Fall 2021 Release Implementation Plan

Version 1.1

October 25, 2021

Contents

Revisions

Date	Version	Description	Author
10/15/2021	1.0	Initial for Fall 2021 Release	Trang Vo
10/25/2021	1.1	Modifications to implementation dates	Trang Vo

Introduction

Executive Summary

In the Fall 2021 Release, the California ISO will deploy numerous system changes from various projects and other efforts. The intent of this document is to provide market participants with a description of the timeline and activities for the Fall 2021 Release.

Project Descriptions

The Fall 2021 Release includes changes to support the following projects.

Energy Storage and Distributed Energy Resources Phase 4

The purpose of this project is to cover enhancements related to the fourth phase of the ESDER initiative to continuously improve and enhance its interaction and participation models for both storage and distributed energy resources in the CAISO's market.

- For non-REM LESRs:
    - Allowing End-Of-Hour (EOH) State-of-charge (SOC) biddable parameter in RTM.
    - Modification of Settlements RTM Bid Cost Recovery (BCR) to account for:
        - EOH SOC
        - Self-scheduling
    - Enhanced Default Energy Bids (DEB) calculations for storage resources for DAM and RTM that take into account:
        - Energy Costs
        - Storage-Based Variable Costs (including Cell Degradation Cost [also called Cycling Cost])
        - Price-Based Opportunity Costs (applicable to RTM DEB but not DA DEB)
    - Applying Market Power Mitigation (MPM). Note: Sufficiently small "Safe Harbor" resources that do not have market power will be exempted from bid mitigation in DAM and RTM.
- For PDR, PDR-LSR curtailment and RDRR resources:
    - Considering Maximum Daily Run Time (MDRT) parameter.

More information can be found under Fall 2021 release on the Release Planning page at http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx.

Hybrid Resources Phase 2A

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, which was approved by the ISO Board of Governors in July 2020 and implemented on December 1, 2020.

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.

For an in-depth initiative background, reference the publically available Revised Final Proposal: http://www.caiso.com/InitiativeDocuments/RevisedFinalProposal-HybridResources.pdf.

More information can be found under Fall 2021 release on the Release Planning page at http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx.

Western Energy Imbalance Market Base Schedule Submission Deadline Phase 1

CAISO proposes moving the final market closing timeline for financially binding hourly resource plans from forty minutes prior to the operating hour (T-40) to thirty minutes prior to the operating hour (T-30). This is intended to provide EIM Scheduling Coordinators with additional flexibility to submit more accurate base schedules closer to the operating hour. Also, CAISO is updating Tariff rules and market systems to allow EIM Entities to submit base schedules with energy below a resource's minimum load. This proposed modification will allow CAISO and EIM Entities to more accurately capture the startup energy of large conventional resources within their Resource Sufficiency Evaluations (RSE), thus increasing their ability to pass the RSE while lowering their exposure to uninstructed imbalance energy settlement.

This initiative will examine updates to the base schedule submission timeline (Phase 2 in Fall 2022) as well as the inclusion of startup energy below a resource's minimum load (Phase 1 in Fall 2021):

- Move market closing for the final binding EIM base schedule submissions from T-40 to T-30
  - Adding additional RSE at T-40
- Include startup energy in an EIM base schedule
  - Include startup energy in the Resource Sufficiency Evaluations (RSE)
  - Reduction of imbalance energy settlements

More information can be found under Fall 2021 release on the Release Planning page at
http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx.

Real-Time Settlement Review Phase 2

This project provides insights into some of the real-time settlement metrics the ISO reviews and analyzes. It provides two changes to the ISO's settlement calculations. These changes are a result of both on-going monitoring and working with stakeholders to improve the overall settlement solutions. This initiative reviews the real time settlement charge codes that is associated with their interactions between the Balancing Authority Area (BAAs) in the Energy Imbalance Market (EIM) and it is useful to identify inappropriate cost shifting.

Scope of this policy initiative:

- Settle the Base ETSR at the unique pricing location LMP.
- Allow an EIM entity not to settle Unaccounted for Energy (UFE) within its BAA.
- Modify Bid Cost Recovery (BCR) Transfer adjustment amount to be based upon ETSR export over ETSR export plus measured demand.

More information can be found under Fall 2021 release on the Release Planning page at
http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx.

Intertie Shadow Pricing Resolution

In the Day Ahead Market at the Malin500 Intertie, an uncommon special case can occur where two constraints bind, each creating a shadow price: 'Energy + Ancillary Services' ('EA') for import, and Ancillary Services ('AS') for export. This is due to the fact that Energy and AS capacity compete for transmission to or from the CAISO Balancing Authority Area. When this happens, it causes a problem:

> The shadow price is appearing in OASIS (Open Access Same-Time Information System), however it is not labelled as being for AS, and thus participants incorrectly assume it is for EA. This causes confusion when it does not match expected shadow prices.

This initiative seeks to resolve the issue of intertie shadow pricing. This issue occurs 4-5 days per year. Although this issue has only occurred on the Malin intertie it could occur on any intertie.

More information can be found under Fall 2021 release on the Release Planning page at
http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx.

Short-Long Start Definitions

The purpose of this initiative is to align market applications and business processes with revised tariff definitions of Short and Long Start resources. To simplify and streamline CAISO definitions regarding startup classifications, this project will update current ISO Tariff definitions and business practice manuals. With regards to how Short and Long Start resources are defined, the Medium Start definition will be removed and rolled into the Short Start definition. The term "start" references the amount of time a resource requires to move from an offline to an online status and reach its minimum load production. These simplifications should clarify operational and settlement communication, and outcomes for EIM and ISO market participants.

1. Update current ISO Tariff definitions and business practice manuals.
2. The Medium Start definition will be removed and rolled into the Short Start definition.
3. Clarify operational and settlement communication and outcomes for EIM and ISO market participants.

More information can be found under Fall 2021 release on the Release Planning page at http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx.

Variable Operations and Maintenance Cost Review

The variable operations and maintenance (VOM) adder and major maintenance adder (MMA) currently in place allow market participants to include their VOM and major maintenance costs in their bids. The CAISO includes these adders in the resource's "proxy costs", which mirror the three parts of market participants' bids into the energy markets: default energy bids (DEBs), minimum load costs, and startup costs. The VOM adder is included in DEBs under the variable cost-based methodology and in minimum load costs under the Proxy Cost option. MMAs are included in minimum load costs and startup costs under the Proxy Cost option. This project proposes to change the structure of how operations and maintenance (O&M) costs are estimated for use in the CAISO markets. This project is composed of three scope items:

- Scope 1: Defining the O&M cost components, including how to differentiate between fixed and variable O&M costs.
- Scope 2: Redefining the Operations and Maintenance (O&M) adder components.
- Scope 3: Allow market participants to bid in all of their variable maintenance costs through a new default maintenance adder in lieu of the current MMA..

More information can be found under Independent 2021 release on the Release Planning page at http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx

Deployment Strategy

Deployment Schedule Overview

The system changes will be implemented in a phased manner. The systems changes will be deployed/activated according to the following drops and dates.

Description	Deployment
Master File	October 27, 2021
OASIS	October 27, 2021
Settlements	October 28, 2021
Market	October 28, 2021
SIBR	October 28, 2021
CMRI	October 28, 2021

The strategy of spreading the deployment over time is in the interest of minimizing impact on resources and is consistent with deployment strategies implemented during previous major deployments. Some of these deployments will require brief outages. See *Deployment Times, Outages, and Market Participant Actions* section of this document for times and durations for each application.

The technical details for these system changes can be found on the Developer site at: https://developer.caiso.com/.

Web Services

Refer to the Developer site for details about specific URLs:

- https://developer.caiso.com/

MF APIs

MF Interface Specification & Artifacts: https://developer.caiso.com/pages/application.aspx?app=MFRD

Service	RDT	Project
RetrieveGeneratorRDT_MFRDv5; 20211001 RetrieveGeneratorRDT_MFRDv5_DocAttach; 20211001	v16	ESDER4 HR2 VOMCR
SubmitGeneratorRDT_MFRDv5; 20211001 SubmitGeneratorRDT_MFRDv5_DocAttach; 20211001	v16	ESDER4 HR2 VOMCR

CMRI APIs

CMRI Interface Specification & Artifacts: https://developer.caiso.com/pages/application.aspx?app=CMRI

Service	Project
RetrieveDefaultBidCurves RetrieveDefaultBidCurves_DocAttach	ESDER4

OASIS APIs

OASIS Interface Specification & Artifacts:
https://developer.caiso.com/pages/application.aspx?app=OASIS

Service	Project
Public Bids v3	ESDER4
Intertie Constraint Shadow Prices Interval Intertie Constraint Shadow Prices Contingency Dispatch Intertie Constraint Shadow Prices MPM Intertie Constraint Shadow Prices Locational Marginal Prices AS Clearing Prices Nomogram/Branch Shadow Prices MPM Intertie Constraint Competitive Paths MPM Nomogram/Branch Shadow Prices MPM Nomogram/Branch Competitive Paths	ISPR

SIBR APIs

SIBR Interface Specification & Artifacts: https://developer.caiso.com/pages/application.aspx?app=SIBR

Service	Project
SubmitRawBidSet_v5 SubmitRawBidSet_v5_DocAttach RetrieveCleanBidSet_v5 RetrieveCleanBidSet_v5_DocAttach RetrieveCurrentBidResults_v5 RetrieveCurrentBidResults_v5_DocAttach	ESDER4

Deployment and Activation Timeline

The Fall 2021 Release is scheduled for deployment across multiple dates. Each deployment may incur outages of varying lengths to specific systems. The table below highlights the systems that will be impacted by each deployment and provides relevant details for market participants.

Deployment Timeline

Date	Deployment Information	Status
10/27/2021	Master File	On-Track
10/27/2021	OASIS	On-Track
10/28/2021	Settlements	On-Track
10/28/2021	Market	On-Track
10/28/2021	SIBR	On-Track
10/28/2021	CMRI	On-Track
TD 11/01/2021	Activation of ESDER4	On-Track
TD 11/01/2021	Activation of EIM BSSD P1	On-Track
TD 11/01/2021	Activation of RTSR	On-Track
TD 11/01/2021	Activation of ISPR	On-Track
TD 11/30/2021	Activation of HRP2A	On-Track
TD 01/01/2022	Activation of VOMCR	On-Track
TD 02/01/2022	Activation of SLSD	On-Track

Deployment Times, Outages, and Market Participant Actions

Master File – October 27 2021

System	Deployment Time	Outage	MP Action
Master File	9:00 AM to 4:00 PM	Brief interruption for MF UI/API	None

All times are Pacific

OASIS – October 27, 2021

System	Deployment Time	Outage	MP Action
OASIS	1:00 PM to 4:00 PM	Brief interruption for OASIS UI/API	N/A

All times are Pacific

Settlements – October 28, 2021

System	Deployment Time	Outage	MP Action
Settlements	9:00 AM to 12:00 PM	No outage anticipated	N/A

All times are Pacific

Market – October 28, 2021

System	Deployment Time	Outage	MP Action
Market	1:00 PM to 4:00 PM	N/A	N/A

All times are Pacific

SIBR – October 28, 2021

System	Deployment Time	Outage	MP Action
SIBR	1:00 PM to 4:00 PM	Brief interruption for SIBR UI/API	N/A

All times are Pacific

CMRI – October 28, 2021

System	Deployment Time	Outage	MP Action
CMRI	1:00 PM to 4:00 PM	Brief interruption for CMRI UI/API	N/A

All times are Pacific

Communication and Support

Below is the Fall 2021 Release communication schedule:

Description	Method	Frequency
Fall 2021 Release Implementation Market Simulation Call	By phone: call 1-866-528-2256 or International 1-216-706-7052, access code: 202 249 0 By web: join web conference at https://caiso.webex.com/meet/MarketSim, meeting number: 962 067 710 Related information: http://www.caiso.com/informed/Pages/ReleasePlanning/Default.aspx	Twice Weekly
Release Users Group (RUG)	By phone: call 1-866-528-2256, access code: 291 426 5 By web: join web conference at https://caiso.webex.com/meet/RUG, meeting number: 960 941 245 Related information: http://www.caiso.com/informed/Pages/MeetingsEvents/UserGroupsRecurringMeetings/Default.aspx#RUG	Every Other Week
Technical Users Group (TUG)	By phone: call 1- 866-528-2256, access code: 3895889 By web: join web conference at https://caiso.webex.com/meet/CAISO-TUG, meeting number: 966 010 353 Related information: http://www.caiso.com/informed/Pages/MeetingsEvents/UserGroupsRecurringMeetings/Default.aspx#TUG	Every Other Week

Implementation Plan Contact Information

- ISO Market Simulation Coordination at marketsim@caiso.com
- CIDI

Routine Issues and Support

All normal support processes should be followed for support functions. The ISO Help Desk can be reached at (916) 351-2309.