



Market Simulation – Summer 2021 Release

Anshuman Vaidya
Market Simulation Coordinator

July 29, 2021

Recordings

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.

Agenda

- Summer 2021 Release MAP Stage Availability
- Summer 2021 Release Market Simulation Initiatives & Timelines
- Initiatives
 - Summer 2021 readiness
- Summer 2021 - System Interface Changes
- ADS AS Test
- ADS Infrastructure Decommission
- Application Delivery Resiliency - OASIS
- Fall 2021 Release Preview
- Next Steps

Summer 2021 Release MAP Stage Availability

- Refer to MAP Stage portal <https://portalmap.caiso.com> for system availability information
- Current MAP Stage Scheduled Maintenance
 - Friday, 7/30:
 - ADS Infrastructure Decommission; :447 will no longer be available
 - OASIS infrastructure update - no interruption
- MAP Stage Weekly Maintenance Window
 - Friday

Summer 2021 Release Market Simulation Initiatives & Timelines

<u>Summer 2021 Release Initiatives</u>	<u>Start Date</u>	<u>Start Date (Trade Date)</u>	<u>End Date</u>	<u>Structured Simulation Start (Trade Date)</u>	<u>Go Live Date</u>
<u>Summer 2021 Release Market Simulation</u>	04/26/21	04/26/21	07/31/21	05/10/21	
Summer 2021 readiness Export, wheeling, and load scheduling priorities				7/27 - 8a 7/30, 8/3- 8b	8/4

Market Simulation Plan:

<http://www.caiso.com/Documents/MarketSimulationPlan-Summer2021Release.pdf>

Market Simulation Initiatives

- **Timeline : April 26 – August 4th**
- **Summer 2021 readiness**
 - **Structured :**
 - Export, wheeling, and load scheduling priorities:
 - July 13th (PT Export)
 - July 27th (HASP post process- Scenario 8a)
 - July 30th, August 3rd (Testing Scenario 8b)

Scenario Description:

Scenario #8 (a & b) “Post-HASP adjustment pro rata allocate import and internal transmission to high priority wheels”

- Business Requirements Specification -
<http://www.caiso.com/Documents/BusinessRequirementsSpecificationSummer2021Readiness.pdf>
- Structured Scenarios document -
<http://www.caiso.com/Documents/MarketSimulationStructuredScenariosSummerReadiness2021.pdf>

Summer 2021 - System Interface Changes

Summer 2021 Release

Project	System	API Service Name & Major Version, Artifacts	MAP Stage	Production	Technical Specifications/Publication
Summer Readiness	MF	GeneratorRDT_v5 GRDT spreadsheet Version 15.0	✓ 5/12/21	✓ 6/10/21	✓ v7.0; 4/16/21 ✓ 6/11/21
	MF	IntertieRDT_v1 IRDT (spreadsheet) Version 6.0	✓ 5/12/21	✓ 6/10/21	✓ v7.0; 4/16/21 ✓ 6/11/21
	MF	GRDT & IRDT Definitions v15	N/A	N/A	✓ 6/11/21
	SIBR	CleanBidSet_v5; 20210401	✓ 7/9/21	8/4/21	✓ v13.3; 4/19/21
	SIBR	RawBidSet_v5; 20210401	✓ 7/9/21	8/4/21	✓ v13.3; 4/19/21
	SIBR	BidResults_v5; 20210401	✓ 7/9/21	8/4/21	✓ v13.3; 4/19/21
	CIRA	Application Changes	✓	8/4/21	N/A
OASIS	ENE_SCH_BY_TIE Energy > Schedule by Tie	✓	✓ Deploy 6/30/21 ✓ Activation 07/26/21	✓ v6.0.0; 4/9/21	
RA Enhancements	CMRI	RetrieveStorageOperatingLimit_CMRIv1_AP RetrieveStorageOperatingLimit_CMRIv1_DocAttach_AP UI > Real-Time > Effective SOC Limits	✓	✓ 6/30/21	✓ v4.1.0; 4/16/21
	OASIS	ENE_UND_SPLY_INF_EC Energy > Under Supply Infeasibility and Enforced Constraints	✓	✓ 6/30/21	✓ v6.1.0; 4/16/21
	CIRA	Application Changes	✓ 5/5/21	✓ 6/3/21	N/A
	OMS	Application Changes (Denials in webOMS based on planned substitutions)	✓ API 5/17/21 ✓ UI 5/19/21	✓ 6/3/21	N/A
	OMS	Application Changes (Preventing extension; overlapping outages; preventing curtailment increase; creation of ambient outages, cancel pending requests prior to automatically denying outages)	✓ 7/1/21	✓ 7/15/21	N/A
FERC831	OASIS	PRC_HRLY_ENE_SHAPING_FCTR Pricing > Hourly Energy (Price) Shaping Factor	✓ 5/21/21	✓ 6/13/21	✓ v6.0.0; 4/9/21
	OASIS	ATL_CNSTR_RLXN_THRESHOLD Atlas Reference > Constraint Relaxation Threshold	✓ 5/21/21	✓ 6/13/21	✓ v6.0.0; 4/9/21
	SIBR	DA/RT Ceiling (Enhancement) Currently available in UI > "Energy bid ceiling" API for Retrieve DA/RT Ceiling (Enhancement) • RetrieveEnergyBidData_SIBRv1 • RetrieveEnergyBidData_SIBRv1_DocAttach	✓ UI API - TBD	✓ UI 6/13/21 API - TBD (after activation)	✓ Artifacts 7/20/21 8/3/21
DR LPA	MRI-S	DR Meter Monitoring Data Submission for BASE, CBL, including % Residential	✓ 7/12	✓ 7/14	✓ 6/7/21
OSI 2021 Enh.	OMS	Overlapping Pmax NGR; Resource-Participant Association fix	✓ 7/1/21	✓ 7/15/21	N/A
OSI 2021 Enh.	CAISO.com	New 'Curtailed & Non-Operational Generator' report for prior trade date Add data for 3 additional BAs to existing 'Curtailed & Non-Operational Generator' report	N/A	✓ 6/23/21	N/A

ADS AS Test

- The California ISO would like to provide an update on the status of the ADS Unannounced AS Test functionality in the ADS MAP-Stage and Production environments.
- **Customer Notice 7/22/21:** The California ISO has completed internal testing and the Unannounced AS Test functionality for Non-Spin is now available for Market Participants to test in the Map Stage environment. We encourage participants to test this functionality so you are familiar with the functionality when it is activated in production.
- The activation date has not been determined yet, however we will send out a Customer Notice a few days prior to activating this feature in Production. Please stay tuned to the ISO Release User Group (RUG) and Technical User Group (TUG) meetings (held on alternating Tuesdays at 10AM PPT) for additional information.
- If you have any questions please reach out to your Client Representative or submit a CIDI Case.

ADS Decommission URLs; Certificate Trust Store, SSL

MAP-Stage 7/30/21; Production 10/15/21

- Decommission of legacy URLs
 - New URLs available since 10/20/20
 - <https://adsws.prod.caiso.com:443> – API interaction
 - <https://ads.prod.caiso.com:443> – Web User interface
 - <https://adsws.prod.ecn.wepex.net:443> – ECN API interaction
 - <https://ads.prod.ecn.wepex.net:443> (available as of 1/21/21) – ECN Web User interface
 - Legacy URLs will no longer be available
 - <https://adssta.caiso.com:447>
 - <https://ads.caiso.com:447>
 - <https://adssta.ecn.wepex.net:447>
 - <https://ads.ecn.wepex.net:447>
 - <https://adsws.prod.caiso.com:447>
 - <https://adsws.prod.ecn.wepex.net:447>

Dev Site: Active URLs & IPs Going Forward	
Web Services Environments	UI Environments
Production https://adsws.prod.caiso.com IP addresses to whitelist: 45.42.16.51 45.42.22.51 45.42.16.16 45.42.22.16	Production https://ads.prod.caiso.com IP addresses to whitelist: 45.42.16.16 45.42.22.16
Production ECN https://adsws.prod.ecn.wepex.net IP addresses to whitelist: 10.112.5.51 10.114.5.51	Production ECN https://ads.prod.ecn.wepex.net IP addresses to whitelist: 10.112.5.16 10.114.5.16
MAP Stage https://adsws.map.caiso.com IP addresses to whitelist: 45.42.17.165 45.42.23.165	MAP Stage https://ads.map.caiso.com IP addresses to whitelist: 45.42.17.130 45.42.23.130

ADS Decommission URLs; Certificate Trust Store, SSL

- **MAP-Stage 7/30/21**; **Production 10/15/21**

- Certificate Trust Store Configuration for <https://adsws.prod.caiso.com> going from :447 to :443
 - What needs to occur on the client side is either of these:
 - a) Participant adds “Digicert CA” as the root certificate provider in their certificate store.
 - b) Replace their custom defined certificate store, back to the default libraries in the code distribution (Java being the default cacerts files).
 - Item a) is the only thing necessary, but depending on your implementation, it should be handled by the default trust stores. For example, if you are using an up to date version of Java, the default cacerts file contains the Digicert Certificate Authority files already. There is no need to change any client certificates, as they will continue to be signed by the CAISO_ISSUING_CA.
 - Production :443 access currently requires this Digicert, and MAP-Stage :443 was modified to adjust this Digicert as well to match Production, allowing users to verify their configurations in MAP-Stage

ADS Decommission URLs; Certificate Trust Store, SSL

MAP-Stage 7/30/21; Production 10/15/21

– SSL Ciphers

- New SSL cipher settings will be enforced for ADS
- No change in TLS version - TLS will remain 1.2
- We encourage customers to transition to the new SSL cipher settings as early as possible to avoid impacts when the new settings become enforced for ADS
- Here is the list of the ciphers being accepted today, in comparison to the reduced list that will be enforced with the cutover:

Currently Supported TLS 1.2 ciphers	Future Supported TLS 1.2 ciphers to be enforced
TLS_DHE_RSA_WITH_AES_128_CBC_SHA	TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256
TLS_DHE_RSA_WITH_AES_128_CBC_SHA256	TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256
TLS_DHE_RSA_WITH_AES_128_GCM_SHA256	TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384
TLS_DHE_RSA_WITH_AES_256_CBC_SHA	TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384
TLS_DHE_RSA_WITH_AES_256_CBC_SHA256	
TLS_DHE_RSA_WITH_AES_256_GCM_SHA384	
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA	
TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256	
TLS_ECDHE_RSA_WITH_AES_128_GCM_SHA256	
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA	
TLS_ECDHE_RSA_WITH_AES_256_CBC_SHA384	
TLS_ECDHE_RSA_WITH_AES_256_GCM_SHA384	
TLS_RSA_WITH_AES_128_CBC_SHA	
TLS_RSA_WITH_AES_128_CBC_SHA256	
TLS_RSA_WITH_AES_128_GCM_SHA256	
TLS_RSA_WITH_AES_256_CBC_SHA	
TLS_RSA_WITH_AES_256_CBC_SHA256	
TLS_RSA_WITH_AES_256_GCM_SHA384	

Application Delivery Resiliency - OASIS

- Areas
 - Access Policy Manager - Application Authentication
 - Local Traffic Manager - Load Balancing
 - Application Security Manager - Web Application Firewall
- User Impacts & Actions
 - New IP ranges requiring firewall changes
 - Please open the entire 45.42.16.0/21 network on port 443 (HTTPS) for our new IP space
 - New URLs for UIs and APIs requiring cutover
 - No application functionality changes expected
 - No provisioning changes expected
- OASIS
 - MAP-Stage UI/API 7/30/21 (IPs 45.42.17.147, 45.42.23.147)
 - Production UI/API 8/25/21 (IPs 45.42.16.33, 45.42.22.33)
 - No URL changes
 - OASIS API AUP will move to new infrastructure, but implementation remains the same:
 - <https://developer.caiso.com/Documents/TechnicalSpecifications-AcceptableUsePolicyImplementation.pdf>

Fall 2021 Release Preview

- Fall Release 2021 proposed time line 8/31-10/1.
- Market Sim call for Fall 2021 starts August 26.
- Market Simulation Plan for Fall 2021 will be posted next week on release planning website

Next Steps

- The next teleconference will be scheduled on August 2nd at 2 PM

Reference Slides

ISO Market Simulation Support

- **Hours:** Monday thru Friday 0900-1800 PDT
- **ISO's 24x7 Service Desk:** (916) 351-2309 (Connectivity – UI or API)
- **Email:** MarketSim@caiso.com

Spring 2021 Release Communication Plan

- **Schedule**

<i>Monday</i>	<i>Thursday</i>
April 26 May 3,10,17,24	April 22, 29 May 6,13,20,27

- **Connection Information**

- **Web Conference Information**

- Web Address: <https://caiso.webex.com/meet/MarketSim>
- Meeting Number: 962 067 710
- 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.

- **Conference Call Information**

- Dial-in Number:
 - 1-844-517-1271 (Toll Free)
 - 1-682-268-6591
- Access Code: 962 067 710

Market Simulation Issue Management

- Submit all issues to the CIDI case management system
- CIDI tickets must have “**Functional Environment**” = “**Market Simulation Summer 2021**” to be reviewed by ISO SMEs

Known Issues:

Item	Summary	Status
1	RAE OASIS: RUC Under Supply Infeasibility and Enforced Constraints Report – Deactivation Timestamp – 74242	Closed
2	RAE CMRI: Effective SOC Limits - API Request does not have Resource - 74810	Resolved, No code change needed.

Summer 2021 Release MAP Stage Connectivity Testing

- **Timeline** : April 26 – May 10

Structured Scenario Registration Details

MP's will need to register their request with the ISO to participate in this simulation via the MarketSim@caiso.com mailbox.

Date of registration

FERC 831 & Summer 2021 readiness – May 6th, 2021

We will do our best to accommodate for late registration

Summer 2021 Release - Market Simulation Overview

Wk	Date	ISO	Market Participants
1	4/26-5/10	Mkt Sim Readiness Testing	Connectivity
2	5/10-5/28		Structured Scenarios
3	5/10-5/28		Unstructured Simulation

Calendar Day	Day	CMRI T+1B	Submit Meter Data by T+2B 10:00 AM for Initial	Publish Initial Statement T+5B	Submit Meter Data by T+5B 18:00 for Recalc	Publish Recalc Statement T+8B	Publish Market Invoice
24-May-21	Monday		20-May				
25-May-21	Tuesday			18-May	18-May	13-May	
26-May-21	Wednesday	25-May				Monthly Recalc 11-May -13-May	Daily Recalc 11-May; 13-May Monthly Recalc 11-May - 13-May
27-May-21	Thursday	26-May	25-May	20-May	20-May		
28-May-21	Friday	27-May	26-May	Monthly Initial 18-May -20-May		18-May	Daily Initial 18-May; 20-May Monthly Initial 18-May - 20-May

Settlements TDs Tue/Thu

Maintenance Friday

[Market Simulation Plan](#)

[Market Simulation Settlements Calendar](#)



Market Simulation Initiatives

- **Timeline : April 26 – June 07**
- **FERC order 831**
 - **Structured : Trading Date May 25, 26, 27** (Buffer dates June 3, 4)
 - Structured Scenarios document -
<http://www.caiso.com/Documents/MarketSimulationStructuredScenarios-FERCOrder831.pdf>
 - Business Requirements Specification -
<http://www.caiso.com/Documents/BusinessRequirementsSpecificationFERC831ImportBiddingMarketParameters.pdf>
- FERC Order 831 - Market Simulation Scenarios [Customer Training](#) on 5/18. Refer to the [ISO Learning Center](#) for the presentation and video.

Market Simulation Initiatives

- **Timeline : April 26 – July 6**
- **Resource adequacy enhancements track 1**
 - **Structured : OMS changes : 7/1**
 - Business Requirements Specification -
<http://www.caiso.com/Documents/Business-Requirements-Specification-Resource-Adequacy-Enhancements-Track-1-Clean.pdf>
 - Structured Scenarios document -
<http://www.caiso.com/Documents/MarketSimulationResourceAdequacyEnhancementTrack1.pdf>

OMS Summer Release Timeline

Project	Functionality	MAP Stage	Production
RAE Track 1	Denials of CAISO Outages based on Planned Substitutions	05/17/21 ✓	06/03/21 ✓
RAE Track 1	Preventing Extension of Planned CAISO Outage	07/01/21 ✓	07/15/21 ✓
RAE Track 1	Preventing Curtailment Increase of Planned CAISO Outage	07/01/21 ✓	07/15/21 ✓
RAE Track 1	Allowing Overlapping Outages for 3 Ambient NOW & RIMS Testing	07/01/21 ✓	07/15/21 ✓
RAE Track 1	Creation of 'Ambient Due to Temp' & 'Ambient Not Due To Temp' outages in a forced timeframe only	07/01/21 ✓	07/15/21 ✓
RAE Track 1	Cancel pending requests prior to automatically denying outages	07/01/21 ✓	07/15/21 ✓
OSI 2021 Enh	Overlapping Pmax NGR	07/01/21 ✓	07/15/21 ✓
OSI 2021 Enh	Resource-Participant Association fix	07/01/21 ✓	07/15/21 ✓
OSI 2021 Enh	Curtailed and Non-Operational Gen. Rpt. Changes	NA	06/23/21 ✓