

Business Requirements Specification

Symmetrical Settlement for Wheeling through EIM BAAs

Document Version: 1

Current Version Date: **9/30/2020**

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Revision History

Date	Version	Description
9/30/2020	1.0	Initial Document Release.

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1 Introduction

1.1 Purpose

The purpose of this document is to capture and record a description of what the Users and Business Stakeholders of the project wish to obtain, by providing high level business requirements. This document establishes the basis for the agreement between the initiators and implementers of the project. The information in this document serves as input to determine the scope of projects and all Business Process Modeling and System Requirements Specifications efforts.

Business requirements are what must be delivered to provide value for the Users and Business Stakeholders. Systems, software, and processes are the ways (how) to deliver, satisfy or meet the business requirements (what).

This document is for symmetrical settlement of wheeling through EIM BAA enhancement, which is part of Energy Imbalance Market Enhancements 2020. It enhances base ETSR price setting in such a way to result in symmetrical settlement of wheeling through EIM BAAs. It supports Base ETSR Imbalance Energy settlements between two EIM BAAs at a mutually agreed price. If both EIM BAAs performing the symmetrical wheel through agree to settle the Base ETSR schedule deviations, mutually agree to the price to be used for the bilateral settlement, ISO will settle the transaction.

2 Intellectual Property Ownership

Intellectual Property covers a broad array of information and materials, including written works, computer programs, software, business manuals, processes, symbols, logos and other work products. Determining ownership of Intellectual Property is very important in preserving the rights of the California ISO, and helps to avoid Intellectual Property infringement issues. In considering the business requirements or service requirements to be performed, the business owner of the project must determine Intellectual Property Ownership.

2.1 Checklist

The ISO retains intellectual property ownership of the following:

- Related Business Practice Manuals
- All rights reserved for works included within this BRS document

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3 Acronym and Terms Definitions

Term	Description/Definitions
A2A	Application-to-Application (internal API)
ABC	<p>Available Balance Capacity.</p> <p>After the implementation of the Energy Imbalance Market (EIM), the ISO observed instances in which the power balance limit had to be relaxed because of insufficient economic bids which resulted in prices being set at the power balance constraint relaxation parameters. However, since the EIM entity maintains balancing authority responsibilities, the EIM entity had available resources to meet its load; but the market optimization was not able to recognize that this available capacity that is manually dispatched to maintain system balance within the balancing authority area. If the market optimization could recognize this capacity and include it in the economic dispatch, prices would be set based upon the last economic energy bid instead of the relaxation parameter.</p> <p>In March 2015, the ISO implemented its `available balancing capacity` design which allows the market to recognize the additional resources that the EIM entity uses to meet its balancing authority responsibilities. The design ensures that this capacity is only included in the bid stack in the event that the balancing authority area`s individual power balance constraint is being violated because of insufficient economic bids from participating resources within its balancing authority area. When the available balancing capacity is deployed, these resources are included in the bid stack, which allows the Locational Marginal Price (LMP) within the balancing authority area to be set by the marginal economic bid and not the power balance constraint relaxation parameter.</p>
ALFS	<p>Automated Load Forecast System.</p> <p>A system used to calculate short-term Demand Forecasts for ISO Balancing Authority Area operations. ALFS utilizes a neural-network methodology that uses forecasted weather and conditions such as type of day to determine the ISO Forecast of ISO Demand.</p>
API	Application Program Interface
AS	<p>Ancillary Services</p> <p>Ancillary services are energy products used to help maintain grid stability and reliability. There are four types of ancillary services products: regulation up, regulation down, spinning reserve and non-spinning reserve. Regulation energy is used to control system frequency, which must be maintained very narrowly around 60 hertz, and varies as generators change their energy output. Resources providing regulation are certified by the ISO and must respond to automatic control signals to increase or decrease their operating levels depending upon the need. Spinning reserve is standby capacity from generation units already connected or synchronized to the grid and that can deliver their energy in 10 minutes when dispatched. Non-spinning reserve is capacity that can be synchronized to the grid and ramped to a specified load within 10 minutes.</p>
B2B	Business-to-Business (API between ISO and EIM or ISO BAA participants)
BAA	Balancing Authority Area

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Term	Description/Definitions
	Balancing Authority Area - Balancing authority (electric): The responsible entity that integrates resource plans ahead of time, maintains load-interchange-generation balance within a Balancing Authority Area, and supports Interconnection frequency in real time.
BAAOP	<p>Balancing Authority Area Operations Portal</p> <p>Interface provided for EIM entities for the following purposes:</p> <ul style="list-style-type: none"> * UI to the market operations * Management of dispatches <p>BAAOP sends the following information to the EIM Entity:</p> <ul style="list-style-type: none"> * Load forecast bias * Dispatch instruction approve/decline * Dynamic limits: inerties * Intertie changes
BRS	Business Requirement Specification
BSAP	<p>Base Schedule Aggregation Portal</p> <p>BSAP is a modified SIBR application for Energy Imbalance Market (EIM) entities.</p> <p>BSAP will receive hourly Base Schedules from all resources within the EIM balancing authority area and interchange transactions five hours prior to the operating hour, in order to provide an input for all Real-Time processes including the longer-term Short-Term Unit Commitment (STUC) as well as Real-Time Unit Commitment (RTUC) and Real-Time Dispatch (RTD).</p> <p>These hourly Base Schedules will balance against the load forecast and serve as the baseline for settling imbalance energy in the EIM. The combination of load forecasts, Base Schedules, and the bid range from Participating Resources will become the hourly Resource Plan for the EIM balancing authority.</p> <p>The ISO has based the EIM on the Real-Time Market design, which was developed in part to comply with FERC Order No. 764, and consists of a 15-minute market and a 5- minute dispatch. Each of these market runs will produce schedules and locational marginal prices for resources.</p>
CAISO	California Independent System Operator
CIDI	Customer Inquiry, Dispute and Information system
CISO	See CAISO
CMRI	CAISO Market Results Interface
DAM	<p>Day Ahead Market</p> <p>The day-ahead market is made up of three market processes that run sequentially. First, the ISO runs a market power mitigation (MPM) test. Bids that fail the test are revised to predetermined limits. Then the integrated forward market (IFM) establishes the generation needed to meet forecast demand. And last, the residual unit commitment (RUC) process designates additional power plants that will be needed for the next day and must be ready to generate electricity. Market prices set are based on bids. A major component of the market is the full network model (FNM), which analyzes the active transmission and</p>

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Term	Description/Definitions
	generation resources to find the least cost energy to serve demand. The model produces prices that show the cost of producing and delivering energy from individual nodes, or locations on the grid where transmission lines and generation interconnect
DEC	Decrement. Indicates the active power output of a resource is being decreased.
DOT	Dispatch Operating Target. Identifies where the unit is expected to be at the end of the dispatch time interval.
ED	<p>Exceptional Dispatch (also referred to as Manual Dispatch)</p> <p>Exceptional dispatches are requests for energy from System Operators for reliability purposes, regardless of cost. Exceptional Dispatches allow the EIM and ISO operators to draw power from sources not cleared by market software in order to maintain grid reliability during emergencies, so they are likely not the most economic resources, but they are deemed necessary for the reliability of the system. EDs are entered manually by the ISO Operator into the Day-Ahead or Real Time Market optimization software so that they are accounted for and included in the communication of Day-Ahead Schedules and Dispatch Instructions to Scheduling Coordinators.</p>
EIM	<p>Energy Imbalance Market</p> <p>An Energy Imbalance Market (EIM) manages real-time imbalances on the grid economically, reliably, and automatically. Deviations in supply and demand occur in real time resulting in a mismatch, or imbalance, between available electricity versus what is needed by consumers. Balancing Authorities (BAs) have traditionally tried to manage these imbalances by relying on manual dispatches and extra power reserves. An EIM solves these imbalances in real-time with more precision through an automated five-minute energy dispatch service. EIM's automation and economic dispatch lower costs for participants and become even more valuable as additional renewable resources connect to the grid.</p>
EMS	<p>Energy Management System</p> <p>The ISO's telemetry-based system for managing reliable operations of the ISO-controlled grid. The EMS system receives information every four seconds regarding the system load and generator operating levels. EMS also provides Automatic Generation Control (AGC) sending operating set points for units on regulation.</p> <p>An energy management system (EMS) is a system of computer-aided tools used by operators of electric utility grids to monitor, control, and optimize the performance of the generation and/or transmission system. The monitor and control functions are known as SCADA.</p>
ETSR	Energy Transfer System Resource
GRDT	Generator Resource Data Template
ICCP	<p>Inter-Control Center Communications Protocol</p> <p>The Inter-Control Center Communications Protocol (ICCP or IEC 60870-6/TASE.2)[1] is being specified by utility organizations throughout the world to provide data exchange over wide area networks (WANs) between utility control centers, utilities, power pools, regional control centers, and Non-Utility Generators</p>
IFM	Integrated Forward Market (see Day-Ahead Market)
INC	Increment. Indicates the active power output of a resource is being increased.
ISO	Independent System Operator

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Term	Description/Definitions
MF	<p>MasterFile</p> <p>The Generator Resource Data Template is one of several Excel spreadsheets, designed to capture data specific to a particular unit type, such as Wind, Biomass, Hydro, Solar, etc. The spreadsheet includes fields for dozens of data elements that describe the resource, including SCIDs, resource type, ramp rate, heat rate, startup requirements, forbidden operating regions, etc. - much of the data that is required for the ISO's Master File database. As part of the new resource implementation (NRI) process, the new generator operator must submit an initial Generator Resource Data Template for preliminary modeling to the ISO. The Generator Resource Data Template and the Intertie Resource Data Template are used to submit requests to add or change specific operating parameters that reside within Master File.</p>
MSG	<p>Multi-Stage Generation</p> <p>Multistage Generators: between their minimum and maximum operating levels, there are output levels at which the units cannot be dispatched. Multi-Stage Generation Resources have between 1 and 10 operating configurations (or operating regions) that have distinct operating parameters. It requires time and money to move from one configuration operating range to another configuration operating range, and they can be operated only in one configuration within any given dispatch interval. During transition from one configuration to another, if the configurations do not overlap, then there is a gap between them where they cannot be dispatched. For these forbidden regions, the transition profile for external Dispatch Operating Targets (DOTs) remains in the `From Configuration` until the end of transition, while internal imbalance calculations assume ramping.</p>
MW	Mega-Watt
NSI	Net Schedule Interchange. Net Scheduled Interchange is the sum of all Interchange Schedules across a given path or between Balancing Authorities for a given period or instant in time (imports minus exports).
OASIS	Open Access Same Time Information System
OOS	Out-of-Sequence (See Exceptional Dispatch)
RTBS	<p>Real-Time Balance Schedule.</p> <p>Application and process internal to ISO that performs resource sufficiency tests for the EIM.</p>
RTD	<p>Real-Time Dispatch</p> <p>The Security Constrained Economic Dispatch (SCED) and Security Constrained Unit Commitment (SCUC) software used by the CAISO to determine which Ancillary Service and Imbalance Energy resources to Dispatch and to calculate LMPs.</p> <p>The Real-Time Dispatch Process (RTD) is the general term for one of three specific dispatches:</p> <ul style="list-style-type: none"> • Real-Time Economic Dispatch (RTED) that is executed every 5 minutes, • Real-Time Contingency Dispatch (RTCD) that is executed for a 10-minute interval on demand, • Real-Time Manual Dispatch (RTMD) that is executed on demand in manual mode.
RTM	<p>Real-Time Market</p> <p>The real-time market is a spot market in which utilities can buy power to meet the last few increments of demand not covered in their day ahead schedules. It is also the market that secures energy reserves, held ready and available for ISO use if needed, and the energy needed to regulate transmission line stability.</p>

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Term	Description/Definitions
	The market opens at 1:00 p.m. prior to the trading day (during the Day-Ahead) and closes 75 minutes before the start of the trading hour (in the Real-Time). The results are published about 45 minutes prior to the start of the trading hour.
RTMO	Real-Time Market Operator (ISO BAA Operator)
RTPD	Real-Time Pre-Dispatch An application of the Real Time Market that runs every 15 minutes and commits Fast and Medium-Start Units using the Security Constrained Unit Commitment (SCUC) to adjust Day-Ahead Schedules and Hour-Ahead Scheduling Process (HASP) Intertie Schedules.
RTSI	EIM Real Time Schedule Interchange. Schedule representation of tags sent to market for dispatch.
SC	Scheduling Coordinator
SCADA	Supervisory Control and Data Acquisition
SE	State Estimator A computer software program that provides the ISO with a near Real-Time assessment of system conditions (i.e., the `state` of current conditions) within the ISO Balancing Authority Area, including portions of the ISO Balancing Authority Area where Real-Time information is unavailable.
SIBR	Scheduling Infrastructure and Business Rules
SQMD	Settlement Quality Meter Data Meter Data gathered, edited, validated, and stored in a settlement-ready format, for Settlement and auditing purposes.
STUC	Short-Term Unit Commitment The unit commitment procedure run at approximately T-52.5 minutes for a time horizon of approximately five (5) hours. The STUC determines whether some Medium Start Units need to be started early enough to meet the demand within the STUC time horizon using the CAISO Demand Forecast. The STUC produces a unit commitment solution for every 15-minute interval within the STUC time horizon and issues binding start-up instructions only as necessary.
SUPP	Supplemental Energy The difference between the bid-in capacity in the Day Ahead market and the forecasted demand (made up of Residual Unit Commitment and Resource Adequacy). When the Day Ahead demand forecasted volume is greater than the volume that clears the market, the ISO procures additional capacity from resources which are then required to submit an energy bid into the Real Time Market to ensure that there is enough supply available for the Real Time Market to dispatch. The energy between the cleared forecasted capacity bids and the forecasted demand is called Supplemental Energy. Supplemental Energy is made up of Residual Unit Commitment (RUC) procurement and Resource Adequacy (RA) capacity.
SVG	Scalable Vector Graphics At the ISO, SVG files are referred to in relation to PI ProcessBook displays (one-line diagrams). Scalable Vector Graphics (SVG) is an XML-based vector image format for two-dimensional graphics with support for interactivity and animation.
UI	User-Interface

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Term	Description/Definitions
VER	Variable Energy Resource A Variable Energy Resource is a device for the production of electricity that is characterized by an energy source that: * Is renewable; * Cannot be stored by the facility owner or operator; * Has variability that is beyond the control of the facility owner or operator. <i>For example: wind; solar thermal and photovoltaic; and hydrokinetic generating facilities.</i>
XSD	XML Schema Definition

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4 Details of Business Need/Problem

4.1 Description

This document is for symmetrical settlement of wheeling through EIM BAA enhancement, which is part of Energy Imbalance Market Enhancements 2020. It enhances base ETSR price setting in such a way to result in symmetrical settlement of wheeling through EIM BAAs.

*Refer to **Appendix A – Symmetrical Settlement for Wheeling through EIM BAAs (Existing vs Proposed Functionality)** for detailed description of this enhancement.*

Business Opportunity/Problem Statement:	
What:	Project scope addresses user display enhancements, new reports for added market transparency, and out-of-warranty defects associated with the Energy Imbalance Market (EIM). <u>Key Notes:</u> <ul style="list-style-type: none"> This enhancement was proposed internally by ISO System Operations and agreed upon to be performed with EIM participants.
When:	Post Fall Release 2020
Why do we have this opportunity/problem:	As the ISO receives more feedback from the growing number of BAAs participating in the Energy Imbalance Market, there is an opportunity each year to implement value-added requests to enhance the market transparency and functionality.
Who does this opportunity impact:	<i>EIM Participants (Scope Item in Section 1.1).</i>

5 Business Impacts

5.1 Business Practice Manual (BPM)

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BPM	Description of Impact(s)
Energy Imbalance Market (EIM)	- Base ETSR price setting to From BAA SP-Tie financial location for symmetrical settlement of wheeling through EIM BAAs enhancement.

5.2 Other

Impact:	Description: (optional)
Market Simulation	Yes
Market Participant Impact	Yes EIM Entities: Settlements updates
External Training	Yes
Policy Initiative	No

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6 Business Requirements

The sections below describe the Business processes and the associated business requirements involved in the project. These may represent high-level functional, non-functional, reporting, and/or infrastructure requirements. These business requirements directly relate to the high-level scope items determined for the project.

6.1 Business Process: Manage Master File

6.1.1 Business Requirements:

ID#	Business Feature	Req Type	Potential Application(s) Impacted
EIM20-BRQ-620	System shall retire the definition of the Base ETSR split ratio and From/To financial location starting from this enhancement's effective date of activation. Note: <ul style="list-style-type: none"> Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 	Core	- Master File (internal ISO functionality)
EIM20-BRQ-625	System shall define a Financial Location for each Base ETSRs as follows: <ul style="list-style-type: none"> FROM BAA, matching the FROM BAA of the Base ETSR. INTERTIE, matching the INTERTIE of the Base ETSR. Note: <ul style="list-style-type: none"> Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 	Core	- Master File (internal ISO functionality)
EIM20-BRQ-630	System shall update the data used for financial location ID for each Base ETSRs to be an APnode that corresponds to the Base ETSR From BAA	Core	- Master File (internal ISO functionality)

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
	<p>instead of the current SP/Tie fictitious financial location starting from this enhancement's effective date of activation.</p> <p>Note:</p> <ul style="list-style-type: none"> Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 		

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6.2 Business Process: Manage Real-Time Markets

6.2.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
EIM20-BRQ-310	<p>System shall retire consumption of the Base ETSR split ratio from MF starting from this enhancement's effective date of activation.</p> <p>Note:</p> <ul style="list-style-type: none"> Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 	Core	- RTM (STUC, HASP, RTPD, RTD) (internal ISO functionality)
EIM20-BRQ-320	<p>System shall consume the following Base ETSR mapped data from MF starting from this enhancement's effective date of activation:</p> <ul style="list-style-type: none"> Financial location BAA name which set the price for Base ETSR (From BAA). Financial Location Tie Name. <p>Note:</p> <ul style="list-style-type: none"> Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 	Core	- RTM (STUC, HASP, RTPD, RTD) (internal ISO functionality)
EIM20-BRQ-330	<p>System shall calculate the LMP for each Base ETSR Financial Location as the sum of the following:</p> <ul style="list-style-type: none"> SMEC Shadow price of the PBC of the FROM BAA, if the FROM BAA is not CISO Shadow price of each ITC/ISL associated with the FROM BAA and the INTERTIE of Base ETSR (or the Scheduling Point at that INTERTIE, if the FROM BAA is CISO). 	Core	- RTM (STUC, HASP, RTPD, RTD) (internal ISO functionality)

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
	<ul style="list-style-type: none"> • Marginal GHG price, if the FROM BAA is not in the CA GHG regulation area. <p>Note:</p> <ul style="list-style-type: none"> • The CA GHG regulation area is the union of BAAs in CA; currently CISO, BANC, and TID, and from 4/1/2021 for LADWP. • Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 		
EIM20-BRQ-340	System shall have the capability to support transition from the existing functionality to the proposed functionality described in this document, starting from this enhancement’s effective date of activation.	Core	- RTM (STUC, HASP, RTPD, RTD) (internal ISO functionality)

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6.3 Business Process: Manage Market Billing and Settlements

6.3.1 Business Requirements:

ID#	Business Feature	Req Type	Potential Application (s) Impacted
EIM20-BRQ-680	<p>System shall update formulation of Base ETSR export/import in Real Time Congestion Offset EIM and Real Time Marginal Losses Offset EIM charge codes to add amount for congestion and marginal losses, respectively, similar to Real Time Energy Offset EIM charge code, starting from this enhancement's effective date of activation.</p> <p>Notes:</p> <ul style="list-style-type: none"> • For Base ETSR export/import quantity calculation, system shall still use the LMP of the financial location that is mapped to each Base ETSR and passed to settlements by market application or PCA, where the LMP setting will be different starting from this enhancement's effective date of activation. • This shall impact the following charge codes: <ul style="list-style-type: none"> ○ Real Time Energy Offset EIM ○ Real Time Congestion Offset EIM ○ Real Time Marginal Losses Offset EIM • Refer to Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition) for example of MF Table definition. 	Core	- Settlements

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6.4 Business Process: Market Simulation

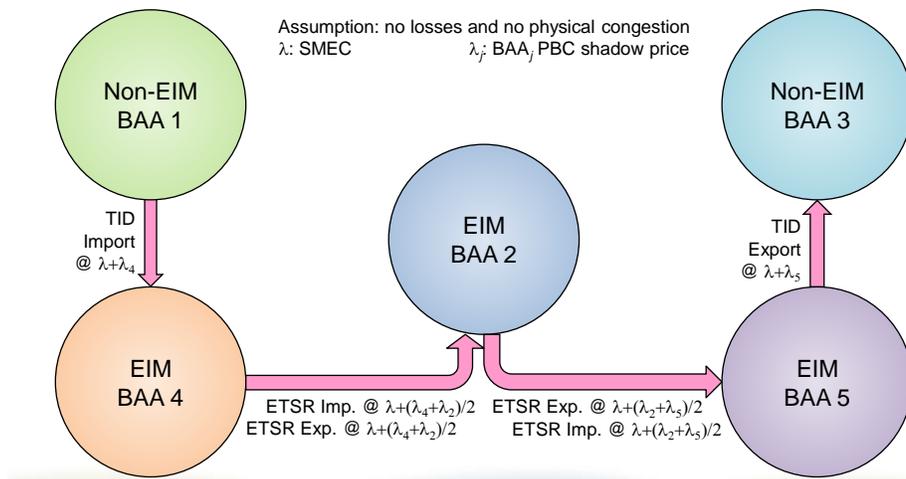
This section shall provide a basis for the development of the Market/Business Simulation Scenarios. These requirements will provide guidance on the market participant impacts, inputs into the Scenarios, endpoints to the Scenarios and reasons for potential Scenarios. The guidance on market participant impacts shall be gathered from the requirements that impact rules, interfaces, applications/reports, new system processes, new/modified data models and new user roles. The source and sink systems shall be determined through the development of the system context diagram and the web service requirements.

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
EIM20-MSIM-011	<p>Symmetrical Wheeling Settlement for EIM BAAs</p> <p>Enhancement to settle Base ETSR attributes to support Base ETSR Imbalance Energy settlements between two EIM BAAs at a mutually agreed price. If both EIM BAAs performing the symmetrical wheel through agree to settle the Base ETSR schedule deviations, mutually agree to the price to be used for the bilateral settlement, ISO will settle the transaction. This enhancement is modifying base ETSR price setting in such a way to result in symmetrical settlement of wheeling through EIM BAAs.</p>	MF, RTM	Settlements	<i>3. Modified Model and Applications</i>

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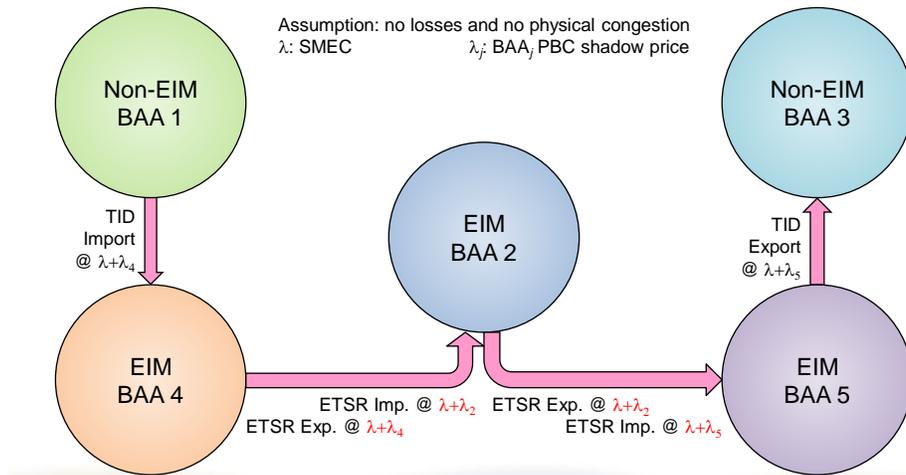
Appendix A – Symmetrical Settlement for Wheeling through EIM BAAs (Existing vs Proposed Functionality)

Appendix A.1 – Existing Functionality:



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Appendix A.2 – Proposed Enhanced Functionality:



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Appendix B – Symmetrical Settlement for Wheeling through EIM BAAs (MF Definition)

Using following Base ETSRs as example:

RES_ID	BAA	FROM_BAA	TO_BAA	TIE_ID
BAA2_TIE25_BAA5_E_EIMBASE	BAA2	BAA2	BAA5	TIE25_BAA5
BAA2_TIE25_BAA5_I_EIMBASE	BAA2	BAA2	BAA5	TIE25_BAA5
BAA5_TIE25_BAA2_E_EIMBASE	BAA5	BAA5	BAA2	TIE25_BAA5
BAA5_TIE25_BAA2_I_EIMBASE	BAA5	BAA5	BAA2	TIE25_BAA5

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Appendix B.1 – Existing Definition:

Current financial location definition:

RES_ID	FIN_LOC_ID	FIN_LOC_T YPE	FROM_FIN_ LOC	FROM_FIN_T YPE	TO_FIN_LO C	TO_FIN_T YPE	SPLIT_RA TIO
BAA2_TIE25_BAA5_E_EI MBASE	BAA2_TIE25_BAA5_E_EI MBASE-APND	APND	DGAP_BAA2 -APND	APND	DGAP_BAA 5-APND	APND	0.5
BAA2_TIE25_BAA5_I_EI MBASE	BAA2_TIE25_BAA5_I_EI MBASE-APND	APND	DGAP_BAA2 -APND	APND	DGAP_BAA 5-APND	APND	0.5
BAA5_TIE25_BAA2_E_EI MBASE	BAA5_TIE25_BAA2_E_EI MBASE-APND	APND	DGAP_BAA5 -APND	APND	DGAP_BAA 2-APND	APND	0.5
BAA5_TIE25_BAA2_I_EI MBASE	BAA5_TIE25_BAA2_I_EI MBASE-APND	APND	DGAP_BAA5 -APND	APND	DGAP_BAA 2-APND	APND	0.5

 California ISO	Technology	Template Version:	5.1
		Document Version:	1
Symmetrical Settlement for Wheeling through EIM BAAs Business Requirements Specification - Planning		Date Created:	9/30/2020

Appendix B.2 – Proposed Enhanced Definition:

Proposed new financial location definition:

RES_ID	FIN_LOC_ID	FIN_LOC_TYPE	FIN_LOC_BAA	FIN_LOC_TIE
BAA2_TIE25_BAA5_E_EIMBASE	BAA2_TIE25_BAA5-APND	APND	BAA2	TIE25_BAA5
BAA2_TIE25_BAA5_I_EIMBASE	BAA2_TIE25_BAA5-APND	APND	BAA2	TIE25_BAA5
BAA5_TIE25_BAA2_E_EIMBASE	BAA5_TIE25_BAA2-APND	APND	BAA5	TIE25_BAA5
BAA5_TIE25_BAA2_I_EIMBASE	BAA5_TIE25_BAA2-APND	APND	BAA5	TIE25_BAA5