Market Simulation Structured Scenarios

Energy Imbalance Market Implementation
BANC-SMUD EIM Implementation

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Location of Document

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Revision History

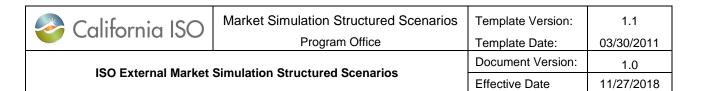| Date	Version	Description	Author
10/18/2018	Draft	Initial Draft	Christopher McIntosh
10/22/2018	1.0	BANC-SMUD Structured Scenarios	Christopher McIntosh
11/27/2018	1.1	Structured Scenarios – Updated Dates	Ayman Fattah

Table of Contents

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 identified scenarios will be executed during the structured scenario portion of the EIM SMUD implementation market simulation.
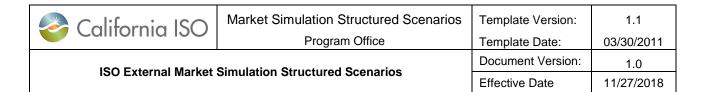
2.2 Structured Scenarios Conditions and Setup

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

1. ISO is will use a production TBD base case. ISO will augment this data with the relevant 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.
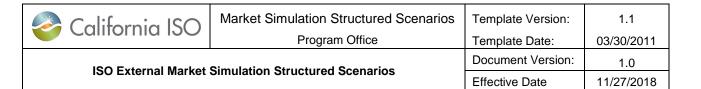
2.4 Structured Scenarios

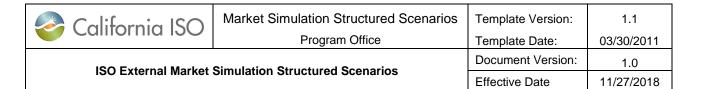| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/04/18	
1	Name	DAM Feasibility Test Results
	Market	IFM
	Description	Identify overloaded branches in NA during the DA run for the new EIM
	ISO Actions	Monitor outages/de-rates submitted by the EIM on flowgates that would cause congestion. 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	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.

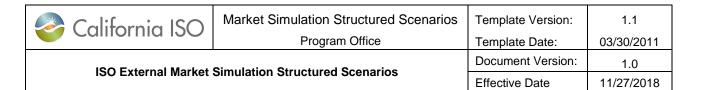| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/4/18	
2	Name	BAA Flex ramp sufficiency test upward direction.
	Market	RTBS, RTPD, RTD
	Description	EIM fails the Flex Ramp Sufficiency Test in the Upward Direction in RTBS3 (binding T-40)
	ISO Actions	Ensure that the Up and Down Capacity 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 lower of the FMM transfer at T-7.5 or the base import transfer amount for the previous hour.
	Anticipated Settlement Outcome	Daily Statement: CC 7070, CC 7071, CC 7076, and CC 7077. Monthly Statement: CC 7078 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.

	Market Simulation Structured Scenarios Program Office	Template Version:	1.1
California ISO		Template Date:	03/30/2011
	ISO External Market Simulation Structured Scenarios	Document Version:	1.0
		Effective Date	11/27/2018

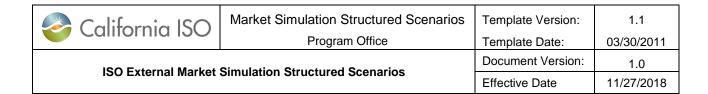| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/4/18	
3	Name	BAA Flex ramp sufficiency test downward direction.
	Market	RTBS, RTPD, RTD
	Description	EIM fails the Flex Ramp Sufficiency Test in the Downward Direction in RTBS3 (binding T-40) .
	ISO Actions	Ensure that the Up and Down 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 higher of the FMM transfer at T-7.5 or the base export transfer amount for the previous hour.
	Anticipated Settlement Outcome	Daily Statement: CC 7070, CC 7081, CC 7076, and CC 7087. Monthly Statement: CC 7088 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.

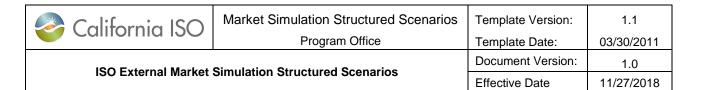| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/18/18	
4	Name	EIM Real Time – Congestion Management within EIM Entity BAAs.
	Market	RTPD, RTD, RTBS
	Description	Congestion in RT markets.
	ISO Actions	Monitor outages/de-rates submitted by the EIM on flowgates that would cause congestion. 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 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.

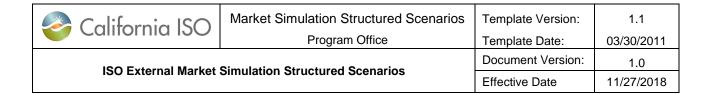| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/11/18	
5	Name	Manual Dispatches for EIM Resources.
	Market	RTD/RTPD/STUC
	Description	Manual dispatches submitted by EIM participant are followed by RT markets.
	ISO Actions	Verify that market follows the manual dispatch instructions 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 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.

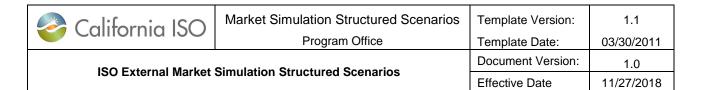| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/18/18	
6	Name	RT mitigation for new EIM BAA
	Market	RTPD/RTD
	Description	RT markets mitigate resources in the new EIM BAA
	ISO Actions	ISO to create a constraint in the EIM BAA (local or EIM transfer) to trigger local market power 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 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 Scenario 6 is the settlement of FMM IIE, RTD IIE, Bid cost recovery, and other market results based on mitigated bids of participating resources.

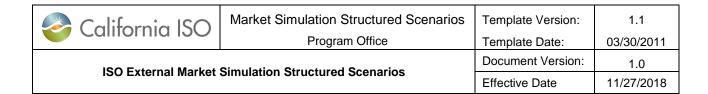| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/12/18	
8	Name	Neutrality
	Market	RTPD, RTD
	Description	Neutrality
	ISO Actions	ISO to create condition in ISO BAA to import energy from other EIM BAAs.
	EIM Market Participant Actions	Submit energy bids for market resources to cover not only their EIM BAA load forecast but have extra room to export to CAISO and bids should be cheaper that 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, CC 69850, and CC 67740 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.

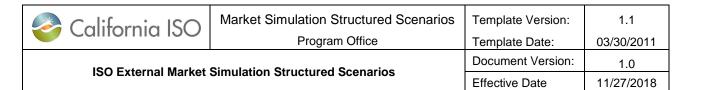| Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/11/18	
9	Name	Contingency Event in the EIM BAA
	Market	RTD
	Description	New EIM BAA declares contingency
	ISO Actions	ISO to verify the receipt of the contingency event notification from the EIM Entity. ISO will freeze the net EIM 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. For RTD, there is no FRP requirement for EIM entity in contingency. Resources pertaining to the EIM entity in contingency will not receive any FRP award from RTD.
	Anticipated Settlement Outcome	Daily: CC 64600, CC 64700, CC 64770, CC 69850, and CC 67740 In Scenario 9 demonstrates the settlement of market results when a contingency has been triggered in an EIM BAA.

Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/12/18	
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 In Scenario 10 demonstrates the settlement of market results when a contingency has been triggered in the CAISO area.

Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/5/18	
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 Scenario 11 is the settlement of the RT market results when the EIM entity has locked Energy Transfer System Resources.

Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/5/18	
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: CC 66200 and CC 66780 Scenario 12 is designed to explicitly trigger bid cost recovery settlement for participating resources in the EIM BAA.

Scenario Number	EIM Implementation BANC SMUD – Execution Time TD 12/19/18	
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	Daily: CC 64600, 64700, 64750, 7070, 7076, 7071, 7077, 7081, 7087, 4515, 4564, 66200 and 66780 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. 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. Scenario 13 is a settlement of specific resources with available balancing capacity dispatched to resolve market infeasibility.

3. ISO Market Simulation Contact

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