


Market Simulation Structured Scenarios

Energy Imbalance Market Implementation (EIM Implementation)

Version: 1.4

09/30/2025

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Revision History

Date	Version	Description
08/08/18	1.0	Initial Draft
8/28/18	1.1	2.3 and 2.5 Settlements Analysis on anticipated charge codes
9/28/18	1.12	Updated Settlement Sections per review with James, Mel and Jeremy
08/15/19	1.2	Modification of scope of Flex ramp sufficiency tests and RT mitigation
9/23/21	1.3	Added additional settlement notes to each structured scenario to further clarify the settlement impact.
9/30/25	1.4	Updated MSS-007.



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1. Introduction

The objective of this document is to provide the information needed for new EIM entities to participate in the structured market simulation scenarios.

2. Structured Scenario Approach


2.1 High Level Overview

These generic scenarios will be executed during the structured scenario portion of the new EIM entrant implementation market simulation. Depending on the specific needs of the EIM, some of these scenarios might not apply.

2.2 Structured Scenarios Conditions and Setup

The following additional setup will be used by the ISO during the scenario execution.


1. ISO is will use a production set date as base case for load forecast and bids for all other existent EIM participants. ISO will augment this data with the relevant new EIM data and use the TD's bids as the base bid set. This will also include base schedules for EIM and demand forecast for non-EIM entities from WECC. Interchange Schedules will be pulled from WIT for this TD as well.
2. Determined by the scenario specifics ISO may seed MP's bids or allow the MP's to bid in whatever resources they see fit for the scenario.
3. All EIM Entity's will need to balance during the timeframes identified in the scenario "Execution Time" as well as provide the EIM Transfer Resource Limits.
4. Unless otherwise specified in the scenario, no outages will be considered.
5. CAISO will create conditions for a perfect DOT feedback.

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2.3 Structured Scenarios


Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX - This scenario is completed the day before market sim actually starts (DA scenario)	
1	Name	DAM Feasibility Test Results
	Market	IFM
	Description	Identify overloaded branches in NA during the DA run for the new EIM
	ISO Actions	Monitor outages/de-rates submitted by the EIM on flowgates that would cause congestion. If none submitted, create outages or de-rates to cause congestion. Verify congestion in the DA market and verify that congested flowgates are published in CMRI as failed.
	EIM Market Participant Actions	Submit outages/de-rates on selected flowgates that would cause congestion in NA during the DA run.
	Expected Outcome	Congested flowgates will be published in CMRI as failed. (Energy Imbalance Market → Transmission Violation Test Results.
	Anticipated Settlement Outcome	N/A

Settlements	
	<p>Scenario 1 does not have any anticipated settlement impact because EIM does not participate in the Day Ahead Market. The DAM Feasibility Test Results does not directly impacts EIM Settlements.</p> <p>Additional Notes: No Settlement Validations required since this scenario does not affect EIM Settlements.</p>

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Scenario Number	WEIM ENTITY Implementation – TD TD XX/XX/XXXX	
2	Name	BAA Flex ramp sufficiency test upward direction.
	Market	RTBS, RTPD, RTD
	Description	EIM fails the 15min basis Flex Ramp Sufficiency Test in the Upward Direction in RTBS3 (binding T-40)
	ISO Actions	Ensure that the Up and Down Capacity tests are passing. Increase the uncertainty (MW) requirement in the upward direction for a given amount that would fail the test.
	EIM Market Participant Actions	Verify outcome Real Time Market results and Settlements Statements.
	Expected Outcome	Failure of the Flex Ramp Sufficiency Test in RTBS displayed in BAAOP (EIM→System→Base Schedule Test Results→Flex Ramp Sufficiency Test) and CMRI (Energy Imbalance Market → Flexible Ramp Requirement Sufficiency Test Results. When ramp sufficiency test in the upward direction fails, the ETSRs in the import direction are limited to the less-restrictive of the following values: Base Transfer Schedule for the failed 15-minute interval or the net EIM transfer schedule for the interval prior to the failed 15-minute interval as provided by the last successful FMM market run (i.e. the “last previous” 15-minute interval).
	Anticipated Settlement Outcome	Daily Statement: CC 7070, CC 7071, CC 7076, and CC 7077. Monthly Statement: CC 7078

Settlements	
	<p>EIM shall be settled based upon flexible up awards associated with the increased flexible ramp upward requirement. EIM shall also be settled for any forecasted movement that is used to resolve upward flexible ramp requirement.</p> <p><u>Additional Notes:</u> Awards and Prices are also available in CMRI. EIM Entities will still receive Flex Ramp Awards in the direction they failed. However, the Awards will only resolve the flexible ramp needs internal to specific BAA.</p>

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Scenario Number	WEIM ENTITY Implementation – TD TD XX/XX/XXXX	
3	Name	BAA Flex ramp sufficiency test downward direction.
	Market	RTBS, RTPD, RTD
	Description	EIM fails the 15min basis Flex Ramp Sufficiency Test in the Downward Direction in RTBS3 (binding T-40)
	ISO Actions	Ensure that the Up and Down Capacity tests are passing. Increase the uncertainty (MW) requirement in the downward direction for a given amount that would fail the test.
	EIM Market Participant Actions	Verify outcome Real Time Market results and Settlements Statements.
	Expected Outcome	Failure of the Flex Ramp Sufficiency Test in RTBS displayed in BAAOP (EIM→System→Base Schedule Test Results→Flex Ramp Sufficiency Test) and CMRI (Energy Imbalance Market → Flexible Ramp Requirement Sufficiency Test Results. When ramp sufficiency test in the downward direction fails, the ETSRs in the export direction (out) are limited to the less-restrictive of the following values: Base Transfer Schedule for the failed 15-minute interval or the net EIM transfer schedule for the interval prior to the failed 15-minute interval as provided by the last successful FMM market run (i.e. the “last previous” 15-minute interval).
	Anticipated Settlement Outcome	Daily Statement: CC 7070, CC 7081, CC 7076, and CC 7087. Monthly Statement: CC 7088

Settlements	
	<p>EIM shall be settled based upon flexible down awards associated with the increased flexible ramp downward requirement. EIM shall also be settled for any forecasted movement that is used to resolve downward flexible ramp requirement.</p> <p><u>Additional Notes:</u> Awards and Prices are also available in CMRI. EIM Entities will still receive Flex Ramp Awards in the direction they failed. However, the Awards will only resolve the flexible ramp needs internal to specific BAA.</p>

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
4	Name	EIM Real Time – Congestion Management within EIM Entity BAAs
	Market	RTPD, RTD, RTBS
	Description	Congestion in RT markets
	ISO Actions	Monitor outages/de-rates submitted by the EIM 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 RT markets. Verify congestion in the RT markets.
	EIM Market Participant Actions	Submit outages/de-rates on selected flowgates that would cause congestion in RT markets.
	Expected Outcome	Congested flowgates are reported in binding transmission constraints in RTPD and RTD and reported in as failed in the feasibility test results in RTBS. 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.
	Anticipated Settlement Outcome	Daily: CC 4564, CC 64600, CC 64700, CC64750, CC 67740 and CC 64770

Settlements	
	<p>Scenario 4 demonstrates the Imbalance Energy and Real Time Congestion settlement that result from managing congestion within the EIM area. The settlement statement will reflect the outcome of the market results based on the resources available to resolve the congestion management and forecast differentials.</p> <p><u>Additional Notes:</u> 64600,64700,64750,64740 – In IIE Settlement, If the resource is contributing to congestion, then the MCC component of the LMP/UDC Price is expected to be lower, and if the resource is relieving congestion then the MCC component of the LMP/UDC Price is expected to be higher.</p>


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	<p>67740 – If constraints are binding, through this charge code, the congestion component (MCC Breakdown) will be adjusted/reflected accordingly.</p> <p>Awards and Prices are also available in CMRI. You can also see the results from EE and Commitment Processing in the following reports in CMRI. Settlements use the information from the below reports to calculate Real-Time Imbalance Energy and Bid Cost Recovery (BCR) charge codes.</p> <ol style="list-style-type: none"> 1. Expected Energy, 2. Expected Energy Allocation Details and 3. ISO Commitment Cost Details.
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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
5	Name	Manual Dispatches for EIM Resources
	Market	RTD/RTPD/STUC
	Description	Manual dispatches submitted by EIM participant are followed by RT markets.
	ISO Actions	Verify that market follows the manual dispatch instructions from the EIM BAA and that the correct instructions are sent to ADS
	EIM Market Participant Actions	EIM BAA will manually dispatch selected EIM participating resources notifying the ISO accordingly.
	Expected Outcome	RT markets follow MDs and corresponding instructions are sent to ADS.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 67740, CC 64770, CC 64750 and CC 69850


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Settlements	
	<p>Scenario 5 manual dispatches submitted by EIM are to follow and verified in the Real Time markets and any deviations from the real time market dispatch. Charge codes 64600 and 64700 are corresponding to real time manual dispatches. CC 64750 will reflect settlements of any deviations from the manual dispatch. CC 67740, CC 64770 and CC 69850 takes into account real time offsets.</p> <p><u>Additional Notes:</u> 64600, 64700 – MDE will be settled in the respective market LMP (FMM/RTD).</p> <p>You can see the results of Manual Dispatch Energy (MDE) in the following reports in CMRI.</p> <ol style="list-style-type: none"> 1. Expected Energy – Energy Type Code will be reflected with “MDE” and 2. Expected Energy Allocation Details – Energy Type Code will be “PTEST”

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
6	Name	RT mitigation for new EIM BAA
	Market	RTPD/RTD
	Description	RT markets mitigate resources in the new EIM BAA
	ISO Actions	ISO to create a constraint in the EIM BAA (local or EIM transfer) to trigger local market power mitigation.
	EIM Market Participant Actions	Submit expensive bids on the EIM participating resources that are expected to be mitigated with respect to their DEB.
	Expected Outcome	Resource with market power will be mitigated for the corresponding 15min/5min intervals using their default energy bid and reported on CMRI in these two displays: Real-Time→ Fifteen-Minute Market (FMM) Market Power Mitigation (MPM) Results; Real-Time→Real-Time Dispatch (RTD) Market Power Mitigation (MPM) Results.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 66200 and CC 66780

Settlements	
	<p>Scenario 6 is the settlement of FMM IIE, RTD IIE, Bid cost recovery, and other market results based on mitigated bids of participating resources.</p> <p><u>Additional Notes:</u> CC 66200 (Real-Time BCR Settlement). When the Bid gets mitigated you will be able to see the “mitigated bid price” only in BCR charge code. You will also be able to see the Mitigated Bid prices in the following report in CMRI. Expected Energy Allocation Details – Price field will be reflected with the market mitigated Bid Price, which is essentially, the resource Default Energy Bid (DEB) price.</p>

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
7	Name	GHG Charges
	Market	RTPD, RTD
	Description	Resources of the new EIM receive GHG allocation when the EIM is exporting to CAISO <u>a GHG area</u>
	ISO Actions	ISO <u>Market Operator</u> to create conditions so the new EIM is exporting energy to CAISO <u>a GHG area</u> .
	EIM Market Participant Actions	Submit energy <u>and GHG</u> bids for market resources to cover not only their EIM BAA load forecast but have extra room to export to CAISO <u>a GHG area</u> .
	Expected Outcome	GHG payments will be properly awarded to the exporting resources based on their export allocation values.
	Anticipated Settlement Outcome	Daily: CC 491, CC 64600, CC 64700, CC 67740, CC 69850, CC 64770, and CC 66200

Settlements	
	<p>Scenario 7 is when <u>a WEIM</u> resource is serving ISO<u>load to a GHG area</u>. Settlement of GHG obligations and RT market results of energy serving ISO<u>load to a GHG area</u>.</p> <p>Additional Notes: If the EIM has no GHG obligations, there will be no settlement on CC491.</p>

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
8	Name	Neutrality
	Market	RTPD, RTD
	Description	Neutrality
	ISO Actions	ISO to create condition in ISO BAA to import energy from other EIM BAAs.
	EIM 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 EIM BAAs.
	Expected Outcome	EIM transfer of the new EIM BAA to CAISO BAA. Ideally, CAISO will exhaust the imports from the new EIM BAA due to its low energy bid prices.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 64770, CC64740, CC 69850, and CC 67740

Settlements	
	<p>Scenario 8 is representation of a settlement typical RT market resolution. There is a focus on the market solution impacts the offsets charge codes CC 64770, CC 69850, and CC 67740.</p> <p><u>Additional Notes:</u> CC64770, CC69850, CC67740 – Settlements to allocate the offsets. Base ETSRs will not be included in all these three charge codes (4/1/2021). Static and Dynamic ETSRs that do not settle, will be included in Financial Value Transfer in CC 64770.</p>

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
9	Name	Contingency Event in the EIM BAA
	Market	RTD
	Description	New EIM BAA declares contingency
	ISO Actions	ISO to verify the receipt of the contingency event notification from the EIM Entity. ISO will freeze the net EIM transfer of the EIM Entity BAA at the last advisory optimal solution.
	EIM Market Participant Actions	EIM Entity performs contingency dispatch using manual dispatch instructions that are communicated to the ISO. To represent reserve contributions from other BAAs in their reserve group, manual dispatch instructions can be generated for Ghost SRs. EIM resources to follow ADS instructions, which reflect the manual dispatch.
	Expected Outcome	EIM entity takes appropriate actions to resolve their contingency. Contingency does not affect dispatch or prices in the ISO area. Net EIM transfer of the EIM Entity BAA is frozen at the last advisory optimal solution.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 64770, CC 69850, and CC 67740

Settlements	
	<p>In Scenario 9 demonstrates the settlement of market results when a contingency has been triggered in an EIM BAA.</p> <p><u>Additional Notes:</u> 64600, 64700 – MDE will be settled in the respective market LMP (FMM/RTD).</p>

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
10	Name	Contingency Event in the ISO BAA
	Market	RTCD
	Description	CAISO declare contingency event in the ISO BAA.
	ISO Actions	CAISO runs Real Time Contingency Dispatch (RTCD)
	EIM Market Participant Actions	EIM resources receive dispatch instructions through ADS.
	Expected Outcome	Contingency event in CAISO area does not affect dispatches or prices in the EIM BAAs. DOTs for resources and ETSRs (frozen) are according to the advisory values of the pre-contingency RTD run.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 64770, CC 69850, and CC 67740

Settlements	
	<p>In Scenario 10 demonstrates the settlement of market results when a contingency has been triggered in the CAISO area.</p> <p><u>Additional Notes:</u> EIM charge codes are settled normally.</p>

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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
11	Name	EIM Entity BAA isolation.
	Market	RTPD, RTD
	Description	EIM Entity BAA Isolation
	ISO Actions	Verify that new EIM market participant locks ETSRs with other EIM participants including CAISO.
	EIM Market Participant Actions	Lock ETSRs with other EIM participants including CAISO. Verify transfer limits.
	Expected Outcome	ISO and EIM Entity BAs are dispatched separately. Locked ETSRs dispatch goes to their corresponding base schedule.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 67740, CC 69850, and CC 64770

Settlements	
	<p>Scenario 11 is the settlement of the RT market results when the EIM entity has locked Energy Transfer System Resources.</p> <p><u>Additional Notes:</u> During ETSR lock, the expectation is that the market will set the resource RTPD and RTD schedule with the Base Schedules. If so, there will be no impact to EIM Settlement. If after the fact tag is not equal to the base schedule, then the deviation (Operational Adjustment) will be settled in 64700 at the RTD LMP.</p>


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Scenario Number	WEIM ENTITY Implementation – TD XX/XX/XXXX	
12	Name	Real Time Unit Commitment on new EIM Entity.
	Market	RTPD
	Description	Observe commitment of fast start units due to unforeseen temporary load spike with the purpose of creating a bid cost recovery impact.
	ISO Actions	ISO will create scenario in which the new EIM BAA load spikes momentarily for a few 15 min intervals and then it goes back to normal forecasted values. This would prompt fast start units to start. The units selected for this test should have a long minimum up time so when the load goes back to the normal forecasted levels the units have to be kept on line to satisfy the minimum up time all the while not being economical creating a bid cost recovery impact.
	EIM Market Participant Actions	SC submits bids for a short start unit with a zero base schedule, including startup and minimum run costs. Minimum up time should be set to the max allowable for a short start unit, to keep it running under uneconomical conditions.
	Expected Outcome	Market commits the unit. Bid cost recovery payments will be due to the unit.
	Anticipated Settlement Outcome	Daily: CC66200 and CC66780

Settlements	
	<p>Scenario 12 is designed to explicitly trigger bid cost recovery settlement for participating resources in the EIM BAA.</p> <p><u>Additional Notes:</u></p> <p>66200 – If the resource has shortfall at the end of the trade date, the resource will receive a payment. Awards and Prices are also available in CMRI. You can also see the results from EE and Commitment Processing in the following reports in CMRI. Settlements use the information from the below reports to calculate Real-Time Imbalance Energy and Bid Cost Recovery (BCR) charge codes.</p> <ol style="list-style-type: none"> 1. Expected Energy, 2. Expected Energy Allocation Details and 3. ISO Commitment Cost Details.

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Scenario Number	WEIM ENTITY Implementation – TD Thursday, October 28, 2021	
13	Name	Available Balancing Capacity (ABC regulation reserves)
	Market	RTPD, RTD
	Description	Show that when an EIM has requirements of infeasibility, their available balancing capacity (ABC) is dispatched in RTD.
	ISO Actions	ISO will change system conditions to cause requirements of infeasibility in the new EIM BAA (short use of reg up, over use of reg down), to demonstrate the available capacity functionality.
	EIM Market Participant Actions	EIM Entities will need to register their non-PR and PR for regulation capacity. Also, submit energy bids in regulation up and down range for PR and regulation up and down capacity base schedules for both PR and NPR.
	Expected Outcome	Market application will use regulation up/down to resolve the requirement of infeasibility occurring within the new EIM BAA.
	Anticipated Settlement Outcome	<p>For participating resources that have bids in regulation range being dispatched, bid cost in regulation range associated with instructed energy will be included in Energy Bid Cost Recovery.</p> <p>For non-participating resources that have default energy bids being dispatched, default energy bid cost associated with instructed energy will be included in energy Bid Cost Recovery.</p> <p>Daily: CC 64600, 64700, 64750, 7070, 7076, 7071, 7077, 7081, 7087, 4515, 4564, 66200 and 66780</p>
	Settlements	
	<p>Scenario 13 is a settlement of specific resources with available balancing capacity dispatched to resolve market infeasibility.</p> <p>Additional Notes: Regulation energy (ABC) for a resource will be settled at the RTD LMP in CC64700.</p>	

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2.4 Attachment B

https://bpmcm.caiso.com/BPM%20Document%20Library/Settlements%20and%20Billing/Attachment%20B%20-%20CG%20and%20PCG%20Spec_v23.xlsx

2.5 Settlement and Billing BPM

<https://bpmcm.caiso.com/Pages/SnBBPMDetails.aspx?BPM=Settlements%20and%20Billing>

3. ISO Market Simulation Contact

Please contact MarketSim@caiso.com if you have any questions or concerns regarding these scenarios.