

Release User Group Agenda

March 24th, 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

March 24th, 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 Vo Cynthia Hinman Rashele Wiltzius Jeremy Malekos Janet Morris



The ISO offers innovative training programs

Date	Training courses and workshops
April 16	Welcome to the ISO (Webinar)
June 10 - 11	SC Certification Training
	Email us at CustomerReadiness@caiso.com for any training or readiness related questions



CustomerReadiness@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 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	Settlements and Metering
Reference Materials	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



Release Plan Summary: 2020

Independent 2020

- Commitment Costs and Default Energy Bid Enhancements Phase 1
- Congestion Revenue Rights (CRR) Data Transparency Enhancements
- Capacity Procurement Mechanism Soft Offer Cap

Spring 2020

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

Fall 2020

- 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
- Energy Imbalance Market (EIM) Enhancements 2020
- Automated Dispatch System (ADS) User Interface (UI) Replacement
- FERC Order 841 Requested Adjustments



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Release Plan Summary: 2021 - 2022

Independent 2021

System Market Power Mitigation (BOG Q3,2020 and implementation prior to Q3, 2021)

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 2021)
- Resource Adequacy (RA) Enhancements (BOG Q3/Q4 2020)
- Energy Storage and Distributed Energy Resources Phase 4 (BOG Sept 2020)
- Transmission Access Charge (TAC) Structure Enhancements (TBD)
- Import Bidding and Market Parameters, (A.K.A. Import Bid Cost Verification and FERC Order 831)
 July 2020 BOG
- Contingency Modeling Enhancements Transmission

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

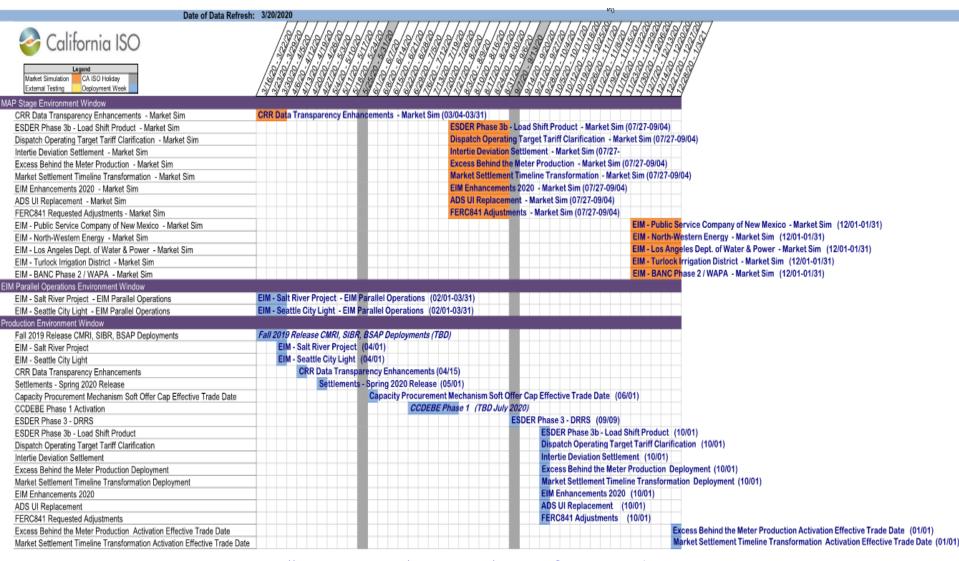
- Commitment Costs and Default Energy Bid Enhancements Phase 2
- Storage as a Transmission Facility



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Release Schedule 2020





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

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	Oct 16, 2019	Deployment Mar 2020	12.2
SIDK	CCDEBE1 Modify	Modify	RetrieveCleanBidSet_SIBRv5_DocAttach	Oct 16, 2019	Activation July 2020	<u>13.2</u>
SIBR	CCDEBE1	Modify	RetrieveCurrentBidResults SIBRv5	Oct 16, 2019	Deployment Mar 2020	13.2
SIBK	CCDEBET Modify	Modify	RetrieveCurrentBidResults SIBRv5 DocAttach	Oct 10, 2019	Activation July 2020	<u>13.2</u>
SIBR	CCDERE4	Modify	SubmitRawBidSet_SIBRv5	Oct 16, 2019	Deployment Mar 2020	40.0
SIDK	CCDEBE1 Modify	Modify	SubmitRawBidSet_SIBRv5_DocAttach	Oct 16, 2019	Activation July 2020	<u>13.2</u>
5015	AP EIM2019		RetrieveBalancingTestResults_BSAPv2	0	Deployment Mar 2020	
BSAP		EIM2019 Modify	RetrieveBalancingTestResults_BSAPv2_DocAttach	Oct 16, 2019	Activation July 2020	<u>1.7.3</u>

CMRI

Project	Chang e 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 – Deployment Mar 2020 Activation July 2020	<u>3.9.3</u>
CCDEBE1	Modify	Tab: Default Bids Existing Report: Default Commitment Costs	RetrieveExternalDefaultCommitmentCost CMRIv1 RetrieveExternalDefaultCommitmentCost CMRIv1_DocAttach	Nov 11, 2019	Deployment Mar 2020 Activation July 2020	3.9.3



System Interface Changes (cont.)

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	Mar 03, 2020	Apr 15, 2020	<u>5.1.11</u>

MMD

Project	Change Type	CSV Change	Data Change	MAP Stage	Production Activation	Technical Specifications
CRR Data Transparency Enhancements	Data	No Changes to Shift Factors CSV Format/Structure - Same Columns/Column Names	Apnode shift factors will be delivered in the same file as the Pnode shift factors The value in the existing 'Node Name' column will have "-APND" at the end to identify Apnodes	N/A	Apr 15, 2020	N/A

OMS

Project	Change Type	API Service Name & Major Version, Artifacts	MAP Stage	Production Activation	Technical Specifications
N/A - Retire v1 services	Deprecation	RetrieveResourceOutage_OMSv1_AP & DocAttach RetrieveResourceOutageChangeRequest_OMSv1_AP& DocAttach RetrieveTransmissionOutage_OMSv1_AP & DocAttach RetrieveTransmissionOutageChangeRequest_OMSv1_AP & DocAttach SubmitResourceOutage_OMSv1_AP & DocAttach SubmitResourceOutageChangeRequest_OMSv1_AP & DocAttach SubmitTransmissionOutage_OMSv1_AP & DocAttach SubmitTransmissionOutageChangeRequest_OMSv1_AP & DocAttach	Mid-Apr , 2020	Mid-Apr , 2020	N/A



2020 Independent



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 InstrumentsMarket 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)



2020 – Commitment Cost and Default Energy Bid Enhancements Ph1: FERC tariff approval response received

CCDEBE Changes

- FERC rejected the CCDEBE-related changes, which consist of the automated and manual reference level change requests, after the fact cost recovery procedures, and other related provisions.
- However, FERC rejected these without prejudice except for the proposal to include a 25% adder in the commitment cost bid caps in the context of a reference level change request. FERC did not reject or argue against the 10% adder.
- The refiling date will be determined and communicated in a future RUG session



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	Sep 04, 2019	✓
Config Guides	Config Guide	N/A	
Tech Spec	Publish Technical Specifications	May 17, 2019	✓
	Publish Technical Spec. updates for CARs and Electric Pricing Hub weighting	Jun 28, 2019	✓
Tariff	File Tariff - CCDEBE Phase 1	Oct 11, 2019	✓
	FERC rejection with further guidance	Jan 21, 2020	
	Re-file Tariff	April 9 (tentative)	
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	TBD (July 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 InstrumentsCongestion 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	Nov 12, 2019	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec Tech Spec - OASIS	Dec 27, 2019	✓
Tariff	File Tariff	N/A	
BPMs	Draft BPM changes Market Instruments	Jan 06, 2020	✓
	Draft BPM Change - CRR	Jan 16, 2020	✓
External Training	External Training Communication	Mar 06, 2020	✓
Market Sim	Market Sim Window	Mar 04, 2020 - Mar 31, 2020	
Production Activation	CRR Transparency Enhancements	Apr 15, 2020	



2020 - Capacity Procurement Mechanism Soft Offer Cap

Project Info	Details/Date
Application Software Changes	 Scope: The scope of this initiative includes updating the Capacity Procurement Mechanism (CPM) soft offer cap and the consideration of payments for 12-month CPM designations. Impacted Systems: No system/application impacts
BPM Changes	Reliability Requirements
Tariff Changes	43A.4.1.1.143A.5.443A.6.2

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Feb 2020	✓
External BRS	Milestone: Post External BRS	N/A	
Config Guides	Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	Feb 25	✓
	FERC decision requested by	May 28	
Training	Training	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	CPM Soft Offer Cap	Jun 01, 2020	



2020 Spring Release



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	Feb 28, 2020	✓
Production Activation	EIM – SCL and SRP	Apr 1, 2020	



2020 Fall Release



Fall 2020 Release – Overview

	BOG	BRS	Config Guide	Tech Spec	Mkt Sim Scenarios	Draft Tariff**	Draft BPMs	Training	Market Sim	Production Activation
Fall 2020 Release	se	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
ESDER Phase 3b - Load Shift Product	09/05/18	07/18/19 02/14/20 03/12/20	05/29/20	05/06/20 - DRRS 05/29/20 - MF	05/29/20	04/30/20	06/26/20	06/22/20	Jul 27, 2020 - Sep 04, 2020	09/09/20 - DRRS 10/01/20
Dispatch Operating Target Tariff Clarification	07/26/18	12/26/18	N/A	05/29/20		09/04/18	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20
Intertie Deviation Settlement	02/07/19	03/02/20	05/29/20	N/A		TBD	TBD	7/20/20	Jul 27, 2020 - Sep 04, 2020	10/01/20
Excess Behind the Meter Production	11/17/18	02/27/20	05/29/20	05/29/20		11/04/19	07/20/20	07/21/20	Jul 27, 2020 - Sep 04, 2020	01/01/21 (TD)
Market Settlement Timeline Transformation	11/14/19	02/06/20	05/29/20	N/A		06/26/20	07/20/20	07/20/20	Jul 27, 2020 - Sep 04, 2020	01/01/21 (TD)
EIM Enhancements 2020	N/A	03/24/20	TBD	TBD		TBD	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20
ADS UI Replacement	N/A	08/06/18	N/A	05/29/20		N/A	TBD	04/16/20 (Demo) Training TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20
FERC 841 – Requested Adjustments	N/A	3/31/20	5/29/20	TBD		1/21/20	TBD	TBD	Jul 27, 2020 - Sep 04, 2020	10/01/20



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Fall 2020 Release – System Impacts

				_		-							
Fall 2020 Release	ADS	CMRI	IFM / RTM	OASI S	Settlements	MF	DRRS	CIRA	MRI-S Metering	MRI-S Settlements	CIDI	ВААОР	BSAP
ESDER3B					Y	Υ	Y	Y					
DOTTC	Υ		RTM										
IDS	Υ				Υ								
EBtMP				Υ	Υ				Υ				
Market Settlement Timeline Transf.		Υ		Υ	Υ				Y	Y	Υ		
EIM2020		Υ	RTM	Υ								Υ	Υ
ADS UI Replacement	Υ												
FERC Order 841 – Requested Adjustment					Υ	Y							



Fall 2020 Release - System Interface Changes *Draft*

ADS

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
ADS Replacement	Madify	17. Instructions to include I learned AC Test information	Dv Mov 20, 2020	Jul 27. 2020	Oct 01, 2020
DOTTC	Modify	v7: Instructions to include Unannounced AS Test information	By May 29, 2020	Jul 27, 2020	Oct 01, 2020

DRRS

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
ESDER3B	Modify	DRRegistrationData xsd LSE for PDR Registrations	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
ESDER3B	New	Alternate API to only retrieve incremental data changes (Locations, Registrations)	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
ESDER3B		Retrieval of the complete location approval process workflow details (LSE & UDC)	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
ESDER3B		Retrieval of location records that are under the defense process	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
ESDER3B		Retrieval of the location defense process workflow details (Incumbent & Prospective DRPs)	By May 29, 2020	Jul 27, 2020	Oct 01, 2020



Fall 2020 Release - System Interface Changes *Draft*

MRI-S

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
Excess Behind the Meter Production	Modify	For: - MRIS Meter: Submit Meter & - MRIS Meter: Retrieve Meter additionally include EBtMP measurement type values (as negative load) both Gross Load and EBtMP meter data would associate with same Load Resource ID	By May 29, 2020	Jul 27, 2020	Jan 01, 2021

Master File

Project	Change Type	Summary	Technical Specifications	MAP Stage	Production Activation
ESDER3B		Add enumeration to GRDT web service	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
FERC841 Requested Adjustments		New GRDT attribute	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
EIM 2020		New GRDT attribute	By May 29, 2020	Jul 27, 2020	Oct 01, 2020
Other		Remove MIN_LOAD from GRDT	By May 29, 2020	Jul 27, 2020	Oct 01, 2020



Fall 2020 Release – BPM Impacts

	Market Instruments	Market Operations	Settlements & Billing	Definitions & Acronyms	Outage Manageme nt	Reliability Requireme nt	Metering	Credit Mgmt & Market Clearing	Energy Imbalance Market	Rules of Conduct Admin	Demand Response
ESDER Phase 3b - Load Shift Product	Υ	Υ			Υ	Υ	Υ	•			Υ
Dispatch Operating Target Tariff Clarification	Υ	Υ									
Intertie Deviation Settlement			Υ								
Excess Behind the Meter Production			Υ	Υ			Υ				
Market Settlement Timeline Transformati on	Υ		Υ	Υ		Υ	Υ	Y	Υ	Y	
EIM Enhancement s 2020	Υ										
ADS UI Replacement	Y	Υ									
FERC Order 841 – Requested Adjustment	Y		Y				Υ				



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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: New baseline methods for PDR-LSRs and EVSEs. New attribute for locations to indicate an energy storage (ES) device or Electric Vehicle Supply Equipment (EVSE). CIRA:
	 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, Metering and Demand Response
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	✓
	Post External BRS v1.5	Feb 14, 2020	✓
	Post External BRS v1.6	Mar 12, 2020	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications - DRRS	May 06, 2020	
	Publish Technical Specifications - MF	May 29, 2020	
Tariff	Post Draft Tariff	Apr 30, 2020	
	File Tariff	Jun 11, 2020	
BPMs	Post Draft BPM changes	Jun 26, 2020	
External Training	External Training	Jun 22, 2020	
Market Sim	Publish Structured Scenarios	May 29, 2020	
	MARKET SIMULATION	Jul 27, 2020 - Sep 04, 2020	
Production Activation	ESDER Phase 3b - DRRS	Sep 09, 2020	
	ESDER Phase 3b - Load Shift Product	Oct 01, 2020	



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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)	May 29, 2020	
Tariff	Draft Tariff	Sep 04, 2018	✓
	File Tariff	Oct 29, 2018	✓
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
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 ADS
BPM Changes	Settlements and Billing
Tariff Change	Section 11.32

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Feb 07, 2019	✓
External BRS	Post External BRS	Mar 02, 2020	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications	N/A	
Tariff	Tariff Activities	TBD	
BPMs	Post BPM Changes	TBD	
External Training	Deliver External Training	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Intertie Deviation Settlement	Oct 01, 2020	



Fall 2020 – Excess Behind the Meter Production

Project Info	Details/Date
	 Scope: Clarify the Tariff definition of Gross Load per amended tariff definition Establish how EBtMP will be submitted, reported, and settled Provide option for entities with meter agreements existing prior to ISO to submit EBtMP interval meter data Update definitions for Net Load and Unaccounted For Energy settlement calculations Publish EBtMP performance to market participants
	Impacted Systems: MRI-S - Meter submission • Allow SC to submit Gross Load and EBtMP under the single Resource ID • New EBtMP measurement type for interval meter data submission; existing Load measurement type interval meter data submission with represent new Gross Load tariff definition • Meter submission UI and API will accept the new EBtMP measurement type
Application Software Changes	OASIS Publish hourly aggregated EBtMP by TAC area once meter data submission deadline passes for settlement date Settlements Modify Net Load and UFE calculations to align with tariff amendments: NET LOAD = GROSS LOAD METER - EXCESS BTMPRODUCTION METER UFE QUANTITY = GENERATION METER + INTERTIE IMPORT METER - (NET LOAD METER + EXPORT INTERTIE METER + RTD LOSS MW) New Excess Behind the Meter Production (EBtMP) metered value bill determinant will be provided (similar to metered Load today) Modify follow charge codes to settle based on Gross Load (Reliability based charge codes, list may not be comprehensive - See updated Settlements Configuration Guides) 372 High Voltage Access Charge Allocation (UDC gross load) 383 Low 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



Fall 2020 – Excess Behind the Meter Production (cont.)

Project Info	Details/Date
Application Software Changes (cont.)	Impacted Systems: Settlements (continued);
BPM Changes	 Definitions & Acronyms: Update definition of Gross Load Add Excess Behind the Meter Production Metering Submission, retrieval of new measurement type (EBtMP) Settlements & Billing See Settlements Configuration Guide for changes
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 – Excess Behind the Meter Production (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 17, 2018	✓
External BRS	Publish Market Notice, External BRS to Release Planning	Feb 28, 2020	✓
	Prepare External BRS	Feb 28, 2020	✓
	Facilitate Legal and PMO review; obtain PMO approval	Feb 25, 2020	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Publish Technical Specifications	May 29, 2020	
Tariff	File Tariff	Oct 01, 2020	
	Tariff Stakeholder Walkthrough	Dec 04, 2019	✓
	Draft Tariff published	Nov 04, 2019	✓
BPMs	Post Draft BPM changes	Jul 15, 2020	
	Publish Final Business Practice Manuals	Aug 10, 2020	
External Training	Deliver external training webinar	Jul 21, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Excess Behind the Meter Production	Jan 01, 2021	



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 disputable statements in the Statement Disputed drop-down list will be updated to include the new statements per the MSTT. CAISO will continue to accept disputes from the date of statement publication through the dispute deadline, as prescribed by the tariff, and continue to calculate the Adjustment Publication Date based on the Correction Statement, as selected by the dispute analyst, and the Trade Date disputed. 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.



Fall 2020 – Market Settlement Timeline Transformation (cont.)

Project Info	Details/Date		
Application Software Changes (cont.)	Market Clearing: Updates needed to the deviation Interest calculations and credit calculation functions. Updates needed for invoice clearing and interest calculations. Check PTB publication timeline for any updates. Will impact the Extrapolation Component (one of 16 EAL Components) for Daily & Monthly Extrapolation and credit calculation. Recalculation Log: Post update recalculation log. Payment Calendar: Post the payment calendar to reflect overlap between existing and new timeline. OASIS: Data retention impact due to reducing from 36 months to 24 months. FERC 841 related data availability needs to be vetted.		
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	



Fall 2020 – Market Settlement Timeline Transformation (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 14, 2019	✓
External BRS	Post External BRS	Feb 06, 2020	✓
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	Draft Tariff	Jun 26, 2020	
BPMs	Post Draft BPM changes	Jul 20, 2020	
External Training	Deliver External Training	Jul 20, 2020	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	Market Settlement Timeline Deployment	Oct 01, 2020	
	Market Settlements Timeline Effective Trade Date	Jan 01, 2021	



Fall 2020 – EIM Enhancements 2020

Scope: Energy Imbalance Market Enhancements 2020, is to collectively address important issues identified	
participants through Customer Inquiry, Dispute and Information system (CIDI) requests to improve the and features in Energy Imbalance Market (EIM) Technology team and customer services review the 66 EIM enhancement requests by EIM entities a by ISO market operator. Combine each EIM entities submitted the priority list of 10 enhancements, I 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 RTD Dispatch Control Display (ETSR tab). Add Static ETSR transfer Dispatch Control Display (ETSR tab). Add Static ETSR transfer Dispatch Control Dispatch Instruction Review table, add columns for UF ramp capacity (5/15 minute respectively). In addition, include the sum of these columns at bottom Calculation: RTD UP Ramp = MIN(5MinRampRate, [UpperLim-CurrentDispatch]. Add Supplemental DOT to VER resources to Dispatch Control displays; Detail: In BAAOP RTD/R Control, add SUPP DOT column Fix the functionality for Manual Dispatches - users should be able to utilize MSG functions, such 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 bo Operator EIM Entities have a notification status of market inputs, showing if BAAOP received the latest pay inputs. Example Critical data submissions: (not all inclusive)	and 4 internal request ISO determine to ansfer data to BAAOP on flows and elements. P and DN remaining of table. Example RTPD Dispatch as designating a oth ISO and EIM



Fall 2020 – EIM Enhancements 2020 (cont.)

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



Fall 2020 – EIM Enhancements 2020 (cont.)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Mar 24, 2020	
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	TBD	
BPMs	Draft BPM changes	TBD	
	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	EIM Enhancements 2020	Oct 01, 2020	



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
BPM Changes	Market InstrumentsMarket 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	✓
ADS Demonstration	ADS WebEx Demonstration	Apr 16, 2020	
Config Guides	Design review - BPM and Tariff SMEs	N/A	
Tech Spec	Publish Technical Specifications	May 29, 2020	
Tariff	Tariff Activities	N/A	
BPMs	Post Draft BPM changes	TBD	
External Training	ADS demonstration	April 16 (3-4pm)	
	External training	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	
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Fall 2020 – FERC Order 841 –Requested Adjustments

Project Info

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.

CAISO responded to FERC with a subsequent compliance filing Jan 21. We requested a target implementation of these adjustments by Oct 1, 2020 (Fall Release)

Next steps:

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.



Fall 2020 – FERC Order 841 – FERC requested adjustments

Project Info	Details/Date
Application Software Changes	Master FileSettlements
BPM Changes	 Market Instruments Metering Settlements and Billing
Tariff Changes	 New Tariff Section 10.1.3.4 Updates to 4.6.11, 27.9, Appendix K

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Mar 31, 2020	
Config Guides	Post Draft Config Guides	May 29, 2020	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	Jan 21, 2020	✓
BPMs	Post Draft BPM changes	TBD	
	Publish Final Business Practice Manuals	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Jul 27, 2020 - Sep 04, 2020	
Production Activation	FERC 841 - Requested Adjustments	Oct 01, 2020	



2021 Spring Release



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 <u>www.caiso.com</u> 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...

Calendar of Meetings, Training and Events Month: February ✓ Year: 2018 ✓ Calendar View List View Print View February 2018 4 🕨 day today Mon Sun Tue Wed Thu Fri Sat **Market Sim** 20) WebCONF: O Deadline: Training: 🙎 Meeting: Training: Market Simulation Get to Know the ISO - Day 1 Comments -Audit Com mittee Settlements 201 Interconnection Process Teleconference (Executive) 2:00pm - 3:00pm 9:00am - 4:00pm En han cem ents 2018 - Is sue 9:00am - 4:00pm Paper and Meeting 8:30am - 9:30am Dis cus sion im balance Conformance Training: Enhance ments Settlements 101 Training: Get to Know the ISO - Day 2 10:00am - 12:00pm 9:00am - 4:00pm Neb CONF: Meeting: Meeting: 2017-2018 Transmission Te chnical User Group Planning Process Flexible Resource 10:00am - 11:00am Adequacy Criteria Must Offer Obligation Phase 2 -10:00am - 4:00pm Re vised Draft Flexible Market Sim Nabconf: Capacity Framework Market Simulation 10:00am - 4:00pm 2:00pm - 3:00pm ≜₀ V\b b CONF: Market Settlement User Group 10:00am - 11:00am 13 17 NVebCONF: Deadline: Deadline: Meeting: Participating Transmission Congestion Revenue Rights Submissions - April 2018 Comments - Review Owner Per Unit Cost Auction Efficiency Monthly Resource Transmission Access Release Users Group Guides Adequacy and Supply Plans Charge Structure Straw 10:00am - 4:00pm Proposal and Meeting 10:00am - 12:00pm Dis cus sion (RUG) Congestion Revenue Rights MODEONE: 20 VVebCONF: Release User Group Market Simulation Board of Governors 11:00am - 11:20am 10:00am - 11:00am Teleconference (General) Nabconf: 2:00pm - 3:00pm Outage Management 8:16am - 9:00am Energy imbalance Market System Customer Governing Body Partnership Group Teleconference (Executive) Board of Governors 2:00pm - 3:00pm Teleconference (Executive) 11:30am - 12:20pm 9:00am - 10:00am Call: Market Update 10:16am - 11:00am Mabconf: Market Simulation

