California ISO

Market Simulation Structured Scenarios

Extended Day-Ahead Market

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1. Introduction

The primary goal of market simulation testing is to ensure that CAISO and external participants are prepared for live market conditions and can operate effectively within the CAISO markets. These simulations are crucial when there are new market features, rule changes, system upgrades, and/or new participants joining the market.

1. Enhanced Efficiency and Stability: Simulations contribute to efficient and stable market operations by allowing CAISO and entities' systems to work in unison.
2. New Rule and Feature validation: CAISO may introduce new market rules, protocols, or features in order to adhere to architecture roadmaps, compliance standards, operational enhancements, and/or policy and stakeholder processes. Simulation testing allows for early detection and correction of issues, ensuring new rules and functionalities do not inadvertently impact market operations.
3. Increased Operational Readiness: For market participants, simulations provide a hands-on environment to practice new functionality being implemented to ensure systems are compatible and ready for CAISO's operational protocols.
4. Effective Risk Mitigation: By identifying and addressing issues in a controlled environment, both CAISO and market participants can reduce risks associated with software malfunctions, data errors, or misunderstanding of market rules and implementation impacts.

The objectives of Market Simulation validation are to:

- Confirm successful connectivity and system interface functionality between the onboarding entity and CAISO systems (refer to Connectivity Testing document)
- Validate end-to-end transaction processing across applicable systems
- Execute defined market scenarios to confirm expected system behavior.
- Ensure that customer system changes interact correctly with ISO systems.
- Produce simulated market results to verify data accuracy and settlement logic alignment.

The objective of this document is to provide the information needed for Market Participants to participate in the Extended Day-Ahead Market MAPSTAGE Market Simulation scenarios:

For the scope of this implementation and this initiative, please refer to the Extended Day-Ahead Market External Business Requirements Specification – Release Planning.

2. Market Simulation Schedule

Initiative	Connectivity Testing	Integration Testing	Structured Market Sim	PO Connectivity Testing	Parallel Operations	Activation
Turlock Irrigation District (TID) EDAM Onboarding	01/04/27 – 01/29/27	02/01/27 – 03/12/27	03/15/27 – 06/11/27	06/14/27 – 06/25/27	06/28/27 – 09/03/27	09/30/27
Los Angeles Department of Water and Power (LADWP) EDAM Onboarding	01/04/27 – 01/29/27	02/01/27 – 03/12/27	03/15/27 – 06/11/27	06/14/27 – 06/25/27	06/28/27 – 09/03/27	09/30/27
Balancing Authority of Northern California (BANC) EDAM Onboarding	01/04/27 – 01/29/27	02/01/27 – 03/12/27	03/15/27 – 06/11/27	06/14/27 – 06/25/27	06/28/27 – 09/03/27	09/30/27
Pinnacle West Capital Corporation (PNW) EDAM Onboarding	01/04/27 – 01/29/27	02/01/27 – 03/12/27	03/15/27 – 06/11/27	06/14/27 – 06/25/27	06/28/27 – 09/03/27	09/30/27

3. Connectivity Testing

3.1 Connectivity Testing Overview

- Covers network testing and certificate provisioning
- Participants without certificates are expected to reach out to their User Access Administrator (UAA) for proper provisioning.
- Participants must attain MAPSTAGE provisioning for the following applications ahead of Market Simulation: MF, SIBR, MRI-S, PLC, webOMS, OASIS, and ALFS.
- Participants must update their firewall settings to ensure proper connections to applications ahead of Market Simulation.

3.2 Connectivity Testing Success Criteria

Certificate	Success Criteria
YES	• Successful upon completion of following criteria: ○ Access application via User Interface (UI) and login ○ Access application via API
NO	• Successful upon completion of following criteria: ○ Access network via UI and/or API and receive error message about incorrect provisioning
NO	• Not successful if: ○ Attempt to access network via UI and/or API and receive error message other than request for provisioning

4. Integration Testing

4.1 Integration Testing Overview

- Participants have successfully attained certificate provisioning and have successfully completed Connectivity Testing to proceed to Integration Testing
- Participants are to test submission and retrieval of data
- For the purposes of Integration Testing ISO shall ensure the following:
  - MAPSTAGE code is completed
  - Availability of MAPSTAGE environment applications externally
  - Mock data for testing of submissions and retrievals

Note: The quality of data at this point in time is not ensured for the purposes of Integration Testing for submission and retrieval.

4.2 Integration Testing Success Criteria – Mock Data

Certificate	Success Criteria
YES	• Successful upon completion of connectivity testing • Successful submission and retrieval via UI of Mock Data • Successful submission and retrieval via API of Mock Data
YES	• Not successful if: • Receiving submission or retrieval error messages. Submit CIDI and email marketsim@caiso.com for support.
NO	• Not successful as participant cannot proceed to Integration Testing without first attaining proper provisioning

4.3 From/To Documentation

Market Participants are expected to review the provided From/To Day In the Life documentation and build an inventory of services being planned for utilization for the purposes of participation in the Extended Day Ahead Market (EDAM). Each participant is to review, and build their own list of planned services for utilization, and then test these services for the purposes of Market Simulation.

5. Integration + Settlements

5.1 Integration Testing + Settlements Overview

- Upon completion of successful Integration Testing participants can continue Integration Testing with live data and Settlement results
- For the purposes of Integration Testing ISO shall ensure the following:
  - Live data for testing of submissions and retrievals
  - Publishing of Settlements Statements once a week

  Note: Participants must review Settlement Statements to ensure understanding of proper format required for submission.

5.2 Integration Testing Success Criteria – Live Data

Certificate	Success Criteria
YES	• Successful upon completion of connectivity testing and Integration Testing with mock data • Successful submission and retrieval via UI of Live Data • Successful submission and retrieval via API of Live Data
YES	• Not successful if: • Receiving submission or retrieval error messages. Submit CIDI and email marketsim@caiso.com for support.
NO	• Not successful as participant cannot proceed to Integration Testing without first attaining proper provisioning

6. Market Simulation

6.1 Market Simulation Overview

- Covers testing in the MAPSTAGE environment
- MAPSTAGE is an integrated Production-like environment that is available to customers with provisioned access
- Allows customers to experience ISO release/project implementations prior to Production implementation
- Market Simulation will allow customers and the CAISO to conduct specific market scenarios in a test environment prior to the Production activation to ensure that all system interfaces are functioning as expected and to produce simulated market results
- Customers may use MAPSTAGE to validate the interaction of customer-driven changes with the ISO systems

6.2 Market Simulation Success Criteria

Criteria	Success Criteria

YES	• Successful upon execution of Structured Market Simulation Scenarios
	  ○ End to end flow of data
	  ○ Systems are running as expected
	  ○ No major issues with system integrations
	  ○ No major showstoppers before entering Parallel Operations
	
	Note: Data quality may not always be ensured for purposes of Market Simulation, and manual workarounds may be required in cases of CAISO or EDAM entity pending vendor functionality delivery and/or other situations that may arise during testing.

NO	• Not successful if major showstoppers present before entering Parallel Operations which significantly impeded sufficient execution and completion of Structured Scenarios. E.g., Major system functionality failures preventing data submissions and data being received in downstream applications. Key functionality not delivered as outlined in Business Requirements Specifications impacting submissions, market functions, and downstream data receives. Note: items not readily validated by EDAM participant are assessed and discussed together with CAISO ahead of Parallel Operations. Such items may need to be tested during the Parallel Operations timeline in MAPSTAGE or STAGE. E.g., if participants don't have shadow pricing capability ready during Market Simulation, they may not be able to fully validate their Settlements for TSRs and other items which may require them to complete the remaining Scenario validation during Parallel Operations.

6.3 Structured Scenarios

6.3.1 **EDAM MSS – 001 – DA Resource Sufficiency Test Upward Direction**

Scenario Number	Structured scenario	
1	Name	DA-resource sufficiency test upward direction:
	Market	DAM
	Description	Identify the impact of binding DA-RSE upward direction test failure and demonstrate no impact of transfer capability in the subsequent passes (GHG reference, IFM, RUC) due to DA RSE failure
	Market Operator Actions	• Change system condition to fail the binding DA RSE upward direction test, then finish DA run and publish DA results
	EDAM Market Participant Actions	• Submit (SIBR) normal bids that are needed for DA run (RSE-eligible bids for DA-RSE run, including type 1 and 3 TSR self-schedule) and load forecast, AS requirement Note: Can have Type 2 and Type 4 but will not impact RSE.
	Expected Outcome	**SIBR:** • Review **SIBR UI: RSE Capacity** report for all resources in BA for bid quantities (including resource(s) with no bids) **CMRI:** • Review **CMRI: EDAM Tab -> Resource Sufficiency Evaluation Binding/Advisory Contribution Test Results** for resource-level RSE detail including product (i.e., energy, AS, IRU/IRD) scheduled MWs and available capacity for each hour • Review **CMRI: EDAM Tab -> Resource Sufficiency Evaluation Binding/Advisory Aggregated Test Results** for test results, RSE Constraint. The report also shows a breakdown of RSE Constraint and Slack Variable detail. **OASIS:** • Review **OASIS: Energy>EDAM>EDAM BAA RSE Test** for after-the fact public transparent of RSE Test Results • Review **OASIS: Sufficiency Demand Load Forecast** for public transparency of the load forecast used in the RSE

Scenario Number	Structured scenario	
		Note: Review and validate data in SIBR within 7 days as data is purged thereafter. CMRI data is reflected immediately after Market publish and is available for 90 days. OASIS is reflected within 24 hours and is available for 90 days. Settlement Statements for relevant TDs are posted 7 days after (posted Tuesdays and Thursdays), see Settlements Calendar posted to CAISO.com Release Planning page for more information.
	Anticipated Settlement Outcome	• Deficient BAA assessed a Deficiency Charge to reflect its shortfall. • Surcharge revenue is distributed to compliance BAAs, compensating them for maintaining reliability.
	Expected Settlement Outcome	Charge Code: 8080, 8088

6.3.2 EDAM MSS – 002 – DA Resource Sufficiency Test Downward Direction

Scenario Number	Structured scenario	
2	Name	DA-resource sufficiency test downward direction
	Market	DAM
	Description	Identify the impact of binding DA-RSE downward direction test failure and demonstrate no impact of transfer capability in the subsequent passes (GHG reference, IFM, RUC) due to DA RSE failure
	Market Operator Actions	Change system condition to fail the DA RSE downward direction test, then finish DA run and publish DA results
	EDAM Market Participant Actions	• Submit (SIBR) normal bids that are needed for DA run (RSE-eligible bids for DA-RSE run, including type 1 and 3 TSR self-schedule) and load forecast, AS requirement Note: Can have Type 2 and Type 4 but will not impact RSE.
	Expected Outcome	**SIBR:** • Review **SIBR: RSE Capacity** report for all resources in BA for bid quantities (including resource(s) with no bids) **CMRI:** • Review **CMRI: EDAM Tab -> Resource Sufficiency Evaluation Binding/Advisory Contribution Test**

Scenario Number	Structured scenario	
		Results for resource-level RSE detail including product (i.e., energy, AS, IRU/IRD) scheduled MWs and available capacity for each hour • Review **CMRI: EDAM Tab -> Resource Sufficiency Evaluation Binding/Advisory Aggregated Test Results** for test results, RSE Constraint. The report also shows a breakdown of RSE Constraint and Slack Variable detail. **OASIS:** • Review **OASIS: Energy>EDAM>EDAM BAA RSE Test** for after-the fact public transparent of RSE Test Results • Review **OASIS: Sufficiency Demand Load Forecast** for public transparency of the load forecast used in the RSE
	Anticipated Settlement Outcome	• Deficient BAA is charged Downward Deficiency Surcharge based on megawatt quantity and duration of insufficiency. • Compliant BAAs may receive a share of this charge as compensation for reliability support.
	Expected Settlement Outcome	Charge Code: 8080, 8088

6.3.3 EDAM MSS – 003 – DA Congestion Management

Scenario Number	Structured scenario	
3	Name	DA Congestion Management within EDAM Entity BAAs
	Market	DAM
	Description	Identify the impact of flowgate congestion caused by outage/ de-rate within EDAM BAAs.
	Market Operator Actions	Check outages/de-rates submitted by the EDAM entity on flowgates that would cause congestion. If none submitted, create outages or de-rates to cause congestion. Ensure that PF is solving in for the DA market and verify congestion in IFM results. Note: Can discuss with CAISO team on outage/derate ahead of scenario.
	EDAM Market Participant Actions	Submit outages/de-rates on selected flowgates that would cause congestion in DA market
	Expected Outcome	Congested flowgates are reported in binding transmission constraints in DA and this result is shown in OASIS. Resources impacting the flow in the congested flowgates have a congestion component; if contributing to congestion the component is negative and if relieving congestion the component is positive. SIBR: Not Appliable for self-validation CMRI: Not Applicable OASIS: Prices -> Shadow Prices • Nomogram/Branch Shadow Prices • Intertie Constraint Shadow Prices • Interval Intertie Constraint Shadow Prices • Interval Nomogram/Branch Shadow Prices • Scheduling Constraint Shadow Prices

Scenario Number	Structured scenario	
	Anticipated Settlement Outcome	Updated Settlements based on adjusted Market Participant binding constraints.
	Expected Settlement Outcome	Charge Code: 6700, 6790, 8704

6.3.4 **EDAM MSS – 004 – DA Mitigation**

Scenario Number	Structured scenario	
4	Name	DA mitigation within EDAM Entity BAAs
	Market	DAM
	Description	Identify mitigation on resources deemed as having non-competitive pricing and market power over constrained areas.
	Market Operator Actions	Create condition in the EDAM BAA to trigger local market power mitigation. Note: Can discuss with CAISO for setting up condition for high bid price well above their default energy bid prices.
	EDAM Market Participant Actions	Submit expensive bids on the EDAM participating resources that are expected to be mitigated with respect to their DEB.
	Expected Outcome	Resources with market power will be mitigated for the corresponding intervals considering their default energy bid and competitive LMP, and reported in CMRI SIBR: Not Appliable for self-validation CMRI: Day Ahead • Day Ahead Market Power Mitigation (MPM) Results • Day Ahead Imbalance Reserve and Reliability Capacity Bid Market Power Mitigation (MPM) Results OASIS: Prices -> MPM • MPM DA Locational Marginal Prices

Scenario Number	Structured scenario	
		• MPM Nomogram/Branch Shadow Prices • MPM Nomogram/Branch Competitive Paths • MPM Intertie Constraint Shadow Prices • MPM Intertie Constraint Competitive Paths
	Anticipated Settlement Outcome	Updated Locational Marginal Prices (LMPs) due to DA resource mitigation.
	Expected Settlement Outcome	Charge Code: N/A

6.3.5 EDAM MSS – 005 – DA GHG Allocation and Attribution Constraint

Scenario Number	Structured scenario	
5	Name	DA Green House Gas allocation and Attribution constraint
	Market	DAM
	Description	Identify the capability of EDAM entity to receive GHG allocation, export to GHG regulation area, and enforce gross GHG attribution constraints.
	Market Operator Actions	• Make sure DA-RSE run succeed at least on upward side. Change system conditions if needed, so the new EDAM BAA can receive GHG allocation and export to GHG regulation area
	EDAM Market Participant Actions	Submit normal bids including GHG bids of GHG regulation area (CA)
	Expected Outcome	SIBR UI: • Bid Tab in Hourly Component CMRI • Check resource that received expected GHG allocation in CMRI • EDAM Green House Gas Attribution • Day Ahead Generation Market Results ○ Refer to CA/WA Export Allocations at SC ID level

Scenario Number	Structured scenario	
		OASIS: • Total Net GHG Import Transfer
	Anticipated Settlement Outcome	DA Settlements for GHG
	Expected Settlement Outcome	Charge Code: 8310, 8315

6.3.6 EDAM MSS – 006 – Enable Export Transfer Constraint

Scenario Number	Structured scenario	
6	Name	Enable Net Export Transfer Constraint
	Market	DAM
	Description	The EDAM Net Export Transfer Constraint is used to communicate a sum amount of resources that can be optimized in support of transfers from one EDAM BA to another BA. Each BA in the EDAM may configure the constraint to establish the an hourly limit on the amount of net EDAM Transfer exports
	Market Operator Action	Confirm receipt of SIBR values. The market operator will apply the constraint across all IFM market processes including deployment scenarios for IRU/IRD and the RUC.
	EDAM Market Participant Actions	Submit (API only) hourly Net Export Transfer Constraint (Reliability Margin or "non-exportable capacity margin") values in SIBR UI Note: Submit high reliability margin and have TSRs running during submission.
	Expected Outcome	SIBR UI: • EDAM BA Requirement Report CMRI Confirm the additional limit on the amount of capacity held within the balancing area, and view report in CMRI. • External Entities -> EDAM -> Submitted Transfer System Resource Capacity Limits • Day Ahead -> DA Submitted Transfer System Resource Capacity Limit OASIS: • EDAM Transfer System Resource Details • Day Ahead Transfer System Resource Details
	Anticipated Settlement Outcome	Settlements as normal.
	Expected Settlement Outcome	N/A

6.3.7 EDAM MSS – 007 – EDAM Entity BAA Isolation

Scenario Number	Structured scenario	
7	Name	EDAM Entity BAA isolation
	Market	DAM
	Description	Identify the impact of EDAM BAA isolated and demonstrate that each participant has its own MEC.
	Market Operator Actions	Make sure TSR limit is not submitted. If something is submitted on TSR, change the limit to zero so new EDAM BAA is isolated with other entities
	EDAM Market Participant Actions	Not submitting TSR limit, submit normal bids in DA
	Expected Outcome	All TSR transfer capabilities are reduced to zero and no award on TSR, the EDAM BAA MEC is separated with other BAAs. TSR award can be found in CMRI. SIBR UI/API: Can validate normal DA bid (non-TSR), and that TSRs limit to zero. UI -> Bid Tab. CMRI • External Entities -> EDAM -> Submitted Transfer System Resource Capacity Limits • Day Ahead -> DA Submitted Transfer System Resource Capacity Limit • External Entities -> EDAM -> EDAM Import-Export Schedules OASIS: • EDAM Transfer System Resource Details • Day Ahead Transfer System Resource Details
	Anticipated Settlement Outcome	Perform Settlements utilizing economic outcomes.
	Expected Settlement Outcome	Charge Code: N/A

6.3.8 **EDAM MSS – 008 – Transfer Capability**

Scenario Number	Structured scenario	
8	Name	Transfer capability via MF registered TSR
	Market	DAM
	Description	Demonstrate that EDAM BAA export energy and capacity to CAISO via MF registered TSR.
	Market Operator Actions	Ensure conditions such that CAISO is in need of imports
	EDAM Market Participant Actions	Submit energy bids for market resources to cover not only their EIM BAA load forecast but have extra room to export to CAISO and bids should be cheaper than other EDAM BAAs. Ensure sufficient capacity on TSRs. Submit After the Fact Metering quantities that are different from Day Ahead Awards for TSRs.
	Expected Outcome	EDAM BAA exports economically to CAISO. TSR award can be found in CMRI. SIBR/API: Validate TSR awards CMRI: • EDAM Submitted Transfer System Resource Details • Day-Ahead Submitted Transfer System Resource Capacity Limit OASIS: • Aggregated/BAA Level Final/Binding • Tagged Transmission and Energy Status • EDAM Net Export Transfer Input Parameters?? • EDAM Wind and Solar Forecast • Imbalance Reserve Forecasts
	Anticipated Settlement Outcome	Validate Settlements outcome is as expected based on import/export energy and capacity.
	Expected Settlement Outcome	Charge Code: 8011, 8411, 8470, 8811

6.3.9 **EDAM MSS – 009 – RUC Energy Net Short**

Scenario Number	Structured scenario	
9	Name	RUC Energy Net Short
	Market	DAM
	Description	Implement an adjustment to the MW target for the RUC pass via the RUC Net Short functionality and demonstrate its effect.
	Market Operator Actions	Ensure RUC energy net short value enters market correctly
	EDAM Market Participant Actions	Submit normal DA bids and communicate adjustment value
	Expected Outcome	BAA ends up with RUC target matching the adjustment from the RUC Net Short functionality and the market optimizes to mitigate new RUC conditions. The load adjustment can be found in OASIS and resource awards can be found in CMRI SIBR UI/API: No EDAM entity validations applicable in SIBR CMRI: • Day-Ahead Resource Specific Schedules by Market Priority Types • Real-Time Resource Specific Schedules by Market Priority Types OASIS: • Aggregated/BAA Level Final/Binding • Tagged Transmission and Energy Status
	Anticipated Settlement Outcome	Settlement RUC Awards settled based on market clearing price for RUC capacity (if offered).
	Expected Settlement Outcome	Charge Code: 8800, 8806, 8807, 8810, 8816, 8817

6.3.10 EDAM MSS – 010 – DAM Impact on RTM Flex Ramp Up and FRU

Scenario Number	Structured scenario	
10	Name	DAM impact on RTM flex ramp up test and FRU procurement
	Market	DAM, RTM
	Description	Identify the impact of DAM /SIBR re-supply test results and AET flag on EDAM up pool composition and RTM flex ramp up deployment. Note: Status of AET flag during test will be based on BAA election of the use of the AET functionality.
	Market Operator Actions	1) ISO will create condition that EDAM entity has undergen infeasibility in DA (IFM or RUC) or fail SIBR re-supply test, which will then fail individual BAA flex ramp up test for at least one hour in RTM 2) ISO shall create condition for EDAM entity to have no undergen infeasibility in DA and pass SIBR re-supply test, then fail EDAM up pool flex ramp up test for at least one hour in RTM
	EDAM Market Participant Actions	Submit normal DA and RT bids
	Expected Outcome	If BAA has no under gen infeasibility in IFM or RUC, and pass SIBR re-supply test, it will be in EDAM up pool and have EDAM pool flex ramp up test; otherwise, BAA will be moved out of EDAM up pool and have flex ramp up test on its own. If a BAA has elected to use Assistance Energy Transfer (AET) and the BAA is short on supply or its upward ramping capability results in a failure of the WEIM RSE, the BAA will still be able to receive WEIM energy transfers. The following are possible outcomes: 1) BAA is in EDAM up pool and EDAM pool passes flex ramp up test, or BAA is moved out of EDAM up pool and passes individual BAA flex ramp up test: BAA is added into EIM up passing group and FRU procurement on EIM passing group

Scenario Number	Structured scenario	
		2) BAA is in EDAM up pool and choose AET flag, EDAM up pool fails flex ramp up test: FRU procurement on AET group and transfer is open on this group 3) BAA is in EDAM up pool and not choose AET flag, EDAM up pool fails flex ramp up test: FRU procurement on NAET group and transfer is locked at this group boundary. 4) BAA is moved out of EDAM up pool and choose AET flag, individual BAA fails flex ramp up test: FRU procurement on its own and transfer open 5) BAA is moved out of EDAM up pool and not choose AET flag, individual BAA fails flex ramp up test: FRU procurement on its own and transfer locked • Please see DA results, SIBR re-supply test results and pool composition in OASIS • Please see CMRI UI under Energy Imbalance Market -> Flexible Ramp Requirement Sufficiency Test Results. SIBR UI/API: No EDAM entity validations applicable in SIBR CMRI: • External -> Energy Imbalance Market -> Flexible Ramp Requirements Test Results OASIS: • EDAM Wind and Solar Forecast • Imbalance Reserve Forecasts • Imbalance Reserve Results • Aggregated/BAA Level Final/Binding • Imbalance Reserve Requirement Threshold • Imbalance Reserve Requirement Input Polynomial • Imbalance Reserve Requirement Histogram • Flexible Ramp Requirement Threshold • Flexible Ramp Requirement Input Polynomial • Flexible Ramp Requirement Histogram
	Anticipated Settlement Outcome	Validate Flex Ramp Procurement Awards received as expected.

Scenario Number	Structured scenario	
	Expected Settlement Outcome	Charge Code: 7070, 7071, 7076, 7077, 7078, 7081, 7087, 7088, 6476, 6479

6.3.11 EDAM MSS – 011 – DAM impact on RTM Flex Ramp Down and FRD

Scenario Number	Structured scenario	
11	Name	DAM results impact on RTM flex ramp down test and FRD procurement
	Market	DAM, RTM
	Description	Identify the impact of DAM results on EDAM down pool composition and RTM flex ramp down deployment.
	Market Operator Actions	1) ISO shall create scenarios for EDAM entity to have overgen infeasibility in DA (IFM or RUC), and then fail individual BAA flex ramp down test for at least one hour in RTM 2) ISO shall create scenarios for EDAM entity to have no overgen infeasibility in DA, and then fail EDAM down pool flex ramp down test for at least one hour in RTM
	EDAM Market Participant Actions	Submit normal DA and RT bids
	Expected Outcome	If BAA has no over gen infeasibility in IFM or RUC, it will be in EDAM down pool and have EDAM pool flex ramp down test, otherwise, BAA will be moved out of EDAM down pool and have flex ramp down test on its own. The following are possible outcomes: 1) BAA in EDAM down pool and EDAM pool passes flex ramp down test, or, BAA is not in EDAM down pool and passes individual BAA flex ramp down test: BAA is added into EIM down passing group and FRD procurement on EIM passing group 2) BAA in EDAM down pool and EDAM pool fails flex ramp down test: FRD procurement on EDAM down pool and transfer locked for the pool

Scenario Number	Structured scenario	
		3) BAA is moved out of EDAM down pool and fails individual BAA flex ramp down test: FRD procurement on its own and transfer locked • Please see DA results and pool composition in OASIS • Please see CMRI UI under Energy Imbalance Market -> Flexible Ramp Requirement Sufficiency Test Results . SIBR UI/API: No EDAM entity validations applicable in SIBR CMRI: • External Entities-> Energy Imbalance Market -> Flexible Ramp Requirements Test Results OASIS: • Imbalance Reserve Forecasts • Market BA Group Composition (EDAM Pool Results CR21) • Imbalance Reserve Requirement Threshold • Imbalance Reserve Requirement Input Polynomial • Imbalance Reserve Requirement Histogram • Flexible Ramp Requirement Threshold • Flexible Ramp Requirement Input Polynomial • Flexible Ramp Requirement Histogram
	Anticipated Settlement Outcome	Validate Flex Ramp Procurement Awards received as expected.
	Expected Settlement Outcome	Charge Code: 7070, 7071, 7076, 7077, 7078, 7081, 7087, 7088

6.3.12 EDAM MSS – 012 – CA RTM GHG Allocation

Scenario Number	Structured scenario	
12	Name	CA GHG allocation in RTM
	Market	RTM
	Description	Demonstrate the capability of EDAM entity to receive CA GHG allocation, export to GHG regulation area, and enforce gross GHG attribution constraints.
	Market Operator Actions	Ensure market conditions such that the EDAM BAA can export to a CA GHG area
	EDAM Market Participant Actions	Submit cheap energy and GHG bids to encourage exports. Ensure BAA has enough bids to cover its own demands and exports.
	Expected Outcome	EDAM entity to receive CA GHG allocation, export to GHG regulation area, and enforce gross GHG attribution constraints as expected SIBR UI/API: validate submissions CMRI: • EIM Green House Gas Attributions • EDAM Green House Gas Attribution OASIS: • Total Net GHG Import Transfer
	Anticipated Settlement Outcome	RTM Settlements for GHG
	Expected Settlement Outcome	Charge Code: 491, 495 Note: there will be separate Charge Codes for DA GHG.

6.3.13 EDAM MSS – 013 – Transient TSR Type 1

Scenario Number	Structured scenario	
13	Name	Transient TSRs support for TYPE 1
	Market	DAM
	Description	Demonstrate exercise of capacity under CRN for Type 1 TSRs Entity submitting CRN capacity, demonstrate auto matching transfer capability and their utilization in DAM.
	Market Operator Actions	N/A
	EDAM Market Participant Actions	• Submit a schedule under a CRN for a Type 1 TSR. • Complete tagging via WebTag/ETS (WebSmart) ○ - demo.caiso.tag.oati.com (Mapstage/Marketsim) and demo2.caiso.tag.oati.com (Stage/ParallelOps)
	Expected Outcome	Schedule for Type 1 TSR is preserved as a self-schedule and flows are seen across TSR and its mirror. Type 1 TSR schedule is considered in DA RSE. SIBR UI/API: validate submissions CMRI: • EDAM Transfer System Resource Details • Day Ahead Transfer System Resource Details • Day Ahead Generation Market Results OASIS: • Schedule Point/Tie Combination Locational Marginal Prices. • Scheduling Point/Tie Imbalance Reserve/Reliability Capacity Prices • Interval Schedule Point/Tie Combination Locational Marginal Prices. • FMM Schedule Point/Tie Combination Locational Marginal Prices.
	Anticipated Settlement Outcome	Settlement of Transfer Revenue with appropriate SC

Scenario Number	Structured scenario	
	Expected Settlement Outcome	Charge Code: 8011, 8411, 8470, 8811

6.3.14 EDAM MSS – 014 – EDAM Access Charge

Scenario Number	Structured scenario	
14	Name	EDAM Access Charge for Revenue Recovery
	Market	DAM
	Description	Utilizing EDAM submission to calculate Access Charge Assessment for Annual True-up for Revenue Recovery
	Market Operator Actions	N/A
	EDAM Market Participant Actions	EDAM entity must submit all of the following: • Annually Recovery in $ • Component 1, 2, and 3 • Transmission Access Cost (TAC) • True-up value ($), Bounded Cap ($), Transmission rates ($/MWh), Ratio (%), and calculation (via new template) Note: No attestation needed for purposes of Market Simulation. For purposes of Parallel Operations, Participants must complete authorized affidavit from each EDAM Transmission Service Provider attesting accuracy of data provided by EDAM entity and reasonable effort to avoid double recovery costs through EDAM Access Charge.
	ISO Settlement Team Action	Publish Revenue Recovery Public Values to CAISO.com
	Expected Outcome	EDAM entities recover revenue based on Access Charges SIBR/CMRI/OASIS: N/A
	Anticipated Settlement Outcome	Annual True-up for Revenue Recovery successfully assessed for EDAM entities as expected

Scenario Number	Structured scenario	
	Expected Settlement Outcome	Charge Code: 8322, 8326

6.3.15 EDAM MSS – 015 – Transient TSR Type 2

Scenario Number	Structured scenario	
15	Name	Transient TSR support for TYPE 2
	Market	DAM
	Description	Demonstrate release of capacity under CRN for Type 2 TSRs
	Market Operator Actions	N/A
	EDAM Market Participant Actions	• Complete tagging via WebTag/ETS (WebSmart) ○ - demo.caiso.tag.oati.com (Mapstage/Marketsim) and demo2.caiso.tag.oati.com (Stage/ParallelOps) • Release capacity via a Type 2 TSR under a CRN.
	Expected Outcome	• Capacity is released to the market and revenue is allocated. SIBR UI/API: validate Release Capacity submissions, and TSR Type 2 CMRI: • EDAM Transfer System Resource Details • Day Ahead Transfer System Resource Details • Day Ahead Generation Market Results OASIS: • Schedule Point/Tie Combination Locational Marginal Prices. • Scheduling Point/Tie Imbalance Reserve/Reliability Capacity Prices • Interval Schedule Point/Tie Combination Locational Marginal Prices. • FMM Schedule Point/Tie Combination Locational Marginal Prices.
	Anticipated Settlement Outcome	Settlement of Transfer Revenue with appropriate SC

Scenario Number	Structured scenario	
	Expected Settlement Outcome	Charge Code: 8011, 8411, 8470, 8811

6.3.16 EDAM MSS – 016 – DA RA Obligation Reassignment

Scenario Number	Structured scenario	
16	Name	DA RA Obligation Reassignment
	Market	DAM
	Description	Demonstrate Reassignment of RA Obligation
	Market Operator Actions	N/A

	EDAM Market Participant Actions	• RA suppliers define SR (for Generic RA) and TGs (for Flex and Generic RA) in MF to support month-ahead RA showings for RA imports
		• RA supplier SC submits RA obligation reassignments in CIRA by 8 am for DA to ensure obligation transfer functions and RAAIM settlements are correctly assessed
		  ○ For RA sourced from EDAM BAA: submit RA obligation reassignment to physical resources by 8 am
		  ○ DA reassignment carries over to RT
		• SC submits (in SIBR) DA bids on resources/SRs with DA RA obligation
		• SC submits (in SIBR) RT bids on resources with RT RA obligation

	Expected Outcome	SIBR UI/API: Validate submissions CIRA UI: • New DAME/EDAM Tab (being added) CMRI: • N/A for directly assessing RA reassignment

Scenario Number	Structured scenario	
		OASIS: • N/A N/A for directly assessing RA reassignment
	Anticipated Settlement Outcome	Settlements to assess RAAIM based on RA obligation reassignment and bid submission status
	Expected Settlement Outcome	Charge Code: RAAIM_PC, 8830, 8831

6.3.17 EDAM MSS – 017 – Transmission Rights Congestion Hedge Validation

Scenario Number	Structured scenario	
17	Name	Transmission Rights Congestion Hedge Validation
	Market	DAM
	Description	• CISO Binding Constraint • EDAM Entity OATT Transmission schedules MCC is impacted by the CISO BAA Constraint • EDAM Entity OATT Transmission CRN has a MF Hedge Flag set to 'Yes'
	Market Operator Actions	• Based on resources/trade hours MP provides, Market Operator shall identify transmission elements in CISO BAA on which the resources (provided by EDAM MPs) have impact on and adjust limit as needed to trigger the transmission elements binding in IFM. Note: Market Operator may advise Market Participant to switch to use other resources if the provided resources are too remotely connected to CISO systems.
	EDAM Market Participant Actions	• Preregister OATT1/OATT1 contract in MF with hedge flag as Y

Scenario Number	Structured scenario	
		• At TD-2D, Market Participant to inform Market Operator about the intended submissions of the resource names and trade hours with OATT1/OATT2 contract • Submit self-schedule under OATT1 or OATT2 transmission schedule within an EDAM BAA, Market Participant shall ensure the self schedule submitted is within contract limit and is balanced. Review DAM results and downstream settlement statements.
	EDAM BAA Impact	**CRR1B Settlement** EDAM Entity receives a OATT congestion Hedge for the CISO BAA Constraint Congestion
	CISO BAA Impact	CRR1B Settlement • CRR Holders are paid based upon CISO Binding Constraint excluding OATT Financial Hedge Rights • CRR1B System excludes the EDAM OATT Congestion Hedge from Constraint level Congestion revenue distribution (paid out in settlements as defined above)
	Expected Outcome	Settlement properly applies congestion hedge treatment
	Expected Settlement Outcome	Charge Code: 8411, 8704 and 6011

6.3.18 **EDAM MSS – 018 – Congestion Hegde Validation**

Scenario Number	Structured scenario	
18	Name	Congestion Hedge Validation
	Market	DAM
	Description	• CISO Binding Constraint • EDAM Entity OATT Transmission schedules MCC is impacted by the CISO BAA Constraint • EDAM Entity OATT Transmission CRN has a MF Hedge Flag set to 'Yes'
	Market Operator Actions	• Based on resources/trade hours MP provides, Market Operator shall identify transmission elements in CISO BAA

Scenario Number	Structured scenario	
		on which the resources (provided by EDAM MPs) have impact on and adjust limit as needed to trigger the transmission elements binding in IFM. Note: Market Operator may advise Market Participant to switch to use other resources if the provided resources are too remotely connected to CISO systems.
	EDAM Market Participant Actions	• Preregister OATT1/OATT1 contract in MF with hedge flag as Y • At TD-2D, Market Participant to inform Market Operator about the intended submissions of the resource names and trade hours with OATT1/OATT2 contract • Submit self-schedule under OATT1 or OATT2 transmission schedule within an EDAM BAA, Market Participant shall ensure the self schedule submitted is within contract limit and is balanced. Review DAM results and downstream settlement statements.
	EDAM BAA Impact	**CRR1B Settlement** • EDAM Entity receives the TOR/ETC Congestion hedge settlement for Balanced CRNs
	CISO BAA Impact	**CRR1B Settlement** • CRR Holders are paid based upon CISO Binding Constraint excluding OATT Financial Hedge Rights • CRR1B System excludes the EDAM OATT Congestion Hedge from Constraint level Congestion revenue distribution (paid out in settlements as defined above)
	Expected Outcome	Settlement properly applies congestion hedge treatment
	Expected Settlement Outcome	Charge Code: 6700, 6790, 8704

6.3.19 **EDAM MSS - 020 Inter SC Trade**

Scenario Number	Scenario

20	Description	**Inter-SC trade for EDAM/WEIM BAA**
	WEIM/EDAM Market Participant Actions	• Two registered Scheduling Coordinators (a selling SC and a buying SC) submit matching inter-SC trades for energy in a non-CISO BAA. Note: EDAM and/or WEIM BAA SCs can participate in this scenario.
	ISO Actions	• CAISO systems to allow registered SCs to submit the inter-SC trade, and allow inter-SC trading for Energy (IST) for the EDAM and WEIM BAA outside of CISO ○ Existing: SIBR validates matching inter-SC trade submissions from both SCs and confirms both legs reference the same non-CISO EDAM/WEIM BAA. ○ Existing: Day-ahead market process runs; SIBR processes and awards day-ahead inter-SC trades for the EDAM entity. ○ Existing: Real-time / FMM market process runs; SIBR processes and awards FMM inter-SC trades for the EDAM entity. Note: unmatched or mismatched inter-SC trades are invalidated per existing business rules
	Expected Outcome (SIBR, CMRI)	**SIBR** • EDAM and WEIM SCs can submit and retrieve in SIBR UI and webservice API, validate the following for DAM and FMM (RTM): ○ IST Physical Energy ○ IST Aggregate Pricing Node (APN) ○ IST Converted Physical Trade (CPT) **CMRI** • Trades are processed in the Day-Ahead Market, and the hourly RTM (FMM), settled, and reflected in the new CMRI IST report for the EDAM entity SCs only, accessible via UI and B2B API. ○ CMRI Report: CMRI UI > External DAM > EDAM Final Trade Set Report: New CMRI Report IST trades by BAA, with access available via UI and B2B API ○ Validate all three energy types for DAM and FMM (RTM)

	Anticipated Settlement Outcome	• Settlement calculation and posting: ○ Existing: Settlement calculates day-ahead inter-SC trade settlement (charge/payment determinants) for the BAA. ○ Existing: Settlement calculates FMM inter-SC trade settlement determinants for the BAA. ○ Existing process: MRI-S publishes inter-SC trade settlement determinants to both SCs. • Inter-SC trade settlement ○ Settle Inter-SC trade ○ Day-ahead Inter-SC Trade Settlement ○ FMM Inter-SC Trade Settlement
	Expected Settlement Outcome	CC 6301 (DAM), 6371 (FMM)

6.3.20 **EDAM MSS – 021 Multiple GHG**

Scenario Number	Structured scenario	
21	Name	GHG allocation in RTM across multiple GHG regulation areas
	Market	RTM
	Description	• Demonstrate that an Extended Day Ahead Market (EDAM) entity and/or a Western Energy Market (WEIM) entity can each receive Green House Gas (GHG) allocation from one GHG regulation areas in the Real-Time Market (RTM). • Demonstrate that an Extended Day Ahead Market (EDAM) entity and/or a Western Energy Market (WEIM) entity can each receive Green House Gas (GHG) allocation from more than one GHG regulation areas in the Real-Time Market (RTM).
	Market Operator Actions	• Ensure market conditions such that the relevant EDAM and/or WEIM BAA can export/import and receive GHG attribution

Scenario Number	Structured scenario	
	EDAM and/or WEIM Market Participant Actions	• Utilize SIBR to submit cheap energy bids and separate GHG bids for each GHG regulation area for exports to more than one area. • Bid GHG at or above zero and ensure the energy bid range is equal to or greater than the GHG bid megawatt (MW) quantity • EDAM and WEIM entities to provide Load Meter Data based on Load Aggregation Point resource identifiers to the ISO Market Services team consistent with the Settlements Quality Meter Data (SQMD) plan.
	Expected Outcome	The EDAM and WEIM entities to each receive GHG allocation from one and more than one GHG regulation area SIBR UI/API: validate submissions CMRI: • FMM and RTD Schedules Report for RTM GHG Allocations • EIM Green House Gas Attributions • EDAM Green House Gas Attribution • Hourly CLAP Load percentage share OASIS: • Total Net GHG Import Transfer Market Participant Portal (MPP) • All WEIM BAA load distribution factors published and viewable to WEIM entities • All EDAM BAA load distribution factors are published and viewable to EDAM entities, and each BAA's LDFs may be viewable by other BAAs
	Anticipated Settlement Outcome	RTM Settlements for GHG
	Expected Settlement Outcome	Charge Code: • Charge Code 491: GHG Emission Cost Revenue • Charge Code 495: Real Time GHG settlement Note: there will be separate Charge Codes for DA GHG.

6.4 Unstructured Scenarios

6.4.1 **EDAM MSS – 019 – HASP Reversal**

Scenario Number	Structured scenario	
19	Name	HASP Reversal
	Market	DAM
	Description	• Currently, if a DA award is submitted but the e-Tag is not filed before HASP runs, the EDAM Entity is financially penalized for the untagged megawatts. • With the HASP Reversal process, EDAM Entities can submit their untagged MW after HASP publication, allowing CAISO to account for them and exempting the entity from the reversal penalty.
	Market Operator Actions	N/A
	EDAM Market Participant Actions	• EDAM entity to submit untagged MW of DA Awards BEFORE completion of HASP publication • EDAM Entity to submit Untagged MW of DA awards AFTER, HASP publication (T−45 min before the trading hour)
	Expected Outcome	• EDAM Entity is charged only for untagged MW of DA awards that were present at HASP publication. • Untagged MW submitted after HASP publication are excluded from HASP Reversal charges, as expected.
	Expected Settlement Outcome	Charge Code: 6051 — HASP Energy, Congestion, and Loss Predispatched Settlement 6456 — Intertie Deviation Settlement

6.5 Configuration Guides and Payment Calendars

DAME, EDAM, EDAM CISO BAA PR Calendar Market Simulation and Parallel Operations Calendar

Refer to the posted Settlements calendar and Charge Codes for more information.

7. Parallel Operations

7.1 Parallel Operations Overview

- Covers testing in the STAGE environment
- STAGE is an integrated Production-like environment that is available to customers with provisioned access
- Allows customers to experience ISO release/project implementations prior to Production implementation
- Parallel Operations will allow customers and the CAISO to conduct specific market scenarios in a test environment prior to the Production activation to ensure that all system interfaces are functioning as expected and to produce simulated market results
- Customers may use STAGE to validate the interaction of customer-driven changes with the ISO systems

7.2 Parallel Operations Success Criteria – Live Data

- Note: ISO to provide updated criteria and most accurate quality of data after MAPSTAGE ahead of Parallel Operations Testing.

Certificate	Success Criteria
YES	• Successful upon completion of connectivity testing, Integration Testing with live data, and Market Simulation Scenarios • Successful completion of Parallel Operations Scenarios
YES	• Not successful if: • Receiving submission or retrieval error messages. Submit CIDI and email marketsim@caiso.com for support.
NO	• Not successful as participant cannot proceed to Parallel Operations Testing without first attaining proper provisioning ○

8. Activation

- Complete successful Connectivity, Integration, Market Simulation, and Parallel Operations testing ahead of expected Activation
- Participants to confirm to Market Simulation team and Customer Readiness team their readiness for activation via submission of CIDI and emailing MarketSim@Caiso.com
- ISO to support participants throughout testing and thereafter for participant readiness

9. ISO Market Simulation Contact

Please contact MarketSim@caiso.com if you have any questions, feedback, and/or concerns about the testing and/or scenarios disclosed in this document. The ISO appreciates your partnership and participation in the Extended Day Ahead Market (EDAM).