



# Release User Group Agenda

April 19, 2022

10:00 a.m.–11:00 a.m. (Pacific Time)

Web Conference Information	Conference Call Information
<p>Web Address: <a href="https://caiso.webex.com/meet/RUG">https://caiso.webex.com/meet/RUG</a> Meeting Number: 960 941 245</p> <p>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.</p>	<p><i>1-844-517-1271 US Toll Free</i> <i>+1-682-268-6591 US Toll</i> <i>Access code: 960 941 245</i></p>
<p>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.</p>	

# Release User Group Agenda

*April 19, 2022*

*10:00 a.m. – 11:00 a.m. (Pacific Time)*

<b>Time</b>	<b>Topic</b>	<b>Facilitator</b>
10:00 – 10:05	Agenda & ISO Roll call	Trang Vo
10:05 – 10:45	Release Plan	Adrian Chiosea Jami Herguth Janet Morris

# ISO Training Schedule

Training Course	Date and time
AWE to NERC EEA Webinar	April 20, 2022 11am – 12pm
<i>Transmission Service Market Scheduling Priorities (Tentative)</i>	<i>April 28, 2022 10:30am – 12pm</i>
Today's Outlook Webinar	May 26, 2022 2pm – 3pm

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[CustomerReadiness@caiso.com](mailto:CustomerReadiness@caiso.com)

# Transparency Enhancements 2022

Area/System	Summary	Initiative	Timeline
CAISO website	Counting methodology for battery capacity has been modified to reflect units online that have reached commercial operation date, and no longer includes those in the commissioning process as of 3/31/22	Continuous transparency efforts	Completed
CAISO website	Summary information gathered from various studies/reports identifying locations where resources can connect without additional, unplanned upgrades.	Interconnection Process Enhancements	In progress
CAISO website	Published a draft of its first 20-Year Transmission Outlook to help enable and accelerate the integration of new renewable resources onto the grid and to expand the planning horizon and bring together a wide cross-section of stakeholders to identify and set priorities for different possible solutions.	Transmission Planning	Published Feb 2022
CAISO website	Transmission project tracking information; In conjunction with the CPUC and the participating transmission owners, quarterly public stakeholder forums provide status updates on the transmission projects previously approved through the transmission planning process and network upgrades identified in the generation interconnection process	Continuous transparency efforts	Started Jan 2022; to be conducted quarterly
CAISO website	Publication of Aggregate Price Taker Wheel Registration Data	Transmission Service & Market Scheduling Priorities Phase 1	Completed
CAISO website	Publication of Aggregate RA showing Import Data	Transmission Service & Market Scheduling Priorities Phase 1	Completed

# Transparency Enhancements 2022

Area/System	Summary	Initiative	Timeline
OASIS	Publication of RUC/HASP/RTPD/RTD adjustments (load forecast adjustments/load bias)	Transmission Service & Market Scheduling Priorities Phase 1	Pre-Summer 2022
OASIS	Publication of curtailment (schedule reduction) data (wheels, exports, load)	Transmission Service & Market Scheduling Priorities Phase 1	Pre-Summer 2022
CMRI	Publish Resource-Specific RSE Capacity Test Data Publish Resource-Specific RSE Flexible Ramping Test Data	WEIM Resource Sufficiency Evaluation Enhancements Phase 1	UI: Pre-Summer 2022 API: 2022
OASIS	Increased Resource Sufficiency Evaluation (RSE) Data on RSE Results and Additional Data Transparency and Reporting – Publish Balancing Authority Area (BAA) RSE Capacity Test Data	WEIM Resource Sufficiency Evaluation Enhancements Phase 1	UI: Pre-Summer 2022 API: 2022
OASIS	Increased RSE Data on RSE Results and Additional Data Transparency and Reporting – Publish BAA RSE Flexible Ramping Test Data	WEIM Resource Sufficiency Evaluation Enhancements Phase 1	UI: Pre-Summer 2022 API: 2022
CAISO website Today's Outlook page and ISO Today mobile app	Redesign of the existing Capacity chart to add available unloaded capacity and call out reserves portion	Summer Readiness	Pre-Summer 2022
CAISO website Today's Outlook page and ISO Today mobile app	Addition of a separate line on the Demand Trend that visually indicates when Demand Response is being dispatched and its subsequent divergence from the load forecast	Summer Readiness	Pre-Summer 2022

# WEIM Release Plan Summary: 2022

## **WEIM Spring 2022 - May**

- WEIM 2022 - Bonneville Power Administration
- WEIM 2022 - Tucson Electric Power
- Joint Owned Units Pilot

## **WEIM 2022 Independent**

- WEIM Enhancements: Shared Ramping Constraint
- WEIM Enhancements: ETSR UI

# Release Plan Summary: 2022

## 2022 Independent

- Updates to CAISO AWE Tool Pre-Summer (Alert, Warning, Emergency (AWE) to Energy Emergency Alert (EEA) Transition)
- Transmission Service & Market Scheduling Priorities Ph1 (was Ext Load Forward Sched Rights Process Ph1)
- WEIM Resource Sufficiency Evaluation Enhancements – Phase 1
- Adjustment to Intertie Constraint Penalty Prices (Market Parameter Changes)
- RDRR Bidding Enhancements Phase 1
- Short-Long Start Definitions
- Interconnection Process Enhancements Phase 1 **BOG May**
- Operations System Improvements Enhancements
- OMS Framework to WebVision

## Fall 2022

- Hybrid Resources Phase 2-B
- FRP Improvements
- FERC 2222 Implementation
- Central Procurement Entity Implementation
- MIC Enhancements

# WEIM Spring 2022 Release



# Spring 2022 – WEIM integrations for Avista, BPA, Tacoma Power, Tucson Electric Power

Project Info	Details/Date
Application Software Changes	System modifications as needed to accommodate any unique Avista, BPA, Tacoma Power, and Tucson Electric Power 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 Avista, BPA, Tacoma Power, and Tucson Electric Power.
Market Simulation	October 2021 thru mid-February 2022
Parallel Operations	December 2021 thru mid-April 2022

Milestone Type	Milestone Name	Dates			
		Avista	Tacoma Power	BPA	Tucson Electric Power
Market Sim	Market Sim Window	✓ Oct 2021 thru Nov 2021		✓ Dec 2021 thru mid-Feb 2022	
Parallel Operations	Parallel Operations	✓ Dec 2021 thru Feb 2022		✓ Feb 2022 thru mid-Apr 2022	
Tariff	File Readiness Certification	✓ 2/1/2022			✓ 4/1/2022
Production	Activation	✓ 3/2/22			5/3/22

# WEIM Enhancements

Project Information	Details/Date
<b>High Level Business Problem or Need</b>	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).
<b>High Level Project Scope</b>	<ul style="list-style-type: none"> <li>• Scope 1: BAAOP: ETSR Locks. Only RTMO can use the new functionality of scheduling ETSR locks but all WEIMs can see the ETSR lock status.</li> <li>• Scope 2: BAAOP: WEIM shared ramping constraint IS NOT editable through UI.</li> <li>• Scope 3: BAAOP: ETSR detail screen will be available to BOTH RTMO and WEIMs. (First drop for testing will only be available to RTMO).</li> </ul>
<b>BPM Changes</b>	WEIM, Market Instruments
<b>Tariff Change</b>	Section 29.4
System	High Level Changes
<b>Real-Time Market (RTM)</b>	Scope 1: <ul style="list-style-type: none"> <li>• ETSR Locks. WEIMs can see the ETSR lock status.</li> </ul>
<b>Real-Time Market (RTM)</b>	<b>Scope 2:</b> <ul style="list-style-type: none"> <li>• Shared ramping capability constraint</li> <li>• UI for WEIM entity input parameters for ramp sharing</li> <li>• Use in the optimization for each resource based on BAA ramp share parameters</li> </ul>
<b>Real-Time Market (RTM)</b>	Scope 3: <ul style="list-style-type: none"> <li>• New ETSR detail screens</li> </ul>

# Independent 2022 Release

# Independent 2022 Overview

	Board Approval	External BRS	Config Guide	Tech Spec	Tariff	BPMs	Training	Market Sim / Ext Testing Start	Production Activation
<b>Independent 2022</b>									
<b>Updates to CAISO AWE Tool Pre-Summer (AWE to EEA Transition)</b>	N/A	02/25/22	N/A	N/A	N/A	Mkt Ops PRR1413 03/24/22	4/20/22	N/A	05/01/22
<b>Transmission Service and Market Scheduling Priorities Phase 1</b>	01/20/22	03/02/22	N/A	OASIS 03/25, 04/11  SIBR 04/22	Filed 01/27/22 ( <a href="#">ER22-906</a> )  Accepted 3/15 (ext of L, E, W)	Mkt Ins Mkt Ops	4/28/22	5/3/22 – 5/20/22	06/01/22
<b>Resource Sufficiency Evaluation Enhancements Phase 1A</b>	02/09/22	03/07/22 04/08/22	01/25/22	OASIS – 03/25, 04/11  CMRI – 04/20	Filed 03/11/22 ( <a href="#">ER22-1278</a> )	DR, WEIM, Mkt Inst, Mkt Ops, RC, Stlmts & Billing	Yes	May 2022	06/01/22
<b>Adjustment to Intertie Constraint Penalty Prices</b>	02/09/22	N/A	N/A	N/A	Filed 03/10/22 ( <a href="#">ER22-1246</a> )	Mkt Ops PRR1411; 02/28/22	N/A (Communication)	N/A	06/01/22
<b>RDRR Bidding Enh Phase 1</b>	03/16/22	03/07/22	N/A	N/A	03/23/22 ( <a href="#">ER22-1431</a> )	Mkt Inst PRR1434 04/14/22  Mkt Ops	4/11/22	4/19/22 – 5/6/22	06/01/22
<b>Short-Long Start Definitions</b>	03/16/22	06/21/21 04/18/22	05/27/21	N/A	03/24/22 ( <a href="#">ER22-1438</a> )	03/24/22 MI-1414 MO-1415 RR-1424 SB-1426	N/A (Communication)	N/A	06/01/22
<b>Interconnection Process Improvements 2021 Phase 1</b>	05/11/22	N/A	N/A	N/A	File May/Jun 2022	TBD	N/A	N/A	Sep 2022

# Independent 2022 – Updates to CAISO AWE Tool - Overview

Project Information	Details/Date
<b>High Level Business Problem or Need</b>	To ensure operators have the proper message types for Summer 2022 this initiative focuses on Updates to AWE Tool by transitioning from specific AWE declarations (Alert, Warning, Stage 1, 2, 3) to EEA declarations (EEA Watch, EEA 1, EEA 2, EEA 3).
<b>High Level Project Scope</b>	Transition to EEA declarations (EEA Watch, EEA 1, EEA 2, EEA 3). <b>External BRS Posting:</b> An updated External BRS is expected to be posted late February.
<b>BPM Changes</b>	Market Operations
<b>Tariff Changes</b>	Proposed sections 4.11.5.1 and 34.7 (section 13) – Tariff Clarifications Filing
<b>Impacted Systems</b>	CAISO AWE Tool

# Independent 2022 – Updates to CAISO AWE Tool

Milestone Type	Milestone Name	Dates	Status
External BRS	Post External BRS	Feb 25, 2022	✓
Tariff	File Tariff	N/A	
BPMs	Publish Final Business Practice Manuals – Mkt Ops PRR 1413	Mar 24, 2022	✓
External Training	Deliver External Training	Apr 20, 2022	
Market Sim	Market Sim Window	N/A	
Production Activation	Updates to CAISO AWE Tool	May 01, 2022	

# Independent 2022 – Transmission Service and Market Scheduling Priorities – Phase 1

Project Information	Details
<b>High Level Business Problem or Need</b>	-To development of a long-term, holistic, and durable, framework for establishing scheduling priorities in the CAISO market. Phase 1 of the initiative will be evaluating near-term enhancements that the CAISO can implement by summer 2022
<b>High Level Project Scope</b>	<p>Transparency enhancements</p> <ul style="list-style-type: none"> <li>- Publication of Aggregate PT Wheel Registration Data and Aggregate RA showing Import Data Completed -data posted in CAISO website</li> <li>- Publication of RUC/RTPD/RTD adjustments - OASIS</li> <li>- Publication of curtailment (schedule reduction) data (wheels, exports, load)- OASIS</li> </ul> <p>Market Scheduling Priorities enhancements</p> <ul style="list-style-type: none"> <li>- Extension of wheeling through scheduling priorities for Summer 2022 to June 1, 2024 (status quo).</li> <li>- Provide visibility of non-RA capacity for supporting resource, and notification to PT exports and supporting resource when sum of PT export schedules exceed non-RA capacity. -SIBR</li> </ul>
<b>BPM Changes</b>	<ul style="list-style-type: none"> <li>- Market Instruments</li> <li>- Market Operations</li> </ul>
<b>Tariff Change</b>	Extension to June 1, 2024 Sections:30.5.1, 31.4, 31.5.5,31.4.1, 34.12.1, 34.12.2, 34.12.3
Impacted systems	Details
<b>SIBR</b>	<p>Allow SC of supporting resource to view the available capacity in SIBR</p> <p>Notify the SC of export when sum of the export exceed supporting resource non-RA capacity from SIBR</p>
<b>Integrated Forward Market, Real Time Market (IFM, RTM)</b>	<p>Publish RUC adjustment</p> <p>Publish RTPD, RTD load forecast adjustment</p> <p>Publish Schedule reduction once the instruction is issued in RUC</p> <p>Publish Schedule reduction once the instruction is issued in HASP that incorporate the post-HASP pro-rate process or operator adjustment</p>
<b>OASIS</b>	<p>Publish RUC adjustments on OASIS</p> <p>Publish RTPD, RTD binding interval and advisory intervals load forecast adjustments on OASIS</p> <p>Publish aggregated schedule reduction after instruction issued in RUC on OASIS</p> <p>Publish aggregated schedule reduction after instruction issued (HASP),</p>

# Independent 2022 – Transmission Service and Market Scheduling Priorities – Phase 1

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors	Jan 20, 2022	✓
External BRS	Post External BRS	Mar 2, 2022	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec) OASIS SIBR	Mar 25, 2022, Apr 11, 2022 Apr 22, 2022	✓
Tariff	File Tariff - ER22-906	Jan 27, 2022	✓
	FERC Accepted Extension of Loads, Exports, Wheeling thru Jun 1, 2024)	Mar 15, 2022	✓
BPMs	Post Draft BPM changes – Mkt Inst, Mkt Ops	Yes	
External Training	Deliver External Training	Apr 28, 2022	
Market Sim	Market Sim Window	May 3, 2022 – May 20, 2022	
Production Activation	Production	Jun 01, 2022	



# Independent 2022 –WEIM Resource Sufficiency Evaluation Enhancements – Phase 1

Project Information	Details
<b>High Level Business Problem or Need</b>	Implement enhancements to the WEIM Resource Sufficiency Evaluation (RSE) to ensure the RSE is administered accurately and applied equitably.
<b>High Level Project Scope</b>	<p>Address the following WEIM RSE Enhancements:</p> <ul style="list-style-type: none"> <li>- Consideration of Intertemporal Constraints in the Capacity Test</li> <li>- Flexible Ramping Test Modifications – Power Balance Constraint</li> <li>- Consider a Resource’s Transition through Forbidden Operating Region in the Flexible Ramping Sufficiency Test.</li> <li>- RSE Modifications – Storage Resources Treatment</li> <li>- Balancing Test Modifications</li> <li>- Demand Response Inclusion with RSE</li> <li>- Reliability of CAISO Interchange Schedules</li> <li>- Emergency Actions that Constitute Resource Insufficiency</li> <li>- Increased RSE Data on RSE Results and Additional Data Transparency and Reporting</li> <li>- Increased WEIM Entities Situational Awareness Regarding Test Performance</li> <li>- Net-Load Uncertainty Calculation Removal in Capacity Test</li> <li>- Intertie Uncertainty Calculation Removal in Capacity Test</li> </ul>
<b>BPM Changes</b>	<ul style="list-style-type: none"> <li>- Energy Imbalance Market (WEIM)</li> <li>- Market Instruments</li> <li>- Market Operations</li> <li>- Settlements and Billing</li> </ul>
<b>Tariff Change</b>	29.34

# Independent 2022 – WEIM Resource Sufficiency Evaluation Enhancements – Phase 1 (cont'd)

Impacted systems	Details
<b>Master File (MF)</b>	Implement the following RSE enhancements: <ul style="list-style-type: none"> <li>- Demand Response Inclusion with RSE</li> </ul>
<b>Real-Time Base Scheduler (RTBS)</b>	Implement the following RSE enhancements: <ul style="list-style-type: none"> <li>- Consideration of Intertemporal Constraints in the Capacity Test</li> <li>- Flexible Ramping Test Modifications – Power Balance Constraint</li> <li>- Consider a Resource’s Transition through Forbidden Operating Region in the Flexible Ramping Sufficiency Test.</li> <li>- RSE Modifications – Storage Resources Treatment</li> <li>- Demand Response Inclusion with RSE</li> <li>- Reliability of CAISO Interchange Schedules</li> <li>- Increased WEIM Entities Situational Awareness Regarding Test Performance</li> <li>- Net-Load Uncertainty Calculation Removal</li> <li>- Intertie Uncertainty Calculation Removal</li> </ul>
<b>Balancing Authority Area Operations Portal (BAAOP)</b>	Implement the following RSE enhancements: <ul style="list-style-type: none"> <li>- Demand Response Inclusion with RSE</li> <li>- Emergency Actions that Constitute Resource Insufficiency</li> <li>- Increased WEIM Entities Situational Awareness Regarding Test Performance</li> </ul>
<b>Real Time Market (RTM)</b>	Implement the following RSE enhancements: <ul style="list-style-type: none"> <li>- Demand Response Inclusion with RSE</li> <li>- Emergency Actions that Constitute Resource Insufficiency</li> </ul>
<b>Settlements</b>	Implement the following RSE enhancements: <ul style="list-style-type: none"> <li>- Balancing Test Modifications</li> <li>- Demand Response Inclusion with RSE</li> <li>- Reliability of CAISO Interchange Schedules</li> </ul>
<b>CAISO Website, Today’s Outlook</b>	Implement the following RSE enhancements: <ul style="list-style-type: none"> <li>- Increased RSE Data on RSE Results and Additional Data Transparency and Reporting</li> </ul>

# Independent 2022 – WEIM Resource Sufficiency Evaluation Enhancements – Phase 1 (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors	Feb 9, 2022	✓
External BRS	Post External BRS	Mar 7, 2022	✓
Config Guides	Post Draft Config Guides	Jan 25, 2022	✓
Tech Spec	Create ISO Interface Spec (Tech spec) OASIS CMRI RTM	Mar 25, 2022, Apr 11, 2022 Apr 20, 2022	✓
Tariff	File Tariff - ER22-1278	Mar 11, 2022	✓
BPMs	Post Draft BPM changes – DR, WEIM, Mkt Inst, Mkt Ops, RC, Stlmts & Billing	Yes	
External Training	Deliver External Training	Yes	
Market Sim	Market Sim Window	May 2022	
Production Activation	Production Settlements & Core Market Transparency UI Transparency API	Jun 1, 2022 TBD TBD	

# Independent 2022 – Adjustment to Intertie Constraint Penalty Prices

Project Information	Details
<b>High Level Business Problem or Need</b>	Change specific penalty price parameters to ensure the market is able to resolve intertie over-scheduling situations, consistent with observed conditions on the grid.
<b>High Level Project Scope</b>	<ul style="list-style-type: none"> <li>- Increase the HASP ITC penalty price from \$1,500/MWh to \$2,900/MWh for \$1,000 bid cap and \$5,800 for \$2,000 bid cap.</li> <li>- Adjust additional HASP penalty prices for priority among penalty prices</li> <li>- Increase the RUC ITC penalty price from \$1,250/MWh to \$3,200/MWh for \$1,000 and \$2,000 bid caps.</li> </ul>
<b>BPM Changes</b>	<ul style="list-style-type: none"> <li>- Market Operations</li> </ul>
<b>Tariff Change</b>	<ul style="list-style-type: none"> <li>- 27.4.3.2.1</li> <li>- 27.4.3.3.1</li> </ul>

Impacted systems	Details
<b>Day-Ahead Market (DAM)</b>	<ul style="list-style-type: none"> <li>- Increase the RUC ITC penalty price from \$1,250/MWh to \$3,200/MWh for \$1,000 and \$2,000 bid caps.</li> </ul>
<b>Real-Time Market (RTM)</b>	<ul style="list-style-type: none"> <li>- Increase the HASP ITC penalty price from \$1,500/MWh to \$2,900/MWh for \$1,000 bid cap and \$5,800 for \$2,000 bid cap.</li> <li>- Adjust additional HASP penalty prices for priority among penalty prices for:               <ul style="list-style-type: none"> <li>• Exceptional Dispatch for Tie Generators</li> <li>• WEIM Base Scheduled Exports</li> <li>• Tagged Quantity for Exports</li> <li>• WEIM Base Scheduled Imports</li> <li>• Tagged Quantity for imports</li> <li>• WEIM Transfer Constraint</li> </ul> </li> </ul>

# Independent 2022 – Adjustment to Intertie Constraint Penalty Prices (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors	Feb 9, 2022	✓
External BRS	Post External BRS	N/A	
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff - ER22-1246	Mar 11, 2022	✓
BPMs	Post Draft BPM changes – Mkt Ops (PRR 1411)	Feb 28, 2022	✓
External Training	Deliver External Training	N/A – Communication	
Market Sim	Market Sim Window	N/A	
Production Activation	Production	Jun 1, 2022	

# Independent 2022 – RDRR Bidding Enhancements – Phase 1

Project Information	Details
<b>High Level Business Problem or Need</b>	Aligning RDRR real-time bidding with FERC Order No. 831 by proposing that RDRRs must bid at least 95% of the hard energy bid cap (\$1,900/MWh) when the conditions are satisfied that raise the soft energy bid cap to \$2,000/MWh.
<b>High Level Project Scope</b>	Automatically adjust the submitted RDRR bids based on the change in energy bid cap by maintaining the percentage of the bid cap originally submitted by the Scheduling Coordinator. This automatic adjustment will occur after the market close and will only apply if no action is taken by the close of each hour's real-time market by the Scheduling Coordinator.
<b>BPM Changes</b>	<ul style="list-style-type: none"><li>- Market Instruments</li><li>- Market Operations</li></ul>
<b>Tariff Change</b>	Section 30

Impacted systems	Details
<b>SIBR</b>	Implement the following : <ul style="list-style-type: none"><li>- New rules to increase the bid floor for all RDRRs under certain conditions.</li><li>- Post-close rules to adjust bid prices based on the bid cap.</li></ul>

# Independent 2022 – RDRR Bidding Enhancements – Phase 1

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors	Mar 16, 2022	✓
External BRS	Post External BRS	Mar 7, 2022	✓
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	March 23, 2022	✓
BPMs	Post Draft BPM changes – Mkt Inst (PRR 1434), Mkt Ops	Apr 14, 2022	✓
External Training	Deliver External Training	Apr 11, 2022	✓
Market Sim	Market Sim Window	Apr 19, 2022 – May 6, 2022	
Production Activation	Production	Jun 1, 2022	

# Independent 2022 – Short-Long Start Definitions

Project Information	Details
<b>High Level Business Problem or Need</b>	<ul style="list-style-type: none"> <li>- To align market applications and business processes with revised ISO Tariff definitions of Short and Long Start resources.</li> <li>- To simplify and streamline CAISO definitions regarding startup classifications.</li> <li>- To clarify operational and settlement communication and outcomes for WEIM and ISO market participants.</li> </ul>
<b>High Level Project Scope</b>	<ul style="list-style-type: none"> <li>- Update current ISO Tariff definitions and business practice manuals.</li> <li>- The Medium Start definition will be removed and rolled into the Short Start definition.</li> <li>- Clarify operational and settlement communication and outcomes for WEIM and ISO market participants.</li> </ul>
<b>BPM Changes</b>	<ul style="list-style-type: none"> <li>- Definitions &amp; Acronyms</li> <li>- Market Instruments</li> <li>- Market Operations</li> <li>- Reliability Requirements</li> <li>- Settlements &amp; Billing</li> </ul>
<b>Tariff Change</b>	The tariff is being changed to 1) align the market and settlement systems, and 2) align to the existing real-time optimization horizon. Sections: 34.3.1, 34.3.2, 34.6 40.6.2

Impacted systems	Details
<b>Market Quality System (MQS)</b>	Auxiliary Processes (Startup, Minimum Load, and Transition Cost BCR pre-qualification) shall consider a resource to be eligible for real-time commitment if the sum of startup time and minimum up time is 255 minutes or less (was previously startup time 270 minutes or less.)
<b>SIBR</b>	Update bid insertion rules to account for changes to Short Start and Long Start definitions under tariff revisions; account for the DA/RT unit commitment 255 minute cycle time for Short Start units (was previously 270 minutes). As previously implemented, Long Start units will not have bid-insertion performed in real-time markets if not committed in the Day-Ahead Market.
<b>Integrated Forward Market, Real Time Market (IFM, RTM)</b>	<ul style="list-style-type: none"> <li>• Update IFM and RTM market systems to have the DA binding commitment cycle time (startup time + minimum up time) changed from 270 to 255 minutes.</li> <li>• No software impacts to Operator Displays.</li> </ul>
<b>Settlements</b>	Settlement systems shall account for new tariff startup definitions when applying DA/RT Bid Cost Recovery, AS Non-Spin/Spin No Pay, and RAAIM Pre-Calc calculations.



# Independent 2022 – Short-Long Start Definitions

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors	Mar 16, 2022	✓
External BRS	Post External BRS BRS v1.2	Jun 21, 2021 Apr 18, 2022	✓ ✓
Config Guides	Post Draft Config Guides	May 27, 2021	✓
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	Mar 24, 2022	✓
BPMs	Post Draft BPM changes	Mar 25, 2022	✓
External Training	Deliver External Training	N/A (Communication)	
Production Activation	Short-Long Start Definitions	Jun 1, 2022	

# Independent 2022 – Interconnection Process Enhancements (IPE) 2021 – Phase 1

Project Information	Details
<b>High Level Business Problem or Need</b>	The proposal is focused on four main areas including how to manage the “currently overheated” interconnection queue and encourage resource developer discipline to submit only viable projects; removing barriers for timely development of needed resources; better alignment of resource procurement by LSEs with the ISO process and state policy direction; and addressing residual issues that have emerged since the process was last reviewed in 2018. Those residual issues include how to allocate costs for generator driven network upgrades, and reimbursement for reliability network upgrades for generators outside the ISO system.
<b>High Level Project Scope</b>	The project will focus on the following: <ul style="list-style-type: none"><li>•Continuous improvement of the generator interconnection process</li><li>•Provide greater visibility and transparency to the stakeholders</li><li>•Eliminate manual workarounds</li><li>•Provide single source of data</li></ul>
<b>System Changes</b>	N/A

# Independent 2022 – Interconnection Process Enhancements (IPE) 2021 – Phase 1 (cont'd)

Milestone Type	Milestone Name	Dates	Status
Board Approval	Board of Governors	May 11, 2022	
External BRS	Post External BRS	N/A	
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Create ISO Interface Spec (Tech spec)	N/A	
Tariff	File Tariff	May/June 2022	
BPMs	Post Draft BPM changes	TBD	
External Training	Deliver External Training	N/A	
Market Sim	Market Sim Window	N/A	
Production Activation	Production	Sep 2022	

# Operations Systems Improvements 2021/2022 Enhancements

Project Information	Description								
<b>High Level Business Problem or Need</b>	<ul style="list-style-type: none"> <li>The goal of this project is to deliver timely systems improvements that support efficient day-to-day work and operations. The project aims to improve market robustness, performance, and the technology foundation for system grid reliability by updating functionality and interfaces to reduce workarounds, automating manual processes and addressing functionality enhancements. A list of specific high priority improvements will be the scope for the project. A number of these improvements may have an impact on the way in which customers interact with CAISO systems.</li> </ul>								
<b>Affected Systems</b>	<ul style="list-style-type: none"> <li>A preliminary list of enhancements is included on the next slide.</li> </ul> <p>PLEASE NOTE: This list may change as the project progresses and priority are factored. The goal is to provide advanced notification of changes whenever possible</p>								
<b>Schedule</b>	<table border="0"> <tr> <td>• External BRS</td> <td>2022 External BRS <a href="#">ECD 4/25</a></td> </tr> <tr> <td>• MAP Stage Availability</td> <td>TBD*</td> </tr> <tr> <td>• Customer Training</td> <td>TBD*</td> </tr> <tr> <td>• PROD</td> <td>TBD*</td> </tr> </table> <p>* The plans for testing and deployment will vary between improvement items as these may be released individually or in groups. More information on specific improvements will be made available as planning and schedules are solidified.</p>	• External BRS	2022 External BRS <a href="#">ECD 4/25</a>	• MAP Stage Availability	TBD*	• Customer Training	TBD*	• PROD	TBD*
• External BRS	2022 External BRS <a href="#">ECD 4/25</a>								
• MAP Stage Availability	TBD*								
• Customer Training	TBD*								
• PROD	TBD*								

# Operations Systems Improvements Projects

## List of Proposed Improvements\*

\*PLEASE NOTE: This list may change as the project progresses and priorities are factored. The goal is to provide advanced notification of changes whenever possible

### 2021

System	Summary Description	Next Step
Market	Ability to block/unblock ETSRs for a specified Time interval	PROD w/ WEIM 2021
ADS	Add advance filter, additional color scheme, change grid color	PROD – May 2022

### 2022

System	Summary Description	Next Step
ADS	System must have the capability to "update existing configuration" across profiles & "have shared displays synchronized."	Q3 2022
Market	Modify Unit Details UI	July 2022
<del>MRI- Settlements</del>	<del>Automate PTO submission of TAC Rates</del>	<del>2022</del>

Potential 2022 Enhancements may include updates to the following systems:

- OMS
- RTM
- ADS
- CIDI
- Market
- ~~MRI-S~~

# OMS Framework to WebVision

## Why?

- Microsoft Silverlight reached the end of support on October 12, 2021

## What to expect?

- Dependency on Silverlight and IE11. webVision will support Chrome, Edge and FireFox. IE11 is initially supported, but is not recommended.
- webVision framework changes will impact application menu, main page header, look and feel of ALL displays.
- Adds new framework features (e.g., Favorites)
- No data migration was involved and there is no change to business logic

## Notice – Silverlight no longer available for download

The California ISO will be upgrading the **Outage Management System (webOMS)** platform from Microsoft Silverlight to WebVision late May 2022. This will allow WebOMS users to access the application through other web browsers outside of Internet Explorer 11; therefore, discontinuing the dependency for Microsoft Silverlight.

Currently, **Microsoft Silverlight** has reached the **end of support** and is **no longer available for download**. This blocks users with new machines from downloading the Silverlight program from Microsoft.

To prevent impacts to webOMS for users with workstation refreshed prior to the upgrade to WebVision, the recommendation is to contact your IT Support to obtain a copy of the Silverlight program so that it can be installed onto your computer. This also applies to new users needing to access the webOMS application.

The California ISO does not provide copies of the Microsoft Silverlight program.

**Timeline: MAPSTAGE May 2022, Production by May 31, 2022**

# 2022 Fall Release

# Fall 2022 Release Overview

	BRS	Config Guide	Tech Spec	Draft Tariff*	BPMs	External Training	Market Sim	Production Activation
<b>Fall 2022 Release</b>	<b>04/01/22</b>	<b>05/31/22</b>	<b>05/20/22</b>	<b>06/21/22</b>	<b>07/15/22</b>	<b>07/18/22 – 07/22/22</b>	<b>07/25/22 – 09/02/22</b>	<b>10/1/22</b>
<a href="#"><u>Hybrid Resources Phase 2-B</u></a>	8/3/21 1/12/22	01/25/22	09/10/21	09/17/21	02/14/22	By 7/22/22	07/25/22 – 09/02/22	10/01/22
<a href="#"><u>FRP Improvements - Deliverability</u></a>	<a href="#"><u>V1.0: 01/28/21</u></a> Reqmts Enh V1.0: 3/11/22	05/31/22	5/06/22 - OASIS	08/31/20	05/27/22	07/21/22	07/25/22 – 09/02/22	10/01/22
<a href="#"><u>FERC Order 2222</u></a>	3/29/22	N/A	MF	06/21/22	07/15/22	By 7/22/22	07/25/22 – 09/02/22	10/01/22
<a href="#"><u>Central Procurement Entity Implementation</u></a>	3/10/22 4/7/22	05/31/22	05/20/22	06/21/22	07/15/22	By 7/22/22	07/25/22 – 09/02/22	10/01/22
<a href="#"><u>MIC Enhancements</u></a>	4/11/22	05/31/22	05/20/22	06/21/22	07/15/22	By 7/22/22	07/25/22 – 09/02/22	10/01/22



# Fall 2022 – Hybrid Resources Phases 2-B - Overview

Project Information	Details/Date
<b>High Level Business Problem or Need</b>	<p>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 project participation (hybrid and co-located resources) in the ISO markets.</p>
<b>High Level Project Scope</b>	<p><b>Phase 2</b> 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.</p> <p>The Phase 2 project has been split into two separate implementations, phases 2-A and 2-B, to support strategic delivery timing. Phase 2-B information is available under the Spring 2022 release section.</p> <p><b>Phase 2-A</b> was implemented on December 15, 2021. This phase focuses on implementing Ancillary Services (AS) and High Sustainable Limit (HSL) functionality with a focus on the EMS and IFWRTM systems.</p> <p><b>Phase 2-B</b> is scheduled to implement Fall 2022. This project phase focuses on implementing the Hybrid Dynamic Limit functionality, Multiple ACC, along with all remaining project scope to include changes to systems RIMS, Master File, EMS, SIBR, IFWRTM, OASIS, ALFS, Settlements, MRI-S Metering, CMRI, MPP, Today's Outlook, ISO Today Mobile Application, Monthly Renewables Performance Report, Wind and Solar Real-Time Dispatch Curtailment Report, and the Over Supply Page.</p> <p><b>External BRS Posting:</b> An updated External BRS v1.2 has been posted. V1.3 expected by 3/13.</p>
<b>BPM Changes</b>	<p>Direct Telemetry, Market Instruments, Market Operations, Metering, Settlements and Billing</p>
<b>Tariff Changes</b>	<p>Proposed sections 4.18, 34.1.6.3, 30.5.6.1            Sections 27.13, 8.4.1.1(g), 8.4.3, Appendix K, Parts A, B and C, 8.2.3, 8.4.5, 34.7, 11.6.6, 4.8.2, 40.9.2 (b) (D)</p>
<b>Impacted Systems</b>	<p>ALFS, CMRI, Reporting, IFWRTM, Master File, OASIS, RIMS, Settlements, MRI-S Metering, SIBR, MPP, Today's Outlook, ISO Today Mobile Application, Monthly Renewables Performance Report, Wind and Solar Real-Time Dispatch Curtailment Report, Over Supply Page.</p>

# Fall 2022 – Hybrid Resources Phase 2-B (Cont'd)

System	High Level Changes
<b>Automated Load Forecast System (ALFS)</b>	<ul style="list-style-type: none"> <li>• Identification of variable energy resources (VER)</li> <li>• New forecast type for hybrid resources</li> <li>• Forecast for hybrid resources that elect for ISO forecast</li> </ul>
<b>CAISO Market Results Interface (CMRI)</b>	<ul style="list-style-type: none"> <li>• Updates to include resource specific forecast data for hybrid resources (VER components).</li> </ul>
<b>Reporting</b>	<ul style="list-style-type: none"> <li>• Update report(s) for resource tagging changes: Solar Total tag, Wind Total Tag, Battery Total Tag (Renewable watch, Curtailment Report, ISO Today), and new Hybrid Total Tag</li> </ul>
<b>Integrated Forward Market (IFM)/Real-Time Market (RTM)</b>	<ul style="list-style-type: none"> <li>• When any resource behind an ACC constraint has an AS award, all resources behind that ACC constraint must follow their DOT and receive the must follow flag</li> <li>• Create a new user interface to display the hybrid summary (dynamic limits)</li> <li>• Modify 'Must Follow DOT' flag for AS cleared or AS dispatched award               <ul style="list-style-type: none"> <li>◦ Must Follow DOT Flag must turn to 'Y' for Ancillary Service Cleared by resource ID</li> </ul> </li> <li>• Software that takes the submitted limit and haircuts the energy bid used in each interval of the market time horizon</li> <li>• Limit the economic dispatch of a hybrid resource in the real-time market based on dynamic limits submitted to SIBR</li> <li>• For resources and hybrids, add new user interfaces</li> <li>• Dynamic Limit functionality:</li> <li>• Display a hybrid resources upper limit and lower limit</li> </ul>
<b>OMS</b>	<ul style="list-style-type: none"> <li>• System shall consume the new "HYBD" fuel type value and display the value for hybrid resource outages</li> </ul>

# Fall 2022 – Hybrid Resources Phase 2-B (Cont'd)

System	High Level Changes
<b>Master File (MF)</b>	<ul style="list-style-type: none"> <li>• Enhance MF to identify Hybrid resources</li> <li>• Create a new categorization in MF to identify hybrid resources to handle dynamic limits</li> <li>• Add the ability to store the state-or-charge minimum and maximum limit</li> <li>• Identification of variable energy resources (VER)</li> <li>• Enhance MF to map hybrid resource to individual VER component(s)</li> <li>• <b>Note:</b> Renew able registration for VER components is currently mapped to Resource ID; will need further automation to map to individual VER component</li> <li>• New unit type to identify a hybrid resource under the existing NGR model</li> <li>• New identification of individual renew able components that make up a hybrid resource</li> <li>• Ability to elect for ISO forecast or SC submitted forecast to be at the renew able component level</li> <li>• Make the new categorization of hybrid resources along with associated attributes available for dow nstream applications</li> <li>• Add a MF rule to make sure the 'MOO Qualified Flag' is set to "N" for hybrid resources</li> <li>• Modifications to support the need for a few MF resource attributes (for example, fuel type, technology type, QF Flag, VER NGR flag, etc.) that need to be associated to the VER components that make up the hybrid resources</li> <li>• Map PI Tags (VER actual and meteorological tags) to each Resource ID or VER component. <b>Note:</b> System to be determined per Architecture Definition</li> </ul>
<b>Open Access Same Time Information (OASIS)</b>	<ul style="list-style-type: none"> <li>• Updates to create a new category for hybrid resources to be included in the forecast data reports.</li> </ul>
<b>Settlements</b>	<ul style="list-style-type: none"> <li>• Consume new VER Component ID for forecasting fee</li> <li>• Updates to forecast fee calculation based on meter data submitted for the VER components that elect ISO forecast</li> </ul>
<b>Metering (MRI-S)</b>	<ul style="list-style-type: none"> <li>• Ability to receive meter data at the VER Component ID level for hybrid resources</li> <li>• Updates for Western Renewable Energy Generation Information System (WREGIS) reporting of meter data on the Hybrid components</li> </ul>
<b>Scheduling Infrastructure and Business Rules (SIBR)</b>	<ul style="list-style-type: none"> <li>• Treat all hybrid resources as non REM NGRs</li> <li>• Flagging must be configured to ensure bid insertion does not occur</li> <li>• SIBR rules and new rule flow needs to be created to receive and validate the dynamic operating limits</li> <li>• Allow s market participant to submit their dynamic limit</li> <li>• Allow submission of upper and low er economic limits for each 5-minute interval in a three hour w indow for hybrid resources</li> <li>• Validation of upper and low er economic limits</li> <li>• Validate the dynamic operating limits</li> </ul>

## Fall 2022 – Hybrid Resources Phase 2-B

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Nov 18, 2020	✓
External BRS	Post External BRS (Includes Phase 2-A and 2-B)	Aug 3, 2021	✓
	Post External BRS revisions - Elaboration on BRQs and clarifications	Jan 12, 2022	✓
Config Guides	Post Draft Config Guides	Jan 25, 2022	✓
Tech Spec	Create ISO Interface Spec (Tech spec)	Sep 10, 2021	✓
Tariff	File Tariff	Sep 17, 2021	✓
Market Sim Scenarios	Post proposed scenarios (Unstructured)	Feb 8, 2022	✓
BPMs	Publish Final Business Practice Manuals for mkt sim	Feb 14, 2022	✓
External Training	Deliver External Training	By Jul 22, 2022	
Market Sim	Market Sim Window	Jul 25, 2022 – Sep 02, 2022	
Production Activation	Hybrid Resources Phase 2-B	Oct 1, 2022	

# Fall 2022 – Flexible Ramping Product Improvements Deliverability

Project Information	Details/Date
<b>High Level Project Scope</b>	<p>The scope of the project FRP Deliverability is:</p> <ol style="list-style-type: none"> <li>1. Procurement of FRP for BAA's that fails the flex test is separate for each BAA.</li> <li>2. Procurement of FRP for BAA's that pass the flex test for the entire group of BAA.</li> <li>3. Transmission constraints and transfer limits are enforced in FRP deployment scenarios</li> <li>4. Distributing the uncertainty requirement in each BAA load and VER locations versus just load</li> <li>5. Distributing the demand curve surplus variable as a decision variable at load aggregation points (LAP) versus Balancing Authority Areas (BAA)</li> <li>6. To establish the Locational Marginal Capacity Prices (LMCP) for FRP</li> </ol> <p>The scope of the FRP Requirements Enhancements is:</p> <ol style="list-style-type: none"> <li>1. To enhance the current approach by adopting a quantile regression method to adjust the current flexible ramping product up and down requirement.</li> <li>2. Calculation of the demand curve.</li> </ol>
<b>BPM Changes</b>	Market Instruments, Market Operations
<b>Tariff Change</b>	Yes
<b>Impacted Systems</b>	RTM, Settlements, CMRI/OASIS
System	High Level Changes
<b>Real Time Markets (RTM)</b>	<ul style="list-style-type: none"> <li>• RTM to be impacted based on the change in the FRP procurement systems.</li> <li>• Input data needed for forecasted advisory in the binding interval for RTPD for approx. 40 work days or weekends.</li> <li>• New demand curve calculation is needed.</li> </ul>
<b>Settlements</b>	<ul style="list-style-type: none"> <li>• Prices are nodal therefore mechanics for cost allocation pricing to be changed</li> <li>• Nodal FRP prices</li> </ul>
<b>CAISO Market Results Interface (CMRI)/ Open Access Same time Information (OASIS)</b>	<ul style="list-style-type: none"> <li>• Publish Resource Nodal prices for the FRP awards (CMRI)</li> <li>• Publish requirements for FRP per BAA and BAA group (OASIS)</li> <li>• Publish surplus by LAP (OASIS)</li> <li>• Publish the nodal FRP prices (OASIS)</li> </ul>

## Fall 2022 – Flexible Ramping Product Improvements Deliverability

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	Sept 30, 2020	✓
External BRS	Flexible Ramp Product: Deliverability	Jan 28, 2021	✓
	Flexible Ramp Product: Requirements Enhancements	Mar 11, 2022	✓
Tariff	File Tariff	Apr 21, 2022	
BPMs	Publish Draft BPM updates	May 27, 2022	
Config Guides	Post Draft Config Guides	May 31, 2022	
Tech Spec	Publish Technical Specification - OASIS	May 06, 2022	
External Training	Deliver External Training	Jul 21, 2022	
Market Sim	Market Sim Window	Jul 25, 2022 – Sep 02, 2022	
Production Activation	FRP Deliverability	Oct 01, 2022	

# Fall 2022 – FERC Order 2222

Project Information	Details
<b>High Level Project Scope</b>	<p>The business requirements are based on the CAISO's proposed compliance with Order No. 2222. Because the Federal Energy Regulatory Commission has not yet issued an order on that proposed compliance, these business requirements are subject to change, including the implementation date.</p> <p>The proposed changes amend the CAISO's Tariff to comply with FERC Order 2222. FERC Order 2222 requires that all RTOs/ISOs allow for Distributed Energy Resources (DERs) that can provide a maximum of at least 100kW to participate in all markets. The CAISO already allows for DER participation but will have to make some adjustments to ensure compliance with FERC 2222.</p> <p>Key Notes:</p> <ul style="list-style-type: none"> <li>• Reduces DERA participation capacity to 100kW</li> <li>• Settlements for heterogeneous DERAs</li> <li>• Distributed Curtailment Resources (DCR) in heterogeneous DERAs</li> <li>• Same Net Benefits testing as PDR for heterogeneous DERAs</li> </ul>
<b>BPM Changes</b>	<ul style="list-style-type: none"> <li>- Demand Response</li> <li>- Market Instruments</li> <li>- Market Operations</li> <li>- Metering</li> <li>- Settlements and Billing</li> </ul>
<b>Tariff Change</b>	Yes
<b>Impacted Systems</b>	Master File, SIBR, MRI-S, RIMS, Settlements

# Fall 2022 – Central Procurement Entity Implementation

Project Information	Details
<b>High Level Project Scope</b>	<p>In June 2020, the CPUC ordered the creation of a Central Procurement Entity (CPE) to lead procurement of Local Resource Adequacy (RA) Resources for CPUC jurisdictional LSEs in the SCE and PG&amp;E TAC areas. Under this order, CPUC would now assign the local RA obligation to the CPE to procure local resources on behalf of all CPUC jurisdictional LSEs within the CPE's respective TAC area. The system and flexible RA attributes of these local resources would also be allocated to all LSEs through CAM credits to reduce their own system and flexible requirements. The CPUC adopted what it referred to as a hybrid procurement model, in which LSEs could procure local resources voluntarily to meet their system and flexible RA requirements, in which case the local resource also would count towards the collective local RA requirements of the CPE. The CPE would also be subject to CAISO's CPM mechanism for any identified local deficiencies.</p> <p>The CAISO tariff currently allows LSEs to aggregate responsibilities to procure Local Capacity Area Resources. However, given the unique nature of the CPE as outlined in CPUC D. 20-06-002, relying solely on this existing tariff provision is not sufficient to facilitate implementation of the CPE construct. The CAISO has identified additional needed tariff, software, and business process enhancements. Although the CPUC's CPE order is the impetus for this stakeholder initiative, the CAISO does not propose to limit a CPE to CPUC-jurisdiction LSEs. The CAISO instead proposes to allow all Local Regulatory Authorities (LRAs) to designate a CPE to procure local resources on behalf of its LSEs and that LRAs may designate the same CPE to procure local resources on behalf of the LSEs under the jurisdiction of those multiple LRAs.</p> <p>Scope:</p> <ol style="list-style-type: none"> <li>1. Recognizing a Central Procurement Entity (CPE)</li> <li>2. System and Local Obligation for CPE and LSEs with Load in Multiple Transmission Access Charge (TAC) Areas</li> <li>3. Allocation of System and Flexible Attributes of Local Resource Adequacy (RA) Resources</li> <li>4. Clarification of Capacity Procurement Mechanism (CPM) Process and Cost Allocations in regards to CPE changes</li> </ol>
<b>BPM Changes</b>	<ul style="list-style-type: none"> <li>- Reliability Requirements</li> <li>- Settlements and Billing</li> </ul>
<b>Tariff Change</b>	Yes
<b>Impacted Systems</b>	CIRA, Settlements



# Fall 2022 – MIC Enhancements

Project Information	Details
<b>High Level Project Scope</b>	<p>The purpose of this initiative is to address stakeholder concerns and potential improvements to either the calculation of Maximum Import Capability or the process used to allocate and track it during Resource Adequacy validation process. This initiative will focus on the following scope items:</p> <ol style="list-style-type: none"><li>1. Additional transparency with making data publicly available</li><li>2. Inclusion of contractual data from non-CPUC jurisdictional LSEs into the main portfolio</li><li>3. Request for MIC expansion</li><li>4. Give “same day priority” to the step 13 unallocated Remaining Import Capability for LSEs with existing RA Contracts</li><li>5. Update Tariff and BPM language to be consistent with current approved practice</li></ol>
<b>BPM Changes</b>	<ul style="list-style-type: none"><li>- Reliability Requirements</li><li>- Transmission Planning Process</li><li>- Market Instruments</li></ul>
<b>Impacted Systems</b>	CIRA, OASIS

# 2023 CRR System Upgrade

# 2023 – Congestion Revenue Rights (CRR) Upgrade

Project Information	Details/Date
<b>High Level Project Scope</b>	<p>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.</p> <p>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 position the system to accommodate policy changes down the road.</p>
<b>BPM Changes</b>	Yes, details TBD
<b>Tariff Change</b>	No
<b>Impacted Systems</b>	CRR, AIM, CMRI, OASIS, CTS, Market Clearing, EMMS, IFM/RTN, MQS, Master File, MPP, Settlements, WebOMS, ETCC.

# 2023 – Congestion Revenue Rights (CRR) Upgrade

System	High Level Changes
<b>CRR</b>	<p>Significant system upgrade including:</p> <ul style="list-style-type: none"> <li>• Enhancements made to the new CRR application.</li> <li>• Automatic publishing of CRR market results.</li> <li>• Automatic CRR notification.</li> <li>• New CRR schedule calendar.</li> <li>• New CRR FNM access.</li> <li>• New CRR data submission and download interface UI/API.</li> <li>• Other TBDs identified through BRS development.</li> </ul>
<b>AIM</b>	<ul style="list-style-type: none"> <li>• New users and roles to support new CRR functionality</li> </ul>
<b>CMRI</b>	<ul style="list-style-type: none"> <li>• Full and incremental Payload publishing</li> <li>• Publish CRR Awards payload on event-driven, ad-hoc or scheduled basis</li> <li>• Publish CRR Awards payload on event-driven, ad-hoc or scheduled basis</li> </ul>
<b>OASIS</b>	<ul style="list-style-type: none"> <li>• Publish CRR Calendar, and all available CRR market names, and credit margin information, 3 year historical expected value..</li> <li>• Allow authorized users to publish CRR inventory payloads</li> <li>• 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,</li> </ul>
<b>CTS</b>	<ul style="list-style-type: none"> <li>• Broadcast</li> </ul>
<b>EMMS</b>	<ul style="list-style-type: none"> <li>• CRR will consume data from EMMS</li> </ul>
<b>IFM/RTN</b>	<ul style="list-style-type: none"> <li>• CRR will consume data from IFM/RTN</li> </ul>
<b>MQS</b>	<ul style="list-style-type: none"> <li>• MQS will consume and process SCID in a new format</li> <li>• MQS will consume ownership payload in bulk</li> </ul>
<b>Master File</b>	<ul style="list-style-type: none"> <li>• Master File will be modified as needed to support the new CRR functionality</li> </ul>
<b>MPP</b>	<ul style="list-style-type: none"> <li>• CRR will provide pre-configured external reports</li> </ul>
<b>Settlement</b>	<ul style="list-style-type: none"> <li>• Settlements will be modified as needed to support the new CRR functionality</li> </ul>
<b>WebOMS</b>	<ul style="list-style-type: none"> <li>• CRR will consume data from WebOMS</li> </ul>
<b>ETCC</b>	<ul style="list-style-type: none"> <li>• CRR will consume data from ETCC</li> </ul>

## 2023 – Congestion Revenue Rights (CRR) Upgrade

Milestone Type	Milestone Name	Dates	Status
Board Approval	Obtain Board of Governors Approval	N/A	
External BRS	Publish External BRS	N/A	
Config Guides	Post Draft Config Guides	N/A	
Tech Spec	Publish Technical Specification	Draft 11/5/21	✓
Tariff	File Tariff	N/A	
BPMs	Publish Draft BPM updates	TBD	
External Training	Deliver External Training	Oct 13, 2022 – Oct 25, 2022	
Market Sim	Market Sim Window	Jan 26 , 2023 – Mar 8, 2023	
Production Activation	CRR Upgrade	Mar 20, 2023	
Phase 2 Production Activation	Phase 2 Go-Live	July 31, 2023	

## 2023 CRR System Upgrade - Overview

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.

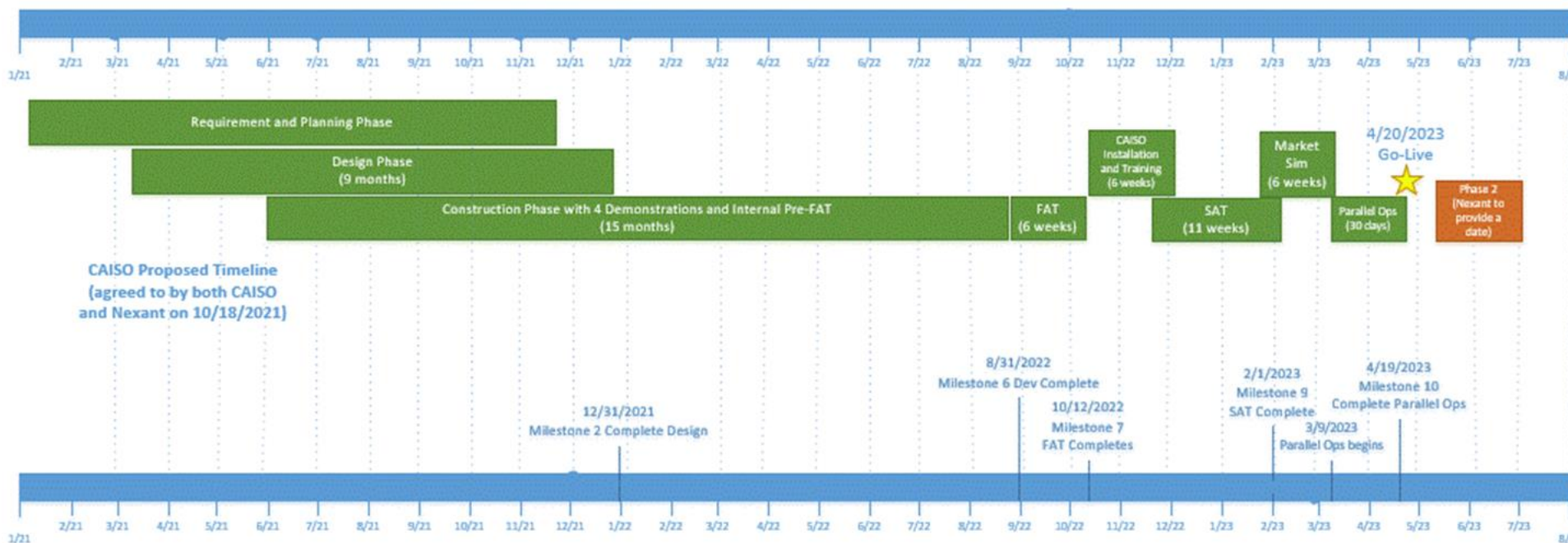
The CAISO has decided to replace the existing CRR system with a new system that adopts the latest technology stack aligned with CAISO's technology standards, consolidate all CRR related functions, minimize human errors, reduce processing time, eliminate manual workarounds, and positions the system to accommodate policy changes down the road.

## 2023 CRR System Upgrade – Get Connected

- The two technical meetings we would like CRR technical users to attend are:
  - **Bi-weekly Technical User Group (TUG)** meetings at 10 AM on Tuesdays, alternating with RUG.
    - Meetings are available on the CAISO calendar on [www.caiso.com](http://www.caiso.com)
    - Meeting details and presentation materials are available on the CAISO Developer site at [www.developer.caiso.com](http://www.developer.caiso.com) , which requires an account to be setup for access
  - **B2B Improvements – Webinar Series**
    - This meeting is by invitation only
    - Technical representations only as the meeting covers technical details with respect to the new integration pattern
    - Team met on 11/3/2020 and next webinar is tentatively planned for **2/3/2022**
    - Interested folks should send email to [inambiar@caiso.com](mailto:inambiar@caiso.com)
    - All CRR new API specifications will be presented and discussed in this meeting

# 2023 CRR System Upgrade – Milestone Schedule

## CRR System Replacement Timeline





# 2024 Settlement Upgrade

# 2024 - Settlement Upgrade - Overview

The current settlement system, implemented in 2008 as part of the Market Redesign and Technology Upgrade (MRTU) implementation, is nearing its end of life. The CAISO is upgrading existing settlement applications to approved architectural and information security standards.

Benefits for our customers include:

- Improved business efficiency
- Better gathering and analysis for data and front-end improvements for customers interacting with CAISO Settlement Systems
- Increased transparency for some calculations
- Accommodating data processing increases resulting from new market products and an increase in market participants
- Ability to perform complex settlement calculations

# 2024 - Settlement Upgrade – Get Connected

- Vendors and Market Participants plan to attend:
  - **Settlement User Group (SUG)** 10 AM on Wednesdays, alternating with RUG. (Next meeting 3/2)
    - Schedule updates, request for enhancements, Configuration change details, examples, calendar format differences etc.
- Settlement technical users plan to attend:
  - **Bi-weekly Technical User Group (TUG)** 10 AM on Tuesdays, alternating with RUG. (Next meeting 3/1)
    - B2B Improvements and New API specifications will be presented and discussed in this meeting
    - meeting details and presentation materials are available on the CAISO Developer site at [www.developer.caiso.com](http://www.developer.caiso.com) , requires an account setup for access

*Note: Meetings are available on the CAISO calendar on [www.caiso.com](http://www.caiso.com)*

# 2024 - Settlement Upgrade – Targeted Goals

- The ISO will work closely with our market participants to ensure seamless transition from e-terra 2.5 to 3.0 configuration output file.
- The ISO will provide a forum for participants to ask more technical questions.
- The ISO will provide an environment with production-like data allowing customers to validate changes.
- The system will provide settlement outputs in various file formats, allowing all customers to access and use the data in day-to-day operations. The ISO will strive to make formulas and inputs transparent to enable market participants to monitor and/or validate settlement results.
- The ISO will provide market participants with an extended market simulation
- The ISO will give timely support to the market participants and their vendors during the testing phase.

## 2024 - Settlement Upgrade – Targeted Goals Cont.

- From a vendor perspective:
  - ISO will provide third party vendors with support during the transition period.
  - ISO will provide an extended market simulation and/or parallel statements and invoices during the transition period so vendors can resolve defects on their systems.
  - ISO will provide open communications to resolve settlement differences through a customer forum.

## 2024 - Settlement Upgrade – We would like to hear from you

- Decomposition of the settlement files
  - Migrating to OpenAPI specifications
  - Upgrading to a new output config file format
  - Any other enhancement requests?
- 
- Next steps
    - Use the CIDI process to submit comments and enhancement requests. Your submittal will be reviewed and added to a master list that will be presented at the Settlement User Group (SUG)
      - The CIDI ticket will be closed once added to the SUG master list.

# 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](http://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...

## Calendar of Meetings, Training and Events

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

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	4 WebCONF: Market Simulation 2:00pm - 3:00pm	5 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	6 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	7 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	8 Training: Settlements 201 9:00am - 4:00pm	9 10
11 WebCONF: Participating Transmission Owner Per Unit Cost Guides 10:00am - 12:00pm WebCONF: Market Simulation 2:00pm - 3:00pm	12 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	13 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	14 Deadline: Comments - Review Transmission Access Charge Structure Straw Proposal and Meeting Discussion Call: Board of Governors Teleconference (General) 9:15am - 9:00am Call: Board of Governors Teleconference (Executive) 9:00am - 10:00am Call: Market Update 10:15am - 11:00am WebCONF: Market Simulation	15 16 17		

Market Sim



WebCONF: Market Simulation  
2:00pm - 3:00pm

Market Sim



WebCONF: Market Simulation  
2:00pm - 3:00pm

Release Users Group (RUG)



WebCONF: Release User Group  
10:00am - 11:00am

# Release Plan Summary: 2022

## 2022 Independent

- Updates to CAISO AWE Tool Pre-Summer (Alert, Warning, Emergency (AWE) to Energy Emergency Alert (EEA) Transition)
- Transmission Service & Market Scheduling Priorities Ph1 (was Ext Load Forward Sched Rights Process Ph1) **BOG Jan**
- WEIM Resource Sufficiency Evaluation Enhancements – Phase 1 **BOG Feb**
- Adjustment to Intertie Constraint Penalty Prices (Market Parameter Changes) **BOG Feb**
- RDRR Bidding Enhancements Phase 1 **BOG Mar**
- Short-Long Start Definitions **Inform BOG Mar**
- Interconnection Process Enhancements Phase 1 **BOG May**
- Operations System Improvements Enhancements

## Fall 2022 (tentative – subject to change pending Policy and planning activities)

- Hybrid Resources Phase 2-B
- FRP Improvements
- ~~WEIM Sub-Entity Scheduling Coordinator~~
- FERC 2222 Implementation
- Central Procurement Entity Implementation