

Release User Group Agenda

January 26, 2021

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.	1-844-517-1271 US Toll Free +1-682-268-6591 US Toll Access code: 960 941 245

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 26, 2021

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 Janet Morris Jeremy Malekos



The ISO offers innovative training programs

Date	Training courses and workshops
March 2-3, 2021 (9am – 12pm)	Intro to ISO Markets (Virtual Workshop)
March 9-10, 2021 (9am – 12pm)	Market Transactions (Virtual Workshop)
March 16-17, 2021 (9am – 12pm)	ISO Settlements (Virtual Workshop)
	Email us at CustomerReadiness@caiso.com for any training or readiness related questions



You can now find the following new initiatives training courses on the learning center web page:

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ADS Training Part 1 & 2	RC Settlements
DOT Tariff Clarification	• FERC 841
Excess Behind the Meter Production	Market Settlements Timeline Transformation
Flexible Ramping Product Refinements	Intertie Deviation Settlement



CustomerReadiness@caiso.com

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 and more!

Visit our **Learning Center** web page to access our training calendar, register for courses and find other informational resources:

http://www.caiso.com/particip ate/Pages/LearningCenter/de fault.aspx



Release Plan Summary: 2020 - 2021

Independent 2020 - Wrap-up

Activation – Jan 2021

Commitment Costs and Default Energy Bid Enhancements Phase 1 - Jan 28

Activation - Feb 2021

- ADS Decommission of Delphi Client, API v6 Feb 1
- Intertie Deviation Settlement Feb 1
- EIM Enhancements Symmetrical Wheeling Feb 1
- Energy Imbalance Market (EIM) Enhancements 2020 Feb 1

Independent 2021

- AIM Enhancements Feb 2
- Aliso Canyon Phase 5
- ADS new features: Unannounced AS Test, RTCD Commitment
- CIRA Enhancements
- EIM Enhancements 2021 Phase 1 Spring
- Base Schedule Submission Deadline Phase 1 Spring
- Real-Time Settlement Review Phase 1 Spring
- Market Enhancements for Summer 2021 Readiness Pre-Summer
- FERC Order 831 Import Bidding and Market Parameters Pre-Summer
- System Market Power Mitigation Phase 1 Pre-Summer
- Pseudo Ties for Shared Resources (JOU Modeling) No system changes



Release Plan Summary: 2021 - 2022

Spring 2021

- Energy Imbalance Market (EIM) 2021 BANC Ph 2/WAPA
- Energy Imbalance Market (EIM) 2021 Turlock Irrigation District
- 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

Fall 2021

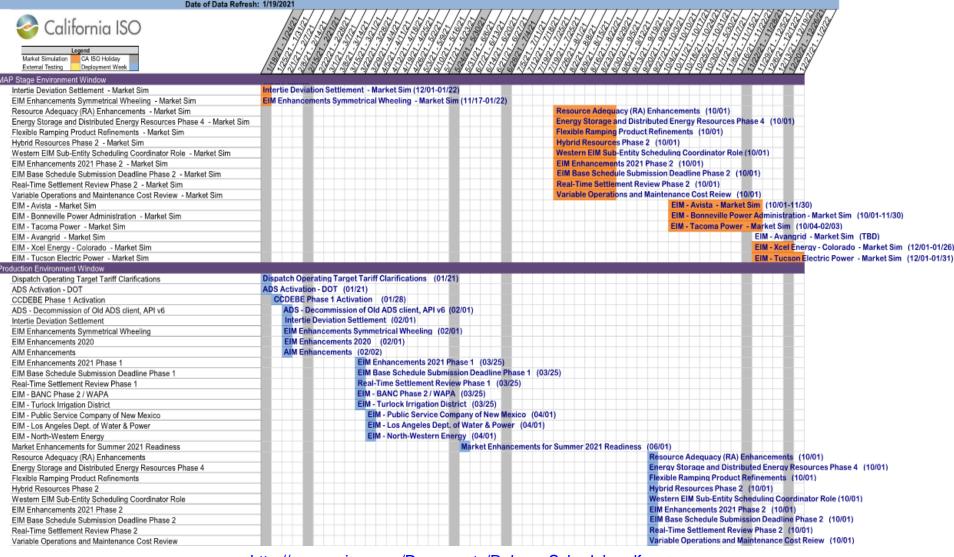
- Resource Adequacy (RA) Enhancements
- Energy Storage and Distributed Energy Resources Phase 4
- Flexible Ramping Product Refinements
- Hybrid Resources Phase 2
- Western EIM Sub-Entity Scheduling Coordinator Role
- EIM Enhancements 2021 Phase 2
- EIM Base Schedule Submission Deadline Phase 2
- Real-Time Settlement Review Phase 2
- Variable Operations and Maintenance Cost Review

Spring 2022

- Energy Imbalance Market (EIM) 2022 Avista
- Energy Imbalance Market (EIM) 2022 Bonneville Power Administration
- Energy Imbalance Market (EIM) 2022 Tacoma Power
- Energy Imbalance Market (EIM) 2022 Avangrid
- Energy Imbalance Market (EIM) 2022 Xcel Energy Colorado
- Energy Imbalance Market (EIM) 2022 Tucson Electric Power



Release Schedule 2021



http://www.caiso.com/Documents/ReleaseSchedule.pdf
California ISO
ISO PUBLIC

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

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 External BRS v1.5: implementation notes & clarifications (BRQ046, BRQ035/335), Generic Hub GPI update Revised BRS v1.6: added clarifications and notes	Sep 03, 2019 Sept 14, 2020	✓
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	Collect stakeholder comments	Feb 21, 2020	✓
	Draft tariff conference call with stakeholders	Feb 27, 2020	✓
	Stakeholder call to review CCDEBE draft tariff re-filing	May 20, 2020	✓
	Publish updated draft tariff (reflecting 20-May feedback)	Jun 05, 2020	✓
	Refile CCDEBE tariff	Jul 09, 2020	✓
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	✓
	Market Sim Window – New SIBR rules	Dec 3, 2020 – Dec 18, 2020	✓
Production Activation	CCDEBE Phase 1	Jan 28, 2021	



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2020 – ADS Replacement

Project Info		Details/Date	
 Transition to web-based user interface to eliminate the need to install thick of the Access and Identity Management (AIM) a including Resource Level Access Controls (RACL) access The query tool will not change in requesting historical data Various user interface enhancements adding content per Operation's requesting ADS B2B services changes 		(AIM) application	
BPM Changes		Market InstrumentsMarket Operations	
Milestone Type	Milesto	one Name Dates	Status
Board Approval	Obtain I	Board of Governors Approval N/A	
External BRS	Post Ex	ternal BRS Aug 06, 2018	✓
ADS Update	ADS Up	odate Meeting Aug 15, 2018	✓
ADS Demonstration		ebEx Demonstration Apr 16, 2020	✓
CPG Meeting	ADS CF	PG Meeting Jul 09, 2020	✓
Config Guides	Design	review - BPM and Tariff SMEs N/A	
Tech Spec	Publish	Technical Specifications May 22, 2020	✓
Tariff	Tariff Ad	ctivities N/A	
BPMs		aft BPM changes Jul 27, 2020	✓
External Training	Provisio	oning ADS ACL Training Jun 01, 2020	✓
	Externa	I Training Part 1 (Application Preview preparation) Jun 11, 2020	✓
	Deliver	External Training Part 2 Jul 16, 2020	✓
Market Sim	Market	Sim Window Jul 27, 2020 - S	•
Parallel Operations	ADS Pa	arallel Operations Sep 1, 2020 – C	Oct 16, 2020
Production Activation	ADS Re	eplacement Oct 20, 2020 - 0	Oct 21, 2020
Add'l features	DOTT	Jan 21, 2021	✓
	A.C. Tool	t, RTCD Commitment TBD	

Old ADS Decommission - Delphi Client, API v6



Decommission

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Feb 01, 2021

ADS Decommission of Delphi Client, API v6 & Legacy URLs

- √ 10/20: ADS Phase 1: Network
- √ 10/20: ADS Phase 2: New ADS UI, API v8 available
- √ 10/30: Close Stage, End Parallel Operations
 - MAP-Stage remains available with active features from now on
- √ 1/11/21: ADS Decommission Dry Run
- √ 1/21/21: Activation of New Feature: DOTT; 10AM PT
- > 2/1/21: ADS Final Decommission of Old ADS client, API v6
- TBD at a later date: Decommission of legacy URLs
 - These URLs will no longer be available as of a future date that will be communicated at a later date
 - https://adssta.caiso.com:447
 - https://ads.caiso.com:447
 - https://adssta.ecn.wepex.net:447
 - https://ads.ecn.wepex.net:447
 - https://adsws.prod.caiso.com:447
 - https://adsws.prod.ecn.wepex.net:447

Activation of New Features

- Only available on New ADS UI, API v8
 - ✓ DOTT 1/21/21; 10AM PM
 - AS Test TBD
 - RTCD Commitment TBD



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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 - display the HASP schedule, the scheduling coordinator accepted value, and the difference between the two RTM - determine the 15-minute binding award for hourly intertie resources based on the E-Tag at T-40.
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 Revised Config Guides	Aug 10, 2020	✓
Tech Spec	Publish Technical Specifications	N/A	
Tariff	Tariff Activities	May 22, 2020	✓
BPMs	Settlements and Billing Market Operations	Aug 10, 2020	✓
External Training	Deliver External Training	Sep 29, 2020	✓
Market Sim	Market Sim Window	Dec 1, 2020 – Jan 22, 2021	✓
Production Activation	Intertie Deviation Settlement	Feb 1, 2021	

2020 - EIM Enhancements - Symmetrical Wheeling

Project Info	Details/Date
	Scope : This project will allow EIM to settle Base ETSR attributes to support Base ETSR Imbalance Energy settlements between two EIM BAAs at a mutually agreed price. The enhancement is for base ETSR price setting to result in symmetrical settlement of wheeling through EIM BAAs enhancement.
Application Software Changes	RTM: Update LMP price setting for Base ETSRs to be associated with From BAA of the Base ETSRs and retire split ratio price setting
	MasterFile: Retire the definition of the Base ETSR split ratio and From/To financial location.
	Settlements : Update formulation of Base ETSR export/import in Real Time Congestion Offset EIM and Real Time Marginal Losses
BPM Changes	Energy Imbalance Market (EIM)
Tariff Changes	• N/A

Milestone Type	Milestone Name	Dates	Status
External BRS	Post External BRS	Oct 2, 2020	✓
Config Guides	Post Draft Config Guides	Sep 29, 2020	✓
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	N/A	
External Training	Deliver External Training (EIM Settlements webinar)	Dec 15, 2020	✓
Market Sim	Market Sim Window	Nov 17, 2020 – Jan 22, 2021	✓
Production Activation	EIM Enhancements Symmetrical Wheeling	Feb 1, 2021	



2020 - EIM Enhancements 2020

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Mar 24, 2020	✓
Tech Spec	Create ISO Interface Spec (Tech spec) CMRI tech spec 1. MW Infeasibility Report 2. Load Conforming Report 3. Available Balance Capacity (ABC) Up and Down Dispatch Report by Resource 4. Advisory Load Conforming Report	May 29, 2020 May 29, 2020 Jul 1, 2020 Aug 5, 2020	✓ ✓ ✓
Tariff	File Tariff	N/A	
BPMs	Draft BPM changes - Market Instruments – PRR 1281	Aug 31, 2020	✓
External Training	Deliver External Training – coordinate via customer readiness EIM ops mtg	Aug 31, 2020 – Oct 22, 2020	✓
Market Sim	Market Sim Window - unstructured CMRI	Dec 15, 2020 – Jan 15, 2021	✓
Production Activation	EIM Enhancements 2020	Feb 1, 2021	



2021 Independent



2021 – Aliso Canyon Ph5

Project Info	Details/Date
	Scope : This project will consider enhancements to the existing Dynamic Competitive Path Assessment (DCPA) and Gas Nomogram capabilities currently in production.
Application Software Changes	IFM/RTN: Formulate and solve the linear programming problem for maximizing the Residual Supplier Index (RSI) for each binding constraint that DCPA is applied. SMDM: Enhance the User Interface to include "All Markets" when the user is defining "Market" within the Curtailment to Process section. SMDM: Creation of error message if the RT curtail type "incremental" or "absolute" are used and total curtailment is left null.
BPM Changes	Managing Full Network ModelMarket Operations
Tariff Changes	• N/A

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval - NO BOG Needed	N/A	
External BRS	Post External BRS	May 05, 2020	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Publish Technical Specifications	N/A	
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	Jul 17, 2020	✓
External Training	Deliver External Training	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Aliso Canyon Phase 5	TBD	



CIRA Enhancements

	CIRA Enhancements	MAP- Stage	Productio n
1	LSE IDs from Master File		
2	CIRA Flex RA-Upload Screen & Flex Capacity Survey layer changes		
3	CIRA Acquired Resource (Phase 1)		
4	CIRA – Add SC Contact Info	Jan 2021	
5	Publish NQC data to OASIS - this report will move from public website to a new report in OASIS	Jaii 202 i	
	(upcoming OASIS tech spec)		
6	Publish CPM to OASIS - this report will move from public website to a new report in OASIS		
	(upcoming OASIS tech spec)		

- OASIS tech spec published January 14 with TUG review January 19
- Training re: provisioning changes for the new CIRA LSE IDs were discussed during the AIM Enhancements training for UAAs January
 21
- Customer training for these enhancements is scheduled for February 9, tentative, will confirm via market notice
- The enhancements will be available in MAP-Stage prior to Production
- For item 1, CIRA will cease to use the LSEID list in CIRA and will use the list in Masterfile and this will require provisioning changes to prevent loss of access to CIRA
 - ISO will contact impacted organization's UAAs to reprovision to the new IDs to retain access to CIRA
 - ISO will validate that the organizations have been reprovisioned prior to go-live to prevent loss of access to CIRA
 - Please work with your UAA to Provision your LSEID for following roles:
 - EXTERNAL RA READ-ONLY
 - EXTERNAL RA READ-WRITE
 - The re-provisioning of the LSEID access to these roles are needed to retain access to see the data in several CIRA reports such as
 - RA Plan Upload/download
 - Generic Obligation Report
 - Flex Obligation Report



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2021 - EIM Enhancements 2021 Phase 1

Project Information	Details/Date
High Level Business Problem or Need	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)
High Level Project Scope	 ITC and ETSR data sharing among the related EIM Entities ITC Limits report and sharing among the related EIM Entities
BPM Changes	 EIM Market Instruments
Tariff Change	N/A

System	High Level Changes
MF	Define ITC, ETSR association with EIM entities SC
	For the EIM entities that share the same path, associate the EIM entity SC with ETSR resources
	For the EIM entities that share the same path, associate the EIM entity SC with ITC
RTIM/BAAOP	Receive association ETSR/ITC with EIM entities
	Allow the associated EIM entities to view the ITC and associated ETSR
	 Add New UI ITC detail display in BAAOP, a table of all internal BAA ITCs and shared/global ITCs which should include the ITC name, import limit, export limit, net flow (cleared value).
	 Each ITC should have a sub-table displaying each resource included in the ITC with a calculation row with the sum of each data column for the market horizon for RTPD and RTD
	Ensure no impact on existing function and UI
CMRI	Receive association ITC with EIM entities
	Allow the associated EIM entities to view the ITC limits report through ACL
	Receive the ITC/TCOR/PTST limits from market
	Create ITC/TCOR limit reports, UI/API
RTM/Integration	Publish ITC/TCOR limits



2021 – EIM Enhancements 2021 Phase 1 (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Milestone: Post External BRS	Jan 29, 2021	
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	N/A	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Mar 01, 2021 - Mar 19, 2021	
Production Activation	EIM Enhancements Spring 2021	Apr 01, 2021	



2021 - Base Schedule Submission Deadline Phase 1

Project Information	Details/Date	
High Level Business Problem or Need	 Provide EIM Scheduling Coordinators with additional flexibility to submit more accurate base schedules closer to the operating hour. Update tariff rules and market systems to allow EIM Entities to submit base schedules with energy below a resource's minimum load. Allow CAISO and EIM Entities to more accurately capture the startup energy of large conventional resources within their Resource Sufficiency Evaluations (RSE), thus increasing their ability to pass the RSE while lowering their exposure to uninstructed imbalance energy settlement. *across Phase 1 & 2 Phase 1: Inclusion of startup energy below a resource's minimum load: Include startup energy in an EIM base schedule Include startup energy in the resource sufficiency evaluation (RSE) Reduction of imbalance energy settlement Phase 2, Fall 2021: Updates to the base schedule submission timeline Move market closing for the final binding EIM base schedule submissions from T-40 to T-30 - oAdding additional RSE at T-40 	
High Level Project Scope		
BPM Changes	EIM Market Instruments Market Operations Settlements *across Phase 1 & 2	
Tariff Change	11.8.6.3 BCR Settlement 29.11 Startup Energy Settlement 29.34 Base Schedules below Pmin and Submission Timeline Adjustment *across Phase 1 & 2	
Impacted Systems	Phase 1: RTM, Settlements, BSAP, RCBSAP, CMRI Phase 2, Fall 2021: RTM, BSAP, ITS, CMRI	



2021 - Base Schedule Submission Deadline Phase 1 (cont'd)

System	High Level Changes
RTM	Phase 1: Include startup energy in balancing test only for EIM entities EIM RSE to include energy below minimum load (startup energy) would only be on the balancing test Startup energy will not be included as part of CAISO's RSE Phase 2, Fall 2021: Shorten the run time of the current T-37.5 RTPD interval Move start time to after T-30 Result publication remains at T-22.5 Final RSE will begin following T-30 deadline Add additional RSE test
Settlements	 Phase 1: Settlements will treat startup energy as part of a EIM base schedule (not paid/charged for energy) Deviations from the base schedule to be settled as uninstructed imbalance energy (UIE) The intervals where BASE Schedules reflect Start Up Energy, should be considered self-committed startups Startup energy will not be included as part of CAISO's RSE Update calculation for Bid Cost Recovery (BCR) transfer amounts (if this initiative precedes Real-Time Settlements initiative then requirements will be taken from Real-Time Settlement initiative for the BCR calculation)
BSAP	 Phase 1: Modify the logic of the BSAP to allow for startup energy to be submitted as part of an EIM entity's base schedule EIM base schedules to include a resources entire energy output, including portions below minimum load Phase 2, Fall 2021: Send base schedule to market at T-30
RCBSAP	Phase 1: Modify the logic of the RCBSAP to allow for startup energy to be submitted as part of an EIM entity's base schedule
ITS	 Phase 2, Fall 2021: ITS will need to adjust the timing of RTPD publication checks and adjustments to account for the RTPD change from T-37.5 RTPD to T-30 RTPD 5 run will be decreased to around five and a half minutes RTPD 5 run will be considered late at T-22.5 RTPD 4 should start at T-21.5 Payload times need to be adjusted
CMRI	Phase 1: Leverage existing EIM Base Schedule report in CMRI Base schedule energy below Pmin reflected Phase 2, Fall 2021: Additional payload consumed at T-30 for test results Receive results from RTPD 5 run by T-22.5



2021 - Base Schedule Submission Deadline Phase 1 (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Dec 15, 2020	✓
External BRS	Milestone: Post External BRS	Jan 15, 2021	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	TBD	
Tariff	File Tariff	Jan 27, 2021	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	TBD	
Market Sim	Market Sim Window	Mar 01, 2021 - Mar 19, 2021	
Production Activation	EIM Base Schedule Submission Deadline Phase 1	Apr 01, 2021	



2021 - Real-Time Settlement Review Phase 1

Project Information	Details/Date		
High Level Business Problem or Need	The scope of this initiative is to identify and address any inappropriate cost shifting that may be occurring in ISO's real-time market between the Western Energy Imbalance Market (EIM) balancing authority areas. *across Phase 1 & 2		
High Level Project Scope	 Phase 1: Eliminate the option for EIM entities to settle their base ETSR schedule deviations bilaterally. Deviations will be settled through the CAISO market at scheduling point intertie prices at a unique pricing location (LMP) Calculation changes for real-time bid cost recovery (BCR) uplift costs for EIM transfers. Allocate real-time BCR uplift costs to load and exports. Phase 2, Fall 2021: Allow EIM entities using a load derivation approach the option to not settle unaccounted for energy (UFE). 		
Impacted Systems	Master File, BSAP, Settlements *across Phase 1 & 2		

System	High Level Changes
System	*across Phase 1 & 2
Master File	 Establish base energy transfer system resources (ETSR) at a transfer location between EIM BAAs and default the Settlement Flag = Y
Base Schedule Aggregation Portal (BSAP)	Set transmission loss percentage to zero for calculating the hourly load base schedule for EIM entities the elect not to settle UFE.
Cattlemente	 Configuration changes for unaccounted for energy (UFE) – CAISO to exclude EIM entities that elect to not settle UFE from calculation of UFE amount.
Settlements	 Configuration changes for Bid Cost Recovery (BCR) – CAISO to update EIM RT BCR Uplift formula to remove uninstructed imbalance energy (UIE) and unaccounted for energy (UFE) and replace with Load and Exports.



2021 – Real-Time Settlement Review Phase 1 (cont'd)

Milestone Type	Milestone Name	Dates	Status
External BRS	Milestone: Post External BRS	Jan 21, 2021	✓
Config Guides	Post Draft Config Guides	Jan 19, 2021	✓
Market Sim	Market Sim Window	Mar 01, 2021 - Mar 19, 2021	
Production Activation	EIM Base Schedule Submission Deadline Spring	Apr 01, 2021	



2021 - Market Enhancements for Summer 2021 Readiness

Initiative definition in the policy process at caiso.com Stay Informed > Stakeholder Initiatives Market enhancements for summer 2021 readiness

Project Information	Details/Date
High Level Business Problem or Need	
High Level Project Scope	
Impacted Systems	

System	High Level Changes



2021 - FERC Order 831 - Import Bidding and Market Parameters

Project Information	Details/Date
High Level Business Problem or Need	 The CAISO submitted its proposed tariff changes to comply with FERC Order No. 831 in September 2019. In its proposed tariff changes, the CAISO did not submit a separate filing requesting authority to cost-verify or price screen import bids above \$1,000/MWh. However, the CAISO decided to further address this topic in this initiative because of the CAISO balancing authority area's increasing dependence on imports. In addition, a number of stakeholders objected to the CAISO's proposal in the compliance filing to continue to set the power balance constraint penalty price at the hard energy bid cap, which under Order No. 831 increases from \$1,000/MWh to \$2,000/MWh. This would result in market prices being set to \$2,000/MWh if the market has to relax the power balance constraint. Consequently, this initiative also addresses this topic
High Level Project Scope	 The FERC 831 Import Bidding and Market Parameters project focuses on process and system modifications related to CAISO's Federal Energy Regulatory Commission (FERC) Order No. 831 compliance filing. In its compliance filing, CAISO revised the tariff to raise the energy bid cap from \$1,000/MWh to \$2,000/MWh. CAISO also revised the tariff to require suppliers within the CAISO balancing authority area (BAA), that submit energy bids above \$1,000/MWh, to base bids on verifiable actual or expected costs. The CAISO's associated policy initiative objective is to ensure all supply bids priced above \$1,000/MWh represent verified costs, when supply is needed to meet the ISO's load responsibility. The FERC 831 project addresses two topics related to the changes CAISO proposed: The "penalty prices" at which CAISO markets will relax market constraints under the increased energy bid cap. A methodology to establish market constraint relaxation penalty prices under a \$2,000/MWh hard energy bid cap. A price-screening methodology for import bids greater than \$1,000/MWh.
BPM Changes	Market Instruments, Market Operations, Definitions & Acronyms
Tariff Change	Section 30, Section 27.4.3, 27.4.3.1 thru .5, Appendix C Part B; There will be a market notice 1/25 for updates.
Impacted Systems	IFM/RTM, SIBR, Master File, OASIS
System	High Level Changes
Master File	 Store the Constraint Relaxation threshold values provided by the market validation team. Note: The threshold value is one value for the entire year per BAA Make the threshold values available to the market system and OASIS
SIBR	 Receive the max import bid price for both DA and RT market Rule change: For an import bid of non-resource specific RA resource, the System shall limit the resource to the higher of the soft bid cap or the max import bid price. Rule change: When the maximum import bid price is greater than \$1000/MWh, or a cost verified resource bid is greater than \$1000/MWh, the System shall allow a non-resource specific non-RA import and virtual bids to bid up to the hard energy bid cap price.



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2021 – FERC Order 831 - Import Bidding and Market Parameters (cont'd)

Milestone Type	Milestone Name	Dates	Status
External BRS	Milestone: Post External BRS	Dec 21, 2020	✓
Production Activation	FERC Order 831 - Import Bidding and Market Parameters	Mar 21, 2021 Jun 15, 2021	



2021 - System Market Power Mitigation - Phase 1

Project Information	Details/Date
High Level Business Problem or Need	Provide effective measures against the exercise of market power
High Level Project Scope	 Implementing system-level mitigation in the real-time market Determining the circumstances in which the market power mitigation process will consider the CAISO balancing authority area to be import constrained or whether import constraints must be binding to apply mitigation Considering the appropriate quantities of supply included in calculating the residual supply index used for system-level market power mitigation measures Calculating the competitive LMP when the CAISO balancing authority area fails the system-level market power mitigation test Considering whether system-level market power mitigation applies to energy offers for resources within the CAISO balancing authority area.
BPM Changes	Definitions & Acronyms, Market Instruments, Market Operations
Tariff Change	Section 30.5.7, Potentially Section 39.7
Impacted Systems	MRI-Settlements, RTM
System	High Level Changes
	 HASP Receives input data and evaluates whether the system-level pivotal supplier test should be triggered for any of the HASP 15-minute
RTM	 Receives input data and evaluates whether the system-level pivotal supplier test should be triggered for any of the PIASP 13-finitite binding intervals Perform the three-pivotal supplier test if it is triggered, including: Calculate withheld capacity per EIM entity Scheduling Coordinator (SC) affiliate group Use withheld capacity to rank the top three potentially pivotal suppliers Calculate the Residual Supply Index (RSI) and respond accordingly RTPD/RTD/STUC Receive the fixed mitigated bid sets from SMPM and use them appropriately, or identifying other bids to use if SMPM bid sets are not present RTM Display the SMPM results in a similar fashion as the LMPM display within the Market UI



2021 – Pseudo Ties for Shared Resources (JOU Modeling)

Project Information	Details/Date
High Level Business Problem or Need	This project enables pseudo-ties with resources located outside of the CAISO BAA (that are shared with entities in the host BAA) to serve load in its native BAA.
High Level Project Scope	 Proposes limited tariff change to enable the pseudo-ties to serve load in its native BAA Anticipated requirements for pseudo-ties of shared resources: A Logical Metering SQMD Plan currently required by the CAISO tariff for SC Metered Entities. A Shared Resource Allocation Protocol (SRAP) includes establishing the shared pseudo-tie's operating characteristics, commitment costs, BCR for associated SUC and MLC, outage coordination, and other aspects of coordination when there are multiple SCs bidding in the CAISO markets.
BPM Changes	Direct Telemetry, Energy Imbalance Market (EIM), Market Instruments, Market Operations, Metering, Outage Management, Settlements and Billing
Tariff Change	Appendix N - Pseudo-Tie Protocol
Impacted Systems	N/A



2021 Spring Release



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

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

		Dates					
Milestone Type	Milestone Name	BANC Phase 2	TID	PNM	LADWP	NWE	Status
Market Sim	Market Sim Window	11/3/20 - 1/31/21	11/3/20 - 1/31/21	11/3/20 - 1/31/21	11/3/20 - 1/31/21	12/1/20 - 1/31/21	
Parallel Operations	Parallel Operations	1/27/21 – 3/25/21	1/27/21 – 3/25/21	1/30/20 — 4/1/21	1/30/20 – 4/1/21	1/30/20 — 4/1/21	
Tariff	File Readiness Certification	Mar 2021					
Production	Activation	3/25/21	3/25/21	4/1/21	4/1/21	4/1/21	



2021 Fall Release



Fall 2021 Release - Overview

	BOG	BRS	Config Guide	Tech Spec	Mkt Sim Scenarios	Draft Tariff	Draft BPMs	Training	Market Sim	Production Activation
Fall 2020 Release		04/01/21	05/28/21	05/28/21	05/25/21	06/26/21	07/19/21	07/19/21	Jul 26, 2021 - Sep 3, 2021	10/01/21
Resource Adequacy (RA) Enhancements Phase 1	Feb 2021								Jul 26, 2021 - Sep 3, 2021	10/01/21
ESDER Phase 4	9/30/20	02/01/21							Jul 26, 2021 - Sep 3, 2021	10/01/21
Flexible Ramping Product Refinements	9/30/20	02/01/21							Jul 26, 2021 - Sep 3, 2021	10/01/21
Hybrid Resources Phase 2	11/18/20	03/01/21							Jul 26, 2021 - Sep 3, 2021	10/01/21
Western EIM Sub-Entity Scheduling Coordinator Role	5/20/21								Jul 26, 2021 - Sep 3, 2021	10/01/21
EIM Enhancements 2021 – Phase 2	N/A	03/01/21							Jul 26, 2021 - Sep 3, 2021	10/01/21
EIM Base Schedule Submission Deadline - Phase 2	12/17/20	01/15/21							Jul 26, 2021 - Sep 3, 2021	10/01/21
Real-Time Settlement Review Phase 2	12/17/20	01/21/21							Jul 26, 2021 - Sep 3, 2021	10/01/21
Variable O&M CR									Jul 26, 2021 - Sep 3, 2021	10/01/21



Fall 2021 – Variable Operations & Maintenance Cost Review

Project Information	Details/Date
High Level Business Problem or Need	This project proposes to change the structure of how operations and maintenance (O&M) costs are estimated for use in the CAISO markets. This project is composed of three scope items
High Level Project Scope	Scope 1: Defining the O&M cost components, including how to differentiate between fixed and variable O&M costs Scope 2: Redefining the VOM adder as only a variable operations (VO) adder Scope 3: Allow market participants to bid in <i>all</i> of their variable maintenance costs through a new default maintenance adder in lieu of the current MMA.
BPM Changes	Market Instruments
Tariff Change	39.7.1.1.2
Impacted Systems	SIBR, Master File, Settlements



Fall 2021 – Variable Operations & Maintenance Cost Review (cont'd)

System	High Level Changes
Settlements	Scope 1: Potential charge code impacts due to RMR contracts. Policy is in the process of accessing these impacts and will have an update by the time of the Draft Final Proposal publication.
Scheduling Infrastructure Business Rules (SIBR)	Scope 3: SIBR will receive the Maintenance Adder (MA) from Master File. System must be enhanced to perform an automated calculation for a resource specific maintenance adder (<i>RSMA</i> = <i>Default MA</i> * <i>Resource's Pmax</i>), if the resource has elected for the default MA. If the resource has elected for a negotiated MA, the value can be used directly without the need to multiply with the Pmax. Potential performance impact due to the number of resources applying for default maintenance adder (10x as many hydro resources as today and 2x as many gas resources as today). SIBR rules will need to be updated to reflect the latest terminology: Major Maintenance Adder to new term "Default Maintenance Adder".
Master File	Scope 2: Default Variable Operations (VO) Adder and Maintenance Adder (MA) will be stored against the technology type. Two new data sets must be stored:
	-Default VO Adder to Technology Type Mapping – new
	- Default MA to Technology type mapping – new
	Two new flags will need to be added at the resource/configuration level:
	o Default or Negotiated VO Adder (naming change: VO adder replaces the O&M adder)
	o Default or Negotiated Maintenance adder (new)
	Two new columns to store the VO adder and MA adder at the resource/configuration level. Depending on whether the resource/configuration has selected default or negotiated, one of these values will be displaced in these new columns for both adders.
	The two new flags and the two new adder values must be visible within the Resource Data Template (RDT).
	The current database table that is based on technology type needs to be updated with the latest values outlined within the Revised Straw Proposal policy paper. Additional technology types may need to be added.
	Scope 3: Only the final calculated default Maintenance Adder (MA) will be stored against the technology type (can either be in \$/run-hour or \$/start-up).



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 Proposal and Meeting 10:00am - 4:00pm 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

