Market Simulation Structured Scenarios

Energy Imbalance Market Implementation – Idaho Power Company

Version: 1.3

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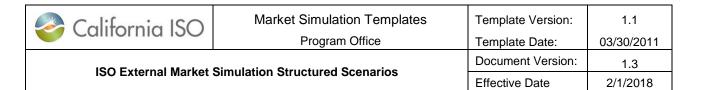
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Revision History

Date	Version	Description	Author
11/06/17	Draft	Initial Draft	Christopher McIntosh
11/28/17	1.0	Scenario TD's Identified	Christopher McIntosh
12/06/17	1.1	Scenario #1 TD Updated	Christopher McIntosh
12/12/17	1.2	Scenario #s 1, 9, 10 TD/HE Updated, ISO MP Actions (OASIS Reports) Updated	Trang Deluca
2/1/18	1.3	Updated dates	Trang Deluca

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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 identified scenarios will be executed during the structured scenario portion of the EIM Idaho Power 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 11/8/17 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.
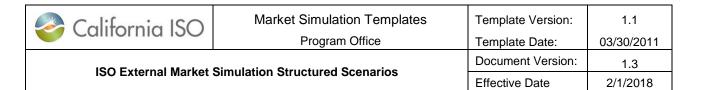
2.4 Structured Scenarios

Scenario Number	EIM Implementation – TD 12/7	
1	Description	DAM Feasibility Test Results –
	ISO Actions	ISO will obtain information from EIM entities for transmission interface constraints (TCOR/TIE). ISO will load standard bid set for ISO resources from production save case; for non EIM entities we will create base schedules based on interchange data, and demand forecast. For EIM entities ISO will validate that submitted base schedules are balanced and feasible.
	EIM Market Participant Actions	Provide ISO transmission interface constraints (TCOR/TIE) through the EIM dynamic limits interface. EIM entities will review base schedules and resubmit for real time based on DAM results.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Identified interfaces of the EIM entities will be congested and final results including congestion will be available.
	Anticipated Settlement Outcome	N/A

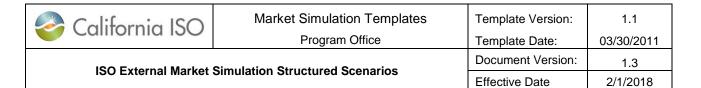| Scenario Number	EIM Implementation – TD 12/7 HE13	
2	Description	BAA fails Flex ramp sufficiency test upward direction
	ISO Actions	For EIM entities ISO will validate the schedules are balanced and feasible. ISO will set the Flex Ramp requirements (FRR) greater than available flex ramp up capability in the EIM BAA. Broadcast the ISO, EIM BAA, and EIM footprint total load forecast, broadcast the FRR for the ISO, EIM BAAs, and EIM footprint to the Market. Perform flexible ramping requirement sufficiency test. T-75, T-55, T-40.
	EIM Market Participant Actions	Verify outcome Real Time results, Expected Energy and Settlements Statements.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Import is curtailed to the lesser of the FMM a) net EIM transfer import at T-7.5 or b) the base import transfer of the prior hour. Requirements will not reflect the EIM diversity benefit, but will include any FRU credit (for EIM export deviations above the net imbalance energy export for trading hour). Failed BAA will not be included in the Flex Ramp BAA constraint, but will be included in the EIM Area BAA constraint (relevant with FRMP breakdown).
	Anticipated Settlement Outcome	Daily Statement: CC 7070, CC 7071, CC 7076, and CC 7077. Monthly Statement: CC 7078

Scenario Number	EIM Implementation – TD 12/7 HE11	
3	Description	BAA fails Flex ramp sufficiency test downward direction
	ISO Actions	For EIM entities ISO will validate the schedules are balanced and feasible. ISO will set the Flex Ramp requirements (FRR) greater than available flex down ramp capability in the EIM BAA. Broadcast the ISO, EIM BAA, and EIM footprint total load forecast, broadcast the FRR for the ISO, EIM BAAs, and EIM footprint to the Market. Perform flexible ramping requirement sufficiency test. T-75, T-55, T-40.
	EIM Market Participant Actions	Verify outcome Real Time results, Expected Energy and Settlements Statements.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Export is curtailed to the lesser of the FMM a) net EIM transfer export at T-7.5 and b) the base export transfer of the prior hour. Requirements will not reflect the EIM diversity benefit, but will include any FRD credit (for EIM import deviations below the net imbalance energy import for trading hour). Failed BAA will not be included in the Flex Ramp BAA constraint, but will be included in the EIM Area BAA constraint (relevant with FRMP breakdown).
	Anticipated Settlement Outcome	Daily Statement: CC 7070, CC 7081, CC 7076, and CC 7087. Monthly Statement: CC 7088

Scenario Number	EIM Implementation – TD12/7 HE14 – HE15	
4	Description	EIM Real Time – Congestion Management within EIM Entity BAAs
	ISO Actions	ISO will obtain information from EIM entities for transmission interface constraints. ISO will de-rate the transmission flowgates according to the information provided. ISO will load our standard bid set, for non EIM entities we will create base schedules based on interchange data, and demand forecast. For EIM entities ISO will validate the schedules are balanced and feasible. ISO will run DAM and Real Time markets and publish results. Publish Settlements Statements.
	EIM Market Participant Actions	Provide ISO transmission interface constraints (TCOR/TIE) through the EIM dynamic limits interface. Verify Congestion Information on OASIS, Real Time results, Expected Energy and Settlements Statements.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Units will be dispatched and or committed/decommitted to relieve congestion. LMP will include congestion component.
	Anticipated Settlement Outcome	CC 4564, CC 64600, CC 64700, CC64750, CC 67740 and CC 64770

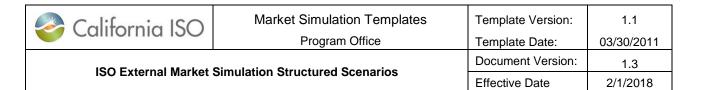| Scenario Number	EIM Implementation – TD 12/20 HE11	
5	Description	EIM Real Time – Manual Dispatches for EIM Resources
	ISO Actions	ISO will load the ISO standard bid set; for existing EIM entities ISO will create base schedules based on interchange data, and demand forecast. For new EIM entities ISO will validate the schedules are balanced and feasible. ISO will run DAM and Real Time markets and publish results. Publish Settlements Statements.
	EIM Market Participant Actions	EIM BAA will manually dispatch selected EIM participating resources notifying the ISO accordingly.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	The market application will dispatch the resources in accordance with the manual dispatch instructions.
	Anticipated Settlement Outcome	CC 64600, CC 64700, CC 67740, and CC 64770

Scenario Number	EIM Implementation – TD 1/17 HE11 – HE15	
6	Description	EIM Real Time – EIM Specific Resource Mitigation RTPD and RTD
	ISO Actions	ISO to create a local constraint in the EIM BAA to trigger local market power mitigation.
	EIM Market Participant Actions	Submit expensive bids on the EIM participating resources that are expected to be mitigated.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Resource with market power will be mitigated using their default energy bid and reported on CMRI.
	Anticipated Settlement Outcome	CC 64600, CC 64700, CC 66200 and CC 66780

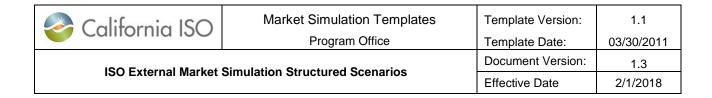| Scenario Number	EIM Implementation – TD 12/12 HE11	
7	Description	EIM Real Time – GHG Charges
	ISO Actions	ISO to increase the Load Forecast for the ISO BA. EIM specific energy bids are cheaper than other imports to ISO BA.
	EIM Market Participant Actions	MP will provide GHG bid adder for selected participating resources in the EIM BAA. Review Settlements Statements.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	GHG payments will be properly awarded to the exporting resources based on their export allocation values.
	Anticipated Settlement Outcome	CC 64600, CC 64700, CC 491, CC 67740, CC 69850, CC 64770, and CC 66200

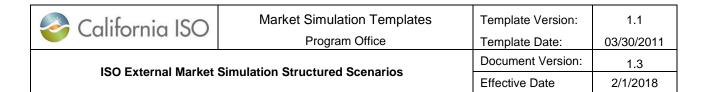| Scenario Number	EIM Implementation – TD 12/12 HE11 – HE15	
8	Description	EIM Real Time – Neutrality
	ISO Actions	ISO to increase the Load Forecast for the ISO BA. EIM specific bids are cheaper than other imports to ISO BA.
	EIM Market Participant Actions	Review Settlements Statements.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Transfer of RT neutrality between BAA and allocation to relevant SC's based on the EIM transfer.
	Anticipated Settlement Outcome	CC 64600, CC 64700, CC 67740, CC 69850, and CC 64770

Scenario Number	EIM Implementation – TD 1/16 HE14	
9	Description	EIM Real Time – Contingency Event in the EIM BAA
	ISO Actions	ISO to verify the receipt of the contingency event notification from the EIM Entity. ISO will freeze the EIM transfer of the EIM Entity BAA at the last advisory optimal solution.
	SC 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.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	EIM entity takes appropriate actions to resolve their contingency. Contingency does not affect dispatch or prices in the ISO area.
	Anticipated Settlement Outcome	CC 64600, CC 64700, CC 67740, CC 69850, and CC 64770

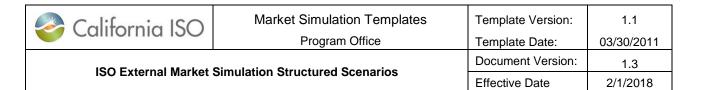| Scenario Number	EIM Implementation – TD 12/13 HE11	
10	Description	EIM Real Time – Contingency Event in the ISO BA
	ISO Actions	ISO will simulate a contingency in the ISO BA via RT contingency. ISO will load our standard bid set, for existing EIM entities we will create base schedules based on interchange data, and demand forecast. For EIM new entities ISO will validate the schedules are balanced and feasible. ISO will run DAM and Real Time markets and publish results. Publish Settlements Statements.
	EIM Market Participant Actions	EIM resources receive dispatch instructions through ADS.

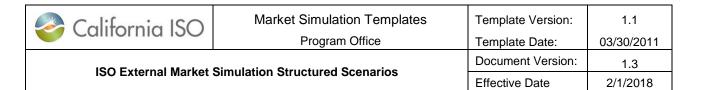| ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
Expected Outcome	Contingency event in CAISO area does not affect dispatches or prices in the EIM BAs.
Anticipated Settlement Outcome	CC 64600, CC 64700, CC 67740, CC 69850, and CC 64770

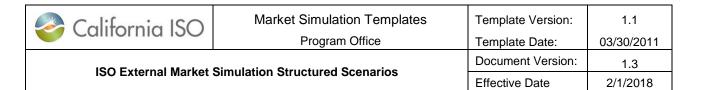| Scenario Number	EIM Implementation – TD 1/17 HE11	
11	Description	EIM Entity BAA Isolation
	ISO Actions	ISO to set EIM Transfer to base transfer, Energy Transfer limits will be set on all interties for a given BAA.
	EIM Market Participant Actions	Verify transfer limits.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	ISO and EIM Entity BAs are dispatched separately.
	Anticipated Settlement Outcome	CC 64600, CC 64700, CC 67740, CC 69850, and CC 64770

Scenario Number	EIM Implementation – TD 12/14, TD 1/19 HE14	
12	Description	Impact of Real Time Unit Commitment on EIM Entity
	ISO Actions	ISO will create scenario in which either EIM BAA load forecast falls short or a forced outage or similar circumstance induces the market system to commit a short-start unit in the EIM area. Ideally, the unit will be started but will not be economical over its entire minimum running time, 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.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Market commits the unit. If possible, the unit should be uneconomical for part of its run time. Bid cost recovery payments will be due to the unit.
	Anticipated Settlement Outcome	CC 66200 and CC 66780

Scenario Number	EIM Implementation – N/A	
13	Description	Joint ownership of resource in EIM BAA
	ISO Actions	ISO to work with EIM Entities to identify joint ownership resources in the BAA. ISO to demonstrate new joint ownership resource dispatch functionality.
	EIM Market Participant Actions	Validate dispatch instructions.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Market successfully dispatches the joint ownership resource as per design.
	Anticipated Settlement Outcome	CC 64600, CC 64700, and CC 4564

Scenario Number	EIM Implementation – TD 12/19 HE11	
14	Description	Available Capacity (Reserves)
	ISO Actions	ISO will change system conditions to cause infeasibility in an EIM BAA, 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 range for PR and regulation capacity base schedules for both PR and NPR.
	ISO Market Participant Actions	Review OASIS reports: Under Prices > All LMP reports, Scheduling Constraint Shadow Prices, EIM GHG Shadow Prices; Under System Demand > Sufficiency Evaluation Demand Forecast, CAISO Demand Forecast, EIM Transfer; Under Energy > EIM Transfer Limits, EIM Transfer Limits by Tie, EIM Transfer by Tie, EIM BAA Hourly Base NSI, Flexible Ramp Requirements Inputs, Flexible Ramp Surplus Demand Curves
	Expected Outcome	Energy bid for participating resources in regulation range and default energy bid for non-participating resources will be used for dispatch to resolve infeasibility. If infeasibility is resolved price will be set by the last marginal bid. If infeasibility is not resolved price will go to $1,000.
	Anticipated Settlement Outcome	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. CC 64600, 64700, 64750, 7070, 7076, 7071, 7077, 7081, 7087, 701, 4515, 4564, 66200 and 66780

3. ISO Market Simulation Contact

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

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