test Results report, Requirement Amount Column needs to publish the true requirement, not just the INCREMENTAL/DECREMENTAL requirement **RTM** • Publish the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD • Publish the effective load bias for the market run for RTPD and RTD • Publish the effective ETSR import and export limits for the market run for RTPD and RTD **CMRI** • Display and publish, download the data of the MW infeasibility data and ABC Up and Down Dispatches of RTPD/RTD • Display and publish, download the data of the effective load bias for the market run for RTPD and RTD • Display and publish, download the effective ETSR import and export limits for the market run for RTPD and RTD • For the Bid Range Capacity Test Results report, Requirement Amount Column needs to display and publish, download the true requirement, not just the INCREMENTAL/DECREMENTAL requirement **OASIS** • The Net EIM transfer limit report in OASIS shall be available for download via API.
BPM Changes	Market Instruments
Tariff Change	N/A

California ISO

Fall 2020 – Import Bidding and Market Parameters

Project Info	Details/Date
Application Software Changes	**Scope:** TBD **Impacted Systems:** TBD
BPM Changes	TBD
Tariff Change	TBD

Fall 2020 – 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 • The query tool will provide 30 days of historical data • Various user interface enhancements adding content per Operation's request • ADS B2B services changes - TBD.
BPM Changes	• Market Instruments • Market Operations
Tariff Changes	• N/A

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Post External BRS	Aug 06, 2018	✔
ADS Update	ADS Update Meeting	Aug 15, 2018	✔
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Publish Technical Specifications	TBD	
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ADS Replacement	Oct 01, 2020	
Production	ADS Parallel Operations	TBD	
Decommission	Old ADS Decommission	TBD	

California ISO

Fall 2020 – FERC Order 841 – FERC requested adjustments

In November, 2019 FERC responded to ISO compliance filing for FERC Order No. 841. FERC generally accepted CAISO compliance filing, finding that the NGR model and pumped storage model account for the physical and operating characteristics of storage, and that the CAISO appropriately does not assess TAC to energy storage.

FERC took some exceptions with CAISO compliance filing, as follows:

- While accepting that the NGR and Pumped Storage model accommodate the physical and operating characteristics of storage, FERC directs the CAISO to capture the corresponding Master File parameters for storage that are currently in the BPM in the tariff

- FERC disagrees that ancillary service qualification requirements were outside the scope of the order, directing the CAISO to lower its minimum capacity requirements for ancillary services from 500 kW to 100 kW for storage resources

- Finding it unclear whether the CAISO's metering and accounting practices allow for simultaneous participation in both retail and wholesale markets, FERC directs the CAISO to clarify metering and accounting practices for storage in the tariff

- FERC disagrees that the demand response MGO methodology complies with its requirement to avoid duplicative billing where a UDC is unwilling or unable to exempt a storage resource from retail charges. FERC directs the CAISO to create or modify a participation model that will exempt a storage resource from wholesale charges where it already pays retail charges.

Next steps:

CAISO will respond to FERC with a subsequent compliance filing targeted for Jan 20. We will request a target implementation of these adjustments by Oct 1, 2020 (Fall Release)

CAISO will evaluate the impact of FERC directed adjustments and identify the tariff, BPM, and system changes and communicate them to market participants in subsequent RUG updates.

2021 Spring Release

California ISO

Spring 2021 – EIM integrations for PNM, LADWP, TID, NWE and BANC Phase 2

Project Info	Details/Date
Application Software Changes	Implementation of PNM, LADWP, TID, NWE and BANC Phase 2 as EIM Entities
BPM Changes	EIM BPM will be updated if needed to reflect new modeling scenarios identified during implementation and feedback from PNM, LADWP, TID, NWE and BANC Phase 2.
Market Simulation	December 2020 – January 2021
Parallel Operations	February 2021 – March 2021

Milestone Type	Milestone Name	Dates	Status
Market Sim	Market Sim Window	December 2020 – January 2021	
Parallel Operations	Parallel Operations	February 2021 – March 2021	
Tariff	File Readiness Certification	March 2021	
Production Activation	EIM – PNM, LADWP, TID, NWE and BANC Phase 2	April 2021	

Stay Informed

Ways to participate in releases

- 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 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…