Release User Group Agenda

April 4, 2023 *10:00 a.m.–11:00 a.m.* *(Pacific Time)*

Web Conference Information	Conference Call Information
Web Address: https://caiso.webex.com/caiso/j.php?MTID=m8f4dee2c7059898b3609c46be3cd2c20 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.	*1-844-621-3956 United States Toll Free* *+1-650-479-3208 United States Toll* *Meeting number (access code): 2491 042 7352*
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.	
https://www.caiso.com/informed/Pages/MeetingsEvents/UserGroupsRecurringMeetings/Default.aspx#RUG	
http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx	

ISO Training Schedule

Training Course	Date and time
ISO Workshop: Introduction to ISO Markets	August 8 and 9 9am – 12pm PPT
ISO Workshop: Market Transactions	August 15 and 16 9am – 12pm PPT
ISO Workshop: ISO Settlements	August 22 and 23 9am – 12pm PPT

Are you looking for more training?

The ISO Learning Center has computer based training available for lots of topics. Check out the Learning Center: http://www.caiso.com/participate/Pages/LearningCenter/default.aspx

Release Plan Summary

WEIM Spring 2023 Release

- WEIM 2023 – Avangrid
- WEIM 2023 – El Paso Electric
- WEIM 2023 – WAPA Desert Southwest Region

Summer 2023 Release

- Energy Storage Enhancements Track 1
- WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 1
- Hybrid Resources Phase 2C – Settlements

Fall 2023 Release

- Energy Storage Enhancements Track 2
- WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 2
- WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 3

Independent 2023 Releases

- WEIM Enhancements: ETSR UI; April 2023
- WEIM Enhancements: Shared Ramping Constraint
- Ancillary Service State of Charge Constraint
- Washington WEIM Greenhouse Gas Enhancements
- Hybrid Resources Phase 2C – RIMS

Future Release – Tentative, under further assessment

- Transmission Service & Market Scheduling Priorities Phase 2
- Day-Ahead Market Enhancements
- Extended Day-Ahead Market
- Congestion Revenue Rights System Upgrade

WEIM Spring 2023 Release

WEIM Spring 2023 – WEIM integrations for Avangrid, El Paso Electric, and WAPA Desert Southwest Region

Project Info	Details/Date
Application Software Changes	System modifications as needed to accommodate any unique Avangrid, El Paso Electric, and WAPA Desert Southwest Region needs to support their WEIM onboarding.
BPM Changes	WEIM BPM will be updated if needed to reflect changes identified during the onboarding and as required to reflect the unique processes of Avangrid, El Paso Electric, and WAPA Desert Southwest Region.
Market Simulation	December 2022 thru January 2023
Parallel Operations	February 2023 thru March 2023

Milestone Type	Milestone Name	Dates		
		Avangrid	El Paso Electric	WAPA Desert Southwest Region
Market Sim	Market Sim Window	✓ Dec 2022 thru Jan 2023		
Parallel Operations	Parallel Operations	✓ Feb 2023 thru Mar 2023		
Tariff	File Readiness Certification	✓ Mar 3, 2023		
Production	Activation	Apr 5, 2023		

Summer 2023 Release

Summer 2023 Release Overview

Project	BOG	Tariff	BRS	Settlements CG	Settlements Effective Date	Technical Specifications	Market Simulation Scenarios	Market Simulation	Production Activation
Energy Storage Enhancements Track 1	Approved 12/14/22	• Draft 02/10/23 • **Revised DTL 03/15/23** • **File Mar 2023**	• 02/08/23 • **03/29/23 1.4**	NA (Settlements is in Track 2 Fall 2023)	NA (Settlements is in Track 2 Fall 2023)	NA	NA	May 2023	06/01/23
WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 1	Approved 12/14/22	• Revised 12/12/22 • **Final Revised DTL 03/07/23** • **Revised Final DTL 03/21/23** • **File Mar 2023**	• 02/10/23 • 03/31/23 1.1	• 02/17/23: Tech Doc • 03/15/23: 1st Draft CG • 04/26/23: 2nd DCG • 05/31/23: Deploy	1st of the month; new CCs	04/05/23: OASIS, CMRI	04/05/23	May 2023	06/01/23
Hybrid Resources Phase 2C - Settlements			• 01/31/23	• 02/17/23: Tech Doc • 03/15/23: 1st Draft CG • 04/26/23: 2nd DCG • 05/31/23: Deploy	1st of the month	NA	04/05/23	May 2023	06/01/23

Summer 2023 Release Overview – System Impacts

Project	CMRI	Master File	MF RDT	OASIS	Settlements	Market	SIBR
Energy Storage Enhancements Track 1						X	X
WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 1	X*	X		X*	X	X	
Hybrid Resources2C - Settlements					X		

X* = Technical Specifications

Summer 2023 Release Overview – System Interface Changes

System	Project	UI	API	Data	Tech Specs
CMRI*	**RSEE2T1**	Retire data publication on 2 reports: EIM > Bid Range Capacity Test Results EIM > Flexible Ramp Requirement Sufficiency Test Results	Retire data publication on 2 reports: EIM > Bid Range Capacity Test Results EIM > Flexible Ramp Requirement Sufficiency Test Results	The reports shall still be available for all historical pre-activation data. These data are moved to OASIS reports below (WEIM RSE CT, FRR I & O)	4/5/23
OASIS*	**RSEE2T1**	**New**: Public Bids > Market Bid Caps	**New**: Public Bids > Market Bid Caps		4/5/23
OASIS	RSEE2T1	Existing: Energy > EIM > WEIM RSE Capacity Tests	Existing: Energy > EIM > WEIM RSE Capacity Tests	> Original data publishing is existing system functionality. > Corrected data publishing is new system functionality that will be published on same existing report as original data. >BAA RSE Capacity Test Failure Upward/Downward Capacity (15-min granularity)	NA
OASIS	RSEE2T1	Existing: Energy > Flexible Ramping > Flexible Ramp Requirements Inputs and Outputs (WEIM RSE Flexible Ramping Tests)	Existing: Energy > Flexible Ramping > Flexible Ramp Requirements Inputs and Outputs (WEIM RSE Flexible Ramping Tests)	> Original data publishing is existing system functionality. > Corrected data publishing is new system functionality that will be published on same existing report as original data. >BAA RSE Flexible Ramp Test Failure Upward/Downward Capacity (15-min granularity)	NA
CIDI	RSEE2T1	BAA Assistance Energy Transfer Opt In/Out Checkbox	NA	NA	NA
MF	RSEE2T1	Existing	Existing	BAA Assistance Energy Transfer Opt In/Out Flag	NA
SIBR	ESET1	Existing	Existing	Rules Only	NA
ITS	RSEE2T1	Existing	NA	Exports e-Tagging Submission Requirement > SCs shall be required to e-tag the following as “Firm Provisional Energy (G-FP)”, via utilizing Misc. field: o RT economic (RTECON) exports that clear HASP o DA economic (DAECON) exports that clear both RUC and HASP o RTLPT exports that clear HASP o DALPT exports that clear both RUC and HASP > SCs shall be required to e-tag the following as “Firm Energy (G-F)”: o RTPT exports that clear HASP o DAPT exports that clear both RUC and HASP	NA

Summer 2023 – Energy Storage Enhancements Track 1

Project Information	Details
High Level Business Problem or Need	This initiative evolves processes and systems to help storage resource scheduling coordinators better manage resource state of charge and continue to ensure efficient market outcomes. The purpose of this initiative is to enhance reliability tools with regards to storage resources. The enhancements include updates to bidding rules, exceptional dispatch of storage resources, and storage resource opportunity costs. The scope of Track 1 covers the enhancements slated for Summer 2023 Release. The remaining scope in the Energy Storage Enhancements Policy will be covered in Track 2 for Fall 2023 Release.

High Level Project Scope	**Reliability Enhancements**
	• Include expected impacts from regulation in State of Charge (SOC)
	• Require storage to bid energy in the opposite direction of Ancillary Service (AS) awards
	  • A resource providing reserves, regulation up, or regulation down must have energy bids to charge/discharge (respectively)
	  • Energy bids must be 50% of AS awards
	Reference Level Enhancements
	• Update DA storage resource default energy bid (DEB) to include storage specific opportunity cost

BPM Changes	Market Instruments, Market Operations
Impacted Systems	SIBR, Market

Summer 2023 – Energy Storage Enhancements Track 1 Track

System	High Level Changes
SIBR	New rules to require storage resources to bid energy in the RT market in the opposite direction of their DA AS awards (applies to all AS awards—spin/non-spin, regulation up, and regulation down)
Market	• Update state of charge (SOC) to include Regulation Up and Regulation Down awards (includes multipliers) • Update storage resource DA DEB to include Opportunity Cost

Summer 2023 – Energy Storage Enhancements Track 1

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval WEIM Governing Board Approval	Dec 14, 2022	✓
External BRS	Post External BRS Post External BRS 1.4	Feb 08, 2023 Mar 29, 2023	✓ ✓
Settlements Config Guides	NA (Settlements is in Track 2 Fall 2023)	NA	
Tech Spec	NA	NA	
Tariff	Draft Tariff Language Revised Draft Tariff Language File Tariff Tariff Accepted	Feb 10, 2023 Mar 15, 2023 Mar 2023 May 2023	✓ ✓
BPMs	Draft BPM changes – Market Instruments Draft BPM changes – Market Operations	Mar 31, 2023 Mar 31, 2023	
Market Sim	Market Sim Window	May 2023	
Production Activation	Energy Storage Enhancements Track 1	Jun 01, 2023	

Summer 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 1

Project Information	Details

High Level Project Scope	• **Track-1**
	  • Item1A – Count hourly Exclude RTLPT exports and RT economic (RTECON) exports in RSE Capacity Upward/Downward Test and Flexible Ramping Sufficiency Upward/Downward Test for CAISO BAA.
	  • Item1B – Facilitate assistance energy transfer between WEIM BAAs into the WEIM BAAs that failed RSE upward test:
	  • Added as ex-post surcharge through Settlements.
	  • Market broadcasts needed data to Settlements.
	  • Item1C – Clarification of Post-HASP Block Hour Low-Priority Export
	  • Require DALPT and DA economic (DAECON) export that clears both RUC and HASP, RTLPT and RT economic (RTECON) export that clears HASP be e-tagged as “Firm Provisional Energy (G-FP)” via utilizing existing Market Path Product and Misc Info fields.

BPM Changes	Western Energy Imbalance Market, Market Operations, Settlements and Billing
Tariff Changes	Sections 29.11, 29.34
Impacted Systems	MF, Market, Settlements, OASIS, CMRI

Summer 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 1

System	High Level Changes
MF	• Define Assistance Energy Transfer Opt In/Out flag for each WEIM BAA receipt of assistance energy transfer • Make BAA Assistance Energy Transfer Opt In/Out Flag accessible to downstream systems.
Market	• Exclude RTLPT Exports and RTECON Exports Associated with Latest RTPD Run from RSE Tests for CAISO BAA Only • Opted-Out / Opted-Inn Assistance Energy Transfer

Settlements	• Calculate RT Assistance Energy Transfer Ex-Post Surcharge for Insufficient WEIM BAAs.
	• Allocate Collected RT Assistance Energy Transfer Ex-Post Surcharge Revenue from Insufficient WEIM BAAs to all other WEIM BAAs that Pass Upward RSE Tests Pro Rata to their Net Exports.
	• BAA Sub-Allocation of Charged Assistance Energy Transfer Ex-Post Surcharge Cost to Measured Demand for CISO BAA.
	  • WEIM Entities sub allocation of the charged assistance energy transfer ex-post surcharge cost will be performed per their defined OATT of these WEIM Entities (outside CAISO's Settlements system).
	• BAA Sub-Allocation of Received Assistance Energy Transfer Ex-Post Surcharge Revenue to SCs Providing Incremental RT Imbalance Energy for CISO BAA.
	  • WEIM Entities sub allocation of the received assistance energy transfer ex-post surcharge revenue will be performed per their defined OATT of these WEIM Entities (outside CAISO's Settlements system).

OASIS	• Consume RTM Bid Cap from SIBR. • Consume corrected RSE Failure Capacities • Publish RTM Bid Cap. • Publish corrected values of RSE Failure Capacities.
CMRI	Retire publication of new data in the following reports; new data will be available in OASIS • EIM > Bid Range Capacity Test Results • EIM > Flexible Ramp Requirement Sufficiency Test Results

Summer 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 1

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval WEIM Governing Board Approval	Dec 14, 2022	✓
External BRS	Post External BRS Post External BRS v1.1	Mar 10, 2023 Mar 31, 2023	✓
Settlements Config Guides	First Draft Technical Documents First Draft Configuration Output File + Draft Release Artifacts Second Draft Configuration Output File	Feb 17, 2023 Mar 15, 2023 Apr 26, 2023	✓ ✓
Tech Spec	Create ISO Interface Spec (Tech spec) – OASIS Create ISO Interface Spec (Tech spec) – CMRI	Apr 05, 2023 Apr 05, 2023	
Tariff	Revised Tariff Final Revised Draft Tariff Language Revised Final Draft Tariff Language	Dec 12, 2022 Mar 07, 2023 Mar 21, 2023	✓ ✓ ✓
BPMs	Draft BPM changes – WEIM Draft BPM changes – Market Operations Draft BPM changes – Settlements & Billing	Mar 31, 2023 Mar 31, 2023 Mar 31, 2023	
Market Sim Scenarios	Market Sim Scenarios	Apr 05, 2023	
Market Sim	Market Sim Window	May 2023	
Production Activation	Resource Sufficiency Evaluation Enhancements Phase 2 Track 1	Jun 01, 2023	

Summer 2023 – Hybrid Resources 2C Settlements

Project Information	Details/Date
High Level Business Problem or Need	The ISO launched this stakeholder initiative to identify new or enhanced market rules and business processes needed to accommodate hybrid resources, resources that consist of two sets of market rule changes that will facilitate mixed-fuel type (hybrid and co-located resources) project participation in the ISO markets. Prior to this initiative, Phase 1 identified a first set of modifications generally concerned with setting up and operating co-located resources. Building on phase 1, Phase 2 focuses on modifications that will explore how hybrid generation resources can be registered and configured to operate within the ISO market. The initiative will further develop solutions allowing developers to maximize the benefits of their resource's configuration. Additionally, hybrid resource configurations also raise new operational and forecasting challenges that the ISO plans to address during this initiative.
High Level Project Scope	With this initiative, there's an opportunity to increase storage and the number of hybrid resources that can connect to the ISO grid. Currently the interconnection queue includes more than 24,000 MW of mixed fuel projects and nearly 20,000 MW of storage which represents roughly half of all generation in the current interconnection queue.
BPM Changes	Settlements & Billing
Impacted Systems	**Summer 2023: Settlements** Independent 2023: RIMS Completed: Today's Outlook, ISO Today Mobile Application, Reports
Requirements	http://www.caiso.com/Documents/BusinessRequirementsSpecifications-HybridResourcesPhase2.pdf

Summer 2023 – Hybrid Resources 2C Settlements

Milestone Type	Milestone Name	Dates	Status
External BRS	Publish External BRS	Jan 31, 2023	✓
Settlements Config Guides	First Draft Technical Documents First Draft Configuration Output File + Draft Release Artifacts Second Draft Configuration Output File	Feb 17, 2023 Mar 15, 2023 Apr 26, 2023	✓ ✓
Tech Spec	Create and Publish ISO Interface Spec (Tech Specs)	NA	
Market Sim	Market Sim Window – Settlements	May 2023	
Production Activation	Hybrid Resources 2C – Settlements	Jun 01, 2023	

Fall 2023 Release

Fall 2023 Release Overview

Project	BOG	Tariff	BRS	Settlements CG	Settlements Effective Date	Technical Specifications	Market Simulation Scenarios	Market Simulation	Production Activation
Energy Storage Enhancements Track 2	Approved 12/14/22	• Draft 02/10/23 • **Revised DTL 03/15/23** • **File Mar 2023**	Yes	• 02/17/23: Tech Doc	1st of the month; new CCs	ADS CMRI OASIS	Yes	Yes	Fall 2023
WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 2	Approved 12/14/22	Yes	• 02/10/23 • 03/31/23 1.1	NA	NA	MFRDT	Yes	Yes	Fall 2023
WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 3	Approved 12/14/22	NA	• 02/10/23 • 03/31/23 1.1	NA	NA	ALFS	Yes	Yes	Fall 2023

Fall 2023 Release Overview – System Impacts

Project	ADS	ALFS	BAAOP	CMRI	ITS	Master File	MF RDT	OASIS	RIMS	Settlements	Market	SIBR
Energy Storage Enhancements Phase 1 Track 1 AS & ED	X*			X*		X		X*	X	X	X	
WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 2	X				X	X	X*				X	
WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 3		X*	X			X					X	

X* = Technical Specifications

Fall 2023 Release Overview – System Interface Changes

System	Project	UI	API	Data	Tech Specs
ADS*	**ESET2**	Existing	Existing	New ED Reason Codes: “SOC Hold” and “SOC Charge”	Yes
CMRI*	**ESET2**	**New** report to display Exceptional Dispatch Hold State of Charge	**New**: Retrieve Exceptional Dispatch Hold State of Charge v1 **New**: Retrieve Exceptional Dispatch Hold State of Charge v1 DocAttach		Yes
OASIS*	**ESET2**	Existing: Energy > System > Operator-Initiated Commitment report	Existing: System > Operator-Initiated Commitment report	New ED type Reason Code: “SOC Hold” and “SOC Charge”	Yes
MF RDT*	**RSEE2T2**	Add a new Resource-Specific Capacity Test Failed-to-Start Rule Exemption flag	Add a new Resource-Specific Capacity Test Failed-to-Start Rule Exemption flag		Yes
RIMS	ESET2	Existing: Existing > App & Study > Equipment Configuration tab > Generation as Modeled and Implemented grid	NA	> Pull storage resource MWh from MF > Add new field for calculated MWh > Add new field for storage resource duration in hours	NA
ITS	RSEE2T1	Existing	NA	Exports e-Tagging Submission Requirement > SCs shall be required to e-tag the following as “Firm Provisional Energy (G-FP)”, via utilizing Misc. field: o RT economic (RTECON) exports that clear HASP o DA economic (DAECON) exports that clear both RUC and HASP o RTLPT exports that clear HASP o DALPT exports that clear both RUC and HASP > SCs shall be required to e-tag the following as “Firm Energy (G-F)”: o RTPT exports that clear HASP o DAPT exports that clear both RUC and HASP	NA

Fall 2023 – Energy Storage Enhancements Track 1

Project Information	Details
High Level Business Problem or Need	This initiative evolves processes and systems to help storage resource scheduling coordinators better manage resource state of charge and continue to ensure efficient market outcomes. The purpose of this initiative is to enhance reliability tools and the co-located model with regards to storage resources. The reliability enhancements include updates to bidding rules, exceptional dispatch of storage resources, storage resource opportunity costs, and local area minimum online constraints. The co-located model enhancements include preventing co-located resources from charging when beyond generation levels for on-site resources and allowing pseudo-tied resources to use the co-located model. The scope of Track 1 covered the enhancements for Summer 2023 Release. The remaining scope in the Energy Storage Enhancements Policy is covered in Track 2 for Fall 2023 Release.

High Level Project Scope	**Reliability Enhancements**
	• Include lost opportunity from not generating in storage compensation due to hold Exceptional Dispatch (ED) to hold SOC (i.e. 0 MW ED)
	  • Calculate counterfactual energy revenues with and without the SOC hold ED
	  • If prices are below bids counterfactuals will not include discharges
	  • Use actual LMPs (the ISO will not generate counterfactual LMPs)
	  • Include SOC hold ED period through the end of the day in time horizon
	• Allow for Exceptional Dispatches (EDs) to be issued for storage resources to hold SOC
	  • Develop functionality within ED User Interface; automate existing excel tool functionality
	  • Storage may receive a traditional ED or an SOC ED, but not both
	Co-Located Model Enhancements
	• Develop an electable co-located model available to all storage resources
	  • Storage schedules to never exceed renewable schedules (i.e. no grid charging)
	  • Storage may deviate down to match solar, when solar is producing less than schedules in real-time
	  • Deviations to be subject to imbalance energy charges
	  • Require storage resources to submit outages when depleted and unable to charge
	  • Require all resources to respond to operator and ED instructions within physical bounds of operation
	• Allow for co-located pseudo-tie resources to apply Aggregate Capability Constraint (ACC)
	  • Resources under an ACC must be pseudo-tied from the same BAA

BPM Changes	Market Operations, Settlements & Billing
Impacted Systems	Settlements, Market, CMRI, RIMS, MF, OASIS, ADS, OMS, ITS

Fall 2023 – Energy Storage Enhancements Track 1

System	High Level Changes
Market	• Allow operator to enter exceptional dispatch (ED) in the market to allow for EDs of storage resources by SOC in addition to capacity • Update the definition of EDs to allow the operator to enter EDs for storage resources identified with two new Reason Codes under Instruction Type: System Emergency (“SYSEMR”)
ADS	ADS consumes new ED Reason Codes (“SOC Hold” and “SOC Charge”) applicable to storage resources
Settlements	• New rules to align with Tariff settlement language for SOC formula • New inputs for the storage resource ED opportunity cost values • Design and configure new charge code for the allocation of ED SOC uplift • Modify real-time bid cost recovery (BCR) charge code to account for revenue from storage resources ED SOC uplift • Configure No Pay rules and assessment for ED SOC
CMRI	Receive and shall publish the ED SOC information using new UI and API on a new report entitled “Exceptional Dispatch Hold State of Charge”
OASIS	Receive and publish new ED reason Codes (“SOC Hold” and “SOC Charge”) under System Emergency Instruction Type as “Reason” on the Operator Initiated Commitment OASIS Report
RIMS	• Add field for storage resource duration (hours) • Add field for calculated MWh • Calculate energy (MWh) using duration*MW • Allow pseudo tied resources to be modeled as co-located
MF	• Apply co-located flag to pseudo tied resources • Set minimum ACC constraint to zero for co-located resources that cannot or choose not to not grid charge • New MF attribute to denote resources that select to not grid charge
OMS	Storage resources must submit outage cards if: • The co-located VER cannot provide the charging energy as forecasted per Tariff requirements • System shall require storage resources to submit outage cards if the resource has depleted its SOC and there is no ability to charge the resource per Tariff requirements
ITS	System shall model pseudo-tied and dynamic co-located storage resources following the standard NRI pseudo-tie and dynamic rules and practices Note: pseudo-tied and dynamic storage resources must be registered as TNGR resources

Fall 2023 – Energy Storage Enhancements Track 1

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval WEIM Governing Board Approval	Dec 14, 2022	✓
External BRS	Post External BRS	Yes	
Settlements Config Guides	First Draft Technical Documents First Draft Configuration Output File + Draft Release Artifacts	Feb 17, 2023 Mar 15, 2023	✓ ✓
Tech Spec	Publish Interface Specification – ADS Publish Interface Specification – CMRI Publish Interface Specification – OASIS	Yes	
Tariff	Tariff Activities	Yes	
BPMs	Draft BPM changes – Market Operations Draft BPM changes – Market Settlements & Billing	Yes Yes	
Market Sim	Market Sim Window	Yes	
Production Activation	Energy Storage Enhancements Track 1	Fall 2023 Release	

Fall 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 2

Project Information	Details

High Level Project Scope	• **Track-2**
	  • Item2A – Clarification of Post-HASP Block Hour Low-Priority Export
	  • Operator-Driven Low-Priority Export Curtailment
	  • CAISO operator's ability to initiate pro-rata curtailment based on identified MW, given the following priority order:
	  • RTECON (RT economic hourly block export schedules that clear HASP).
	  • RTLPT (RT Self-Schedule hourly block export schedules not backed by Generation from non-RA Capacity and cleared HASP).
	  • Non-high-priority DA export [i.e. DAECON (DA economic hourly block export schedules that clear both RUC and HASP), or DALPT (DA hourly block export schedules not backed by Generation from non-RA Capacity that also cleared both RUC and HASP and are protected Self-Schedules)]
	  • CAISO operator's ability to identify/filter exports by market priority types as well as "Firm Provisional Energy (G-FP)" eTag identifier.
	  • Publish resource-specific market priority types and their associated MW data to ADS.
	• Item2B – Develop MF resource identification Capacity Test Failed-to-Start Rule Exemption flag to allow SCs of WEIM and CISO short start units that start with non-positive telemetry to identify specific resources that will be exempted from this functionality in RSE Capacity test. (Implemented in Phase 1 – enhancements needed)

BPM Changes	WEIM, Market Instruments, Market Operations
Tariff Changes	Yes
Impacted Systems	MF, Market, ITS, ADS

Fall 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 2

System	High Level Changes
MF	• Definition and Submission of Resource-Specific Capacity Test Failed-to-Start Rule Exemption Flag via GRDT • Make Resource-Specific Capacity Test Failed-to-Start Rule Exemption flag accessible to downstream systems.
ITS	• Clarification of Post-HASP Block Hour Low-Priority Export • Consume DAM Resource-Specific Market Priority Types and Resource-specific RUC Energy Awards from RUC. • Consume All Resource-Specific Market Priority Types from RTM. • SCs shall be required to submit Misc Info field Prior Type attribute for “Firm Provisional Energy (G-FP)” e-tags to identify RTECON, DAECON, RTLPT, DALPT. • SCs shall be required to submit Misc Info field Prior Type attribute for “Firm Energy (G-F)” e-tags to identify RTPT, DAPT. • Validate submitted export e-Tags against data received from RUC and RTM to approve/deny and adjust (if warranted) the submitted e-Tags.
Market	• Access Resource-Specific Capacity Test Failed-to-Start Rule Exemption flag from MF. • Exempt Specific Resources from Capacity Test Failed-to-Start Rule/Functionality. • Clarification of Post-HASP Block Hour Low-Priority Export • Broadcast All Resource-specific market priority types to ITS (from RTM).

ADS	• Clarification of Post-HASP Block Hour Low-Priority Export
	  • Consume Resource-Specific Market Priority Types and their Associated MW Data from RTM.
	  • Publish Resource-Specific Market Priority Types and their Associated MW Data.
	  • Include Resource-Specific Market Priority Types in ADS Query Functionality.

Fall 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 2

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval WEIM Governing Board Approval	Dec 14, 2022	✓
External BRS	Post External BRS Post External BRS v1.1	Mar 10, 2023 Mar 31, 2023	✓
Settlements Config Guides	NA	NA	
Tech Spec	Create ISO Interface Spec (Tech spec) – MF RDT	Yes	
Tariff	Tariff	Yes	
BPMs	Draft BPM changes – WEIM Draft BPM changes – Market Instruments Draft BPM changes – Market Operations	Yes	
Market Sim Scenarios	Market Sim Scenarios	Yes	
Market Sim	Market Sim Window	Yes	
Production Activation	Resource Sufficiency Evaluation Enhancements Phase 2 Track 2	Fall 2023 Release	

Fall 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 3

Project Information	Details
High Level Project Scope	**Track-3** • Item3A – DR Inclusion with RSE via ALFS (RSEE-1060) (Implemented in Phase 1 – enhancements needed) • Furnish ALFS-SOA API integration to DR SCs to automatically submit their DR LF Adjustment (that reflect Non-Participating DR Schedules) to account for DRs that are not explicitly modeled in real-time markets.
BPM Changes	Demand Response, WEIM
Tariff Changes	NA
Impacted Systems	MF, ALFS, Market, BAAOP

Fall 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 3

System	High Level Changes
MF	• RSEE-1060 – Business Process: Ensure DR Inclusion Flag Submission by WEIM Entity Only via CIDI. • RSEE-1060 – Business Process: STF Notification of Changes to DR Inclusion Flag on WEIM Entity / WEIM Sub-Entity Level.
ALFS	• Access DR Inclusion Flag on WEIM Entity/Sub-Entity Levels from MF. • Translate the WEIM Entity/Sub-Entity DR Inclusion Flag to their associated LF zones (During MF transfer, the sub-area LF zone will adopt the WEIM Entity attestation flag). • Receive Non-Participating DR Schedules from WEIM Entity or WEIM Sub-Entity • Broadcast Non-Participating DR Schedules for WEIM Entity BAA or WEIM Sub-Entity. • Broadcast DR LF Adjustment Data (that have been adjusted in ALFS) to downstream systems.

Market	• Consume the following from ALFS:
	  • ALFS-DF-Submitted DR LF Adjustment (hourly aggregate)
	  • STF-DF-Excluded DR LF Adjustment (hourly aggregate)
	• Accounting for DR LF Adjustments in RSE.

BAAOP	Display DR LF Adjustments received from ALFS in BAAOP. Disable manual entry via BAAOP UI on a sunset date, after all participants transition to ALFS API submission.

Fall 2023 – WEIM Resource Sufficiency Evaluation Enhancements Phase 2 Track 3

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval WEIM Governing Board Approval	Dec 14, 2022	✓
External BRS	Post External BRS Post External BRS v1.1	Mar 10, 2023 Mar 31, 2023	✓
Settlements Config Guides	NA	NA	
Tech Spec	Create ISO Interface Spec (Tech spec) – ALFS	Yes	
Tariff	Tariff	NA	
BPMs	Draft BPM changes – Demand Response Draft BPM changes – WEIM	Yes	
Market Sim Scenarios	Market Sim Scenarios	Yes	
Market Sim	Market Sim Window	Yes	
Production Activation	Resource Sufficiency Evaluation Enhancements Phase 2 Track 3	Fall 2023 Release	

Independent 2023 Releases

Independent 2023 Releases Overview - Tentative

Project	BOG	Tariff	BRS	Settlements CG	Settlements Effective Date	Tech Specs	Market Simulation Scenarios	Market Simulation	Production Activation
Ancillary Service State of Charge Constraint		Filed 09/19/22 Accepted 11/18/22	02/09/23	Tech Doc 2/13/23 **1st Draft CG 3/15/23** 2nd DCG 4/26/23	Retroactive to 09/20/22	CMRI 4/5/23	4/5/23	Yes	2023
Washington WEIM Greenhouse Gas Enhancements	Oct 2022 - Approved	Filed 11/21/22 Accepted 02/10/23 Filed Amendment 03/13/23	02/06/23	NA	NA	MFRDT OASIS	NA	NA	2023
Hybrid Resources Phase 2C – RIMS			01/31/23	NA	NA	NA	NA	NA	2023

Overview – System Impacts

Project	CMRI	Master File	MF RDT	OASIS	RIMS	Settlements	Market	SIBR
Ancillary Service State of Charge Constraint	X*					X	X	
WA WEIM GHG Enhancements	X	X	X*	X*		X	X	X
Hybrid Resources2C - RIMS					X			

X* = Technical Specifications

Independent 2023 Releases Overview – System Interface Changes

System	Project	UI	API	Data	Artifacts	Technical Specifications
CMRI	**ASSOCC**	**New** report to display ASSOC binding constraints	**New**: RetrieveStateOfChargeConstraint_CMRIv1 RetrieveStateOfChargeConstraint_CMRIv1_DocAttach	Data retroactive to 9/20/22	4/5/23	4/5/23
CMRI	WA WEIM GHGE	Existing	Existing	New Attributes/Records to indicate state/include GHG index price for each state		
OASIS	**WA WEIM GHGE**	Existing: Prices > Index Prices > Greenhouse Gas Allowance Index Prices	Existing – Prices > Index Prices > Greenhouse Gas Allowance Index Prices	Add WA GHG index prices, display average of daily WA GHG price indices		
MF RDT	**WA WEIM GHGE**	Add a new BAA level attribute to identify BAAs associated with Washington State	SubmitGeneratorRDT_MFRDv5 SubmitGeneratorRDT_MFRDv5_DocAttach RetrieveGeneratorRDT_MFRDv5 RetrieveGeneratorRDT_MFRDv5_DocAttach	Add a new BAA level attribute to identify BAAs associated with Washington State		
SIBR	WA WEIM GHGE	Existing	Existing	Consume WA GHG adders		

2023 - WEIM Enhancements

Project Information	Details/Date
High Level Business Problem or Need	To collectively address important issues identified by WEIM market participants through Customer Inquiry, Dispute and Information system (CIDI) requests to improve the visibility, functions and features in Energy Imbalance Market (WEIM).
High Level Project Scope	• BAAOP: ETSR detail screen will be available to BOTH RTMO and WEIMs. (First drop for testing will only be available to RTMO). • BAAOP: WEIM shared ramping constraint IS NOT editable through UI.
BPM Changes	WEIM, Market Instruments
Tariff Change	Section 29.4
Impacted Systems	RTM/BAAOP, RTM/Integration

System	High Level Changes
Real-Time Market (RTM)	BAAOP: WEIM shared ramping constraint IS NOT editable through UI. ***2023*** • Shared ramping capability constraint • UI for WEIM entity input parameters for ramp sharing • Use in the optimization for each resource based on BAA ramp share parameters
Real-Time Market (RTM)	BAAOP: ETSR detail screen ***April 2023*** • ETSR detail screen will be available to BOTH RTMO and WEIMs. (First drop for testing will only be available to RTMO). • New ETSR detail screens • Currently in “Coming Soon”

2023 – Ancillary Services State of Charge Constraint

Project Information	Details/Date
High Level Business Problem or Need	In spring of 2022, the Department of Market Monitoring (DMM) discovered undue market outcomes resulting from regulation down awards to or self-provisions by storage resources for long periods when paired with high energy bids from those resources. Both DMM and the CAISO have concluded that these excess bid cost recovery payments under these conditions cannot be justified by the principles underlying bid cost recovery.
High Level Project Scope	Make storage resources ineligible for Bid Cost Recovery (BCR) uplift for certain market intervals in real time: • When the market state of charge (SOC) constraint is binding due to AS Awards causing the market to dispatch resource energy uneconomically. • Retroactively settle relevant intervals (beginning with effective date of 09/20/2022)
BPM Changes	Market Instruments, Market Operations, Settlements and Billing
Tariff Changes	Sections 8.4.3, 8.4.1.1(g), 11.6.6 Note: Tariff filing completed on 09/19/2022
Impacted Systems	RTM, Settlements, CMRI

System	High Level Changes
Real Time Markets (RTM)	Capture RTD/RTPD AS SOC binding constraint shadow price data
Settlements	Design new bill determinants and configurations using the RTD/RTPD AS SOC binding constraint shadow price data for calculation of BCR ineligibility
CAISO Market Results Interface (CMRI)	Develop new external report to inform on AS SOC binding constraint for settlement purposes (resource specific—private report)

2023 – Ancillary Services State of Charge Constraint

Milestone Type	Milestone Name	Dates	Status
External BRS	Publish External BRS	Feb 09, 2023	✓
Settlements Config Guides	First Draft Technical Documents First Draft Configuration Output File + Draft Release Artifacts Second Draft Configuration Output File	Feb 13, 2023 Mar 15, 2023 Apr 26, 2023	✓ ✓
Tech Spec	Create and Publish ISO Interface Spec (Tech Specs) – CMRI	Apr 05, 2023	
Tariff	File Tariff ER22-2881 Tariff Accepted	Sep 19, 2022 Nov 18, 2022	✓ ✓
BPMs	Publish Draft Business Practice Manual – Market Instruments Publish Draft Business Practice Manual – Market Operations Publish Draft Business Practice Manual – Settlements & Billing	Yes	
Market Sim	Market Sim Window	Yes	
Production	Ancillary Service State of Charge Constraint – Deployment Ancillary Service State of Charge Constraint – Effective Date Retroactive	2023 Sep 20, 2022	

2023 – WA WEIM GHG Enhancements - Overview

Project Information	Details/Date
High Level Business Problem or Need	Pursuant to State of Washington's recently revised Clean Air Act and beginning in 2023, Washington (WA) will require reporting of emissions associated with Western Energy Imbalance Market (WEIM) transactions. Emissions reporting is a key element of Washington's new cap-and-invest program that sets a limit on overall carbon emissions in Washington and requires emitters to obtain allowances equal to their covered GHG emissions. This initiative comprises the first phase of enhancements to support reporting WEIM transactions for emissions year 2022. As reporting rules continue to develop, additional enhancements outside of the scope of this initiative will likely be necessary.
High Level Project Scope	• Identify resources within WA State boundary • Update WA State associated resources' greenhouse gas (GHG) reference levels with dynamic pricing using vendor-provided indices • Note: while Tariff stipulates use of static pricing as an interim measure prior to the first Washington allowance auction, due to implementation timing, this is not anticipated to be necessary. This first auction is scheduled for February 28, 2023. • Calculate and publish monthly projected GHG prices for Washington State • Develop reports to support WEIM Entity annual reporting to Washington State
BPM Changes	Energy Imbalance Market (EIM), Market Instruments
Tariff Changes	Sections 30.4.4.5, 30.4.5.2, 39.6.1.6.2, 39.7.1.1.1.1, 39.7.1.1.1.2, 39.7.1.1.1.4
Impacted Systems	MF, Internal System, SIBR, OASIS

2023 – WA WEIM GHG Enhancements - Overview

System	High Level Changes
MF	• New rule to verify that relevant resources within WA State must provide resource specified GHG emission rate • New attribute at the BAA level to identify BAAs associated with Washington State • New attribute to associate resources within WA State with the State of WA to identify resources with GHG obligation • Exception: BPA—not subject to WA reporting rule

Internal System	• Reference level (commitment costs/DEBs) changes to reflect GHG costs
	  • DEBs to include GHG components for generators inside WA State
	  • Update GHG startup cost curve for resources inside WA State
	  • Update Greenhouse Gas Minimum Load Cost Allowance
	• Differentiate between CA and WA resources
	• Capture WA GHG price in the resource-specific minimum load and startup GHG adders for the purposes of commitment cost calculations

SIBR	• Receive startup GHG adders for the purposes of commitment cost calculations for WA State resources • Confirm GHG curves generated for WEIM resources within WA State are successfully received and processed
OASIS	• Add WA GHG index prices to existing GHG Index Price OASIS report • Only applicable for dynamic GHG pricing

2023 – WA WEIM GHG Enhancements

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Oct 26, 2022	✓
	WEIM Governing Board Approval	Oct 26, 2022	✓
External BRS	Publish External BRS	Feb 06, 2023	✓
Settlements Config Guides	Settlements Config Guides	NA	
Tech Spec	MFRDT OASIS	Yes	
Tariff	File Tariff ER23-474 Tariff Accepted Filed Amendment	Nov 21, 2022 Feb 10, 2023 Mar 13, 2023	✓ ✓ ✓
BPMs	Publish Draft Business Practice Manuals – WEIM Publish Draft Business Practice Manuals – Market Instruments	Yes	
Market Sim	Market Sim Window	NA	
Production Activation	WA WEIM GHG Enhancements	2023	

2023 – Hybrid Resources 2C RIMS

Project Information	Details/Date
High Level Business Problem or Need	The ISO launched this stakeholder initiative to identify new or enhanced market rules and business processes needed to accommodate hybrid resources, resources that consist of two sets of market rule changes that will facilitate mixed-fuel type (hybrid and co-located resources) project participation in the ISO markets. Prior to this initiative, Phase 1 identified a first set of modifications generally concerned with setting up and operating co-located resources. Building on phase 1, Phase 2 focuses on modifications that will explore how hybrid generation resources can be registered and configured to operate within the ISO market. The initiative will further develop solutions allowing developers to maximize the benefits of their resource's configuration. Additionally, hybrid resource configurations also raise new operational and forecasting challenges that the ISO plans to address during this initiative.
High Level Project Scope	With this initiative, there's an opportunity to increase storage and the number of hybrid resources that can connect to the ISO grid. Currently the interconnection queue includes more than 24,000 MW of mixed fuel projects and nearly 20,000 MW of storage which represents roughly half of all generation in the current interconnection queue.
BPM Changes	Settlements & Billing
Impacted Systems	Summer 2023: Settlements **Independent 2023: RIMS** Completed: Today's Outlook, ISO Today Mobile Application, Reports
Requirements	http://www.caiso.com/Documents/BusinessRequirementsSpecifications-HybridResourcesPhase2.pdf

2023 – Hybrid Resources 2C RIMS

Milestone Type	Milestone Name	Dates	Status
External BRS	Publish External BRS	Jan 31, 2023	✓
Settlements Config Guides	NA for RIMS	NA	
Tech Spec	Create and Publish ISO Interface Spec (Tech Specs)	NA	
Market Sim	Market Sim Window – RIMS	NA	
Production Activation	Hybrid Resources 2C – RIMS	2023	

Future Releases

Future Releases Overview

Release	Project	BOG	Tariff	BRS	Production Activation
Future Release	Transmission Service & Market Scheduling Priorities Phase 2	Feb 2023 – Approved	**03/27/23: Draft Tariff Language** Q3 2023: Filing		Summer 2024
	Day-Ahead Market Enhancements	Feb 2023 – Briefing **May 17, 2023 – Decision**	Dec 2022 - July 2023 Draft business requirement specification and tariff development	Dec 2022 - July 2023 Draft business requirement specification and tariff development	Fall 2024
	Extended Day-Ahead Market On-Boarding	Feb 2023 – Approved	**03/30/23: Draft Tariff Language** **File Q2 2023**		Fall 2024 Spring 2025

Congestion Revenue Rights (CRR) Upgrade

Project Information	Details/Date
High Level Project Scope	The Congestion Revenue Rights (CRR) system was implemented by CAISO in 2008 as part of the Market Redesign and Technology Upgrade (MRTU) implementation. The current CRR system is at its end of life, does not have the flexibility to accommodate future policy changes and requires the ISO to calculate data and run processes manually outside the current system to produce a successful CRR Auction. The CAISO has decided on a significant upgrade of the existing CRR system and adopt the latest technology stack aligned with CAISO's technology standards, consolidate all CRR related functions, minimize human errors, reduce processing time, eliminate manual workarounds, and positions the system to accommodate policy changes down the road. **Congestion Revenue Rights (CRR) system replacement project scope is the roll-out of a:** • Brand new user-interface (UI) system with an updated new look-and-feel, to replace the existing legacy system implemented during the MRTU 2008 go-live and brought up to current ISO technology standards • Set of application-programming interfaces (APIs) to enable integration between ISO and market participant systems **Overall, to support the following in one consolidated CRR external-facing system:** • Annual/Monthly Auction and Allocation market participant bid submission and results retrieval • Load data submission by CRR LSEs, CEC • Load migration data submission by CRR UDCs • Secured "Congestion Revenue Rights Full Network Model" information access • Private and public access of CRR market input and output information
BPM Changes	Congestion Revenue Rights • Enhancements made to the new CRR product. • Automatic publishing of CRR market results. • Automatic CRR notification. • New CRR schedule calendar. • New CRR FNM access. • New CRR data submission and download interface UI/API. • New CRR market results interface. • Load Migration
Tariff Change	No
Impacted Systems	CRR, AIM, CMRI, OASIS, CTS, Market Clearing, EMMS, IFM/RTN, MQS, Master File, MPP, Settlements, WebOMS, ETCC.

Congestion Revenue Rights (CRR) Upgrade

System	High Level Changes
CRR	Significant system upgrade including: • Enhancements made to the new CRR application. • Automatic publishing of CRR market results. • Automatic CRR notification. • New CRR schedule calendar. • New CRR FNM access. • New CRR data submission and download interface UI/API. • Other TBDs identified through BRS development.
AIM	• New users and roles to support new CRR functionality
CMRI	• Full and incremental Payload publishing • Publish CRR Awards payload on event-driven, ad-hoc or scheduled basis • Publish CRR Awards payload on event-driven, ad-hoc or scheduled basis
OASIS	• Publish CRR Calendar, and all available CRR market names, and credit margin information, 3 year historical expected value.. • Allow authorized users to publish CRR inventory payloads • Broadcast the following: set aside values, the results of all CRR markets, retired pnode/anode mapping, binding constraints, initial and updated CRR source and sink list for each CRR market,
CTS	• Broadcast
EMMS	• CRR will consume data from EMMS
IFM/RTN	• CRR will consume data from IFM/RTN
MQS	• MQS will consume and process SCID in a new format • MQS will consume ownership payload in bulk
Master File	• Master File will be modified as needed to support the new CRR functionality
MPP	• CRR will provide pre-configured external reports
Settlement	• Settlements will be modified as needed to support the new CRR functionality
WebOMS	• CRR will consume data from WebOMS
ETCC	• CRR will consume data from ETCC

Congestion Revenue Rights (CRR) Upgrade

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	NA	
External BRS	Publish External BRS BRS Revision v1.3	Nov 16, 2022 Mar 29, 2023	✓ ✓
Config Guides	Post Draft Config Guides	Yes	
Tech Spec	Publish Technical Specification	Feb 24, 2023	✓
Deployment Plan	Draft Deployment Plan	Yes	
Training	Training	Yes	
Market Sim	Market Sim	Yes	
Parallel Operations	Parallel Operations	Yes	
Customer Partnership Group	**Next CPG**	**Apr 19, 2023**	

CRR System Upgrade – Get Connected

- CRR meetings:
  - **Bi-weekly Technical User Group (TUG)** Tue 10 AM, alternates with RUG.
    - Meetings available on the CAISO calendar on www.caiso.com
    - Meeting details and presentation materials are available on the CAISO Developer site at www.developer.caiso.com , which requires an account to be setup for access
  - **CRR Customer Partnership Group**
    - **Next CPG meeting is Wed, 4/19 @ 10 AM**
    - Monthly
    - Meetings available on the CAISO calendar on www.caiso.com
    - Meeting details and presentation materials are available on www.caiso.com > Stay Informed > Meetings & Events > Customer Partnership Groups

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…

Market Sim

Release Users Group (RUG)

Market Sim

Calendar of Meetings, Training and Events

Month: February Year: 2018 | Calendar View | List View | Print View

today | February 2018 | month | day

Sun	Mon	Tue	Wed	Thu	Fri	Sat
4	5 WebCONF: Market Simulation 2:00pm - 3:00pm	6 Training: Get to Know the ISO - Day 1 9:00am - 4:00pm WebCONF: Imbalance Conformance Enhancements 10:00am - 12:00pm WebCONF: Technical User Group 10:00am - 11:00am	7 Deadline: Comments - Interconnection Process Enhancements 2018 - Issue Paper and Meeting Discussion Training: Get to Know the ISO - Day 2 9:00am - 4:00pm Meeting: Flexible Resource Adequacy Criteria Must Offer Obligation Phase 2 - Revised Draft Flexible Capacity Framework 10:00am - 4:00pm WebCONF: Market Settlement User Group 10:00am - 11:00am	8 Meeting: Audit Committee Teleconference (Executive) 8:30am - 9:30am Training: Settlements 101 9:00am - 4:00pm Meeting: 2017-2018 Transmission Planning Process 10:00am - 4:00pm WebCONF: Market Simulation 2:00pm - 3:00pm	9 Training: Settlements 201 9:00am - 4:00pm	10
11	12 WebCONF: Participating Transmission Owner Per Unit Cost Guides 10:00am - 12:00pm WebCONF: Market Simulation 2:00pm - 3:00pm	13 Meeting: Congestion Revenue Rights Auction Efficiency 10:00am - 4:00pm WebCONF: Release User Group 10:00am - 11:00am Call: Energy Imbalance Market Governing Body Teleconference (Executive) 11:30am - 12:30pm	14 Deadline: Submissions - April 2018 Monthly Resource Adequacy and Supply Plans Call: Congestion Revenue Rights 11:00am - 11:30am WebCONF: Outage Management System Customer Partnership Group 2:00pm - 3:00pm	15 Deadline: Comments - Review Transmission Access Charge Structure Straw Proposal and Meeting Discussion Call: Board of Governors Teleconference (General) 8:15am - 9:00am Call: Board of Governors Teleconference (Executive) 9:00am - 10:00am Call: Market Update 10:15am - 11:00am WebCONF: Market Simulation	16	17

Next RUG: Apr 18, 2023

Contact for Questions & Agenda Requests: Trang Vo, tvo@caiso.com

Stay connected

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RUG Calendar 2023

California ISO

2023

Release User Group Meetings

Note: dates subject to change; for the latest information please visit the Calendar on www.caiso.com

January

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

February

Su	Mo	Tu	We	Th	Fr	Sa
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28				

March

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

April

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May

Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June

Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

July

Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

October

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

November

Su	Mo	Tu	We	Th	Fr	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

Su	Mo	Tu	We	Th	Fr	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Meeting Holiday

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