

Business Requirements Specification

Intertie Deviation Settlement

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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).

One of the challenges faced today by the ISO is that not all scheduling coordinators follow declining hourly block intertie awards by T-40. When scheduling coordinators do not take action when awards are published in the Automated Dispatch System (ADS), this results in the awards being auto-accepted on behalf of the scheduling coordinator. The ISO market assumes the energy will be delivered, when in reality this might not be the case. Once the grid operator recognizes the shortage, the operator is unable to schedule additional energy on the interties due to the NAESB (North American Energy Standards Board) E-Tagging timeline of T-20. At this point, it is too late to manually schedule energy on the interties. The RTD will recognize the shortage and dispatch the energy, but cannot commit additional intertie energy. As a result, the energy in the real time market may be expensive or unavailable without emergency actions and could lead to capacity procurement mechanism (CPM) designations.

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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 Guidelines

Intellectual Property ownership must be considered by all applicable stakeholders before the services are performed. The level of analysis is two-fold:

- One, the business owner must determine if the Intellectual Property necessary to perform the services is owned by the California ISO or whether it must be obtained from a third party. Once the California ISO has secured the proper Intellectual Property rights to perform the services (i.e., the Intellectual Property is owned by the California ISO or we have licensed it from a third party), the California ISO can undertake the next step.
- The second step in the analysis is to consider whether new Intellectual Property will be created as a result of the business requirements or service requirements to be performed, and how that Intellectual Property will be owned and protected by the California ISO.

In order to assist the business owner in the analysis previously described, refer to the California Intellectual Property Policy available at:

http://www.caiso.com/rules/Pages/LegalPoliciesNotices/Default.aspx, which provides a brief tutorial on what Intellectual Property is and how the California ISO can protect its Intellectual Property. Contact the Legal Department if you have any questions regarding Intellectual Property.

There are no impacts to intellectual property based on the requirements stated in this document.

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3 Details of Business Need/Problem

3.1 Description

Business Opportunity/Problem Statement:		
What:	 Incentive delivery of awarded energy on interties to improve operational awareness and grid reliability. 	
	 Eliminate the decline charge and replace it with a new settlement mechanism known as the under/over delivery charge. 	
When:	Fall 2020	
Why do we have this opportunity/problem:	When market participants fail to deliver intertie energy, grid operators and the ISO markets face operational challenges that could potentially result in high real time market prices, manual processes, and sub-optimal market solutions. One of the challenges faced today by the ISO is that not all scheduling coordinators follow declining hourly block intertie awards by T-40.	

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4 Business Impacts

4.1 Business Practice Manual (BPM)

BPM	Description of Impact(s)
Managing Full Network Model	N/A
Congestion Revenue Rights	N/A
Market Instruments	N/A
Outage Management	N/A
Reliability Requirement	N/A
Market Operations	Yes Shall identify the best practices of submitting an E-Tag with a transmission profile by T-40. Shall describe the update/adjustment process of energy profiles until T-20.
Compliance Monitoring	N/A
Metering	N/A
Scheduling Coordinator Certification & Termination	N/A
Rules of Conduct Administration	N/A
BPM Change Management	N/A
Definitions & Acronyms	N/A
Settlements & Billing	Yes Deprecation of the decline charge. Description of the under/over delivery charge.
Credit Management	N/A
Candidate CRR Holder	N/A
Transmission Planning Process	N/A
Direct Telemetry	N/A
Distributed Generation for Deliverability	N/A
Energy Imbalance Market (EIM)	N/A

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BPM	Description of Impact(s)
Generator Interconnection Procedure (GIP)	N/A
Generator Interconnection and Deliverability Allocation Procedures	N/A
Generator Management	N/A
Managing Full Network Model	N/A

4.2 Other

Impact:	Description: (optional)
Market Simulation	Yes – see section 5.5 for detailed Market/Business Scenarios
Market Participant Impact	Yes – under/over allocation delivery charge impact as well as the tagging timeline change.
User Acceptance Testing (UAT)	Yes – ADS various internal system related changes
Internal Training	Yes
External Training	Yes
Policy Initiative	Yes
Vendor	Yes – Siemens and OATI

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5 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.

5.1 Business Process: Manage Market Billing & Settlements (Under/Over Delivery Charge & Under/Over Delivery Tagging)

5.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ001	Settlements shall deprecate the decline charge and replace it with an under/over delivery charge.	Core Billing & Settlements BPM Tariff 11.31 Tariff Appendix A	Settlements
IDS- BRQ002	The under/over delivery charge shall apply to intertie resources awarded in the day-ahead market, hour-ahead scheduling process, incremental and decremental changes between the day-ahead market and hourahead scheduling process, and the 15-minute market. Implementation Note: The under/over delivery charge shall apply to both hourly block and 15-minute dispatchable intertie resources.	Core Billing & Settlements BPM Tariff 11.31.1.1	Settlements

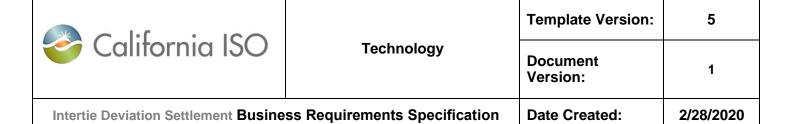
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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ003	The under/over delivery charge shall only apply to resources within the ISO BAA (does not apply to EIM entities).	Core Billing & Settlements BPM	Settlements
IDS- BRQ004	System shall exclude balancing authority operator reliability curtailments from the under/over delivery charge. Implementation Note: If an E-Tag is both curtailed and adjusted, the ISO will only apply the under/over delivery charge to the amount of the adjustment. The reliability curtailed amount will be excluded from the charge.	Core Billing & Settlements BPM	Settlements
IDS- BRQ011	The reliability curtailments shall be excluded from the under/over delivery charge.	Core Billing & Settlements BPM	Settlements
IDS- BRQ013	System shall calculate the under/over delivery quantity for hourly intertie resources by comparing the HASP schedule to the E-Tag. The under/over delivery quantity will equal the absolute value of the difference between the HASP schedule and the after the fact E-Tag energy profile.	Core Billing & Settlements BPM	Settlements
	Implementation Note: This logic, in conjunction with the 15-minute binding award determination logic, shall incentivize awards to be accepted and awards to be tagged. See Appendix A for proposed reference level and determination of under/over delivery quantity for intertie bid options.		

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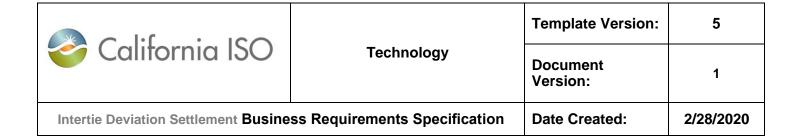


ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ029	System must calculate the delta of the HASP schedule and the scheduling coordinator accepted value for Settlement purposes.	Core Billing & Settlements BPM	Settlements
IDS- BRQ020	System shall apply the under/over delivery charge to both under and over tagging.	Core Billing & Settlements BPM	Settlements
IDS- BRQ017	Intertie resources that are exceptionally dispatched shall be excluded from the under/over delivery charge.	Core Billing & Settlements BPM	Settlements
IDS- BRQ018	Settlements must have the ability to identify intertie resources that have been exceptionally dispatched.	Core Billing & Settlements BPM	Settlements
IDS- BRQ024	System shall levy an additional 25% charge at the greater of the FMM or RTD LMP when the scheduling coordinator accepts an award in ADS but fails to deliver the energy. The 25% charge will apply to the entire portion of the under/over delivered quantity.	Core Billing & Settlements BPM	Settlements

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5.2 Business Process: Manage Real Time Hourly Market (RTPD) (Removal of Tagging Deadline)

5.2.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ008	Market Operations business practice manual (BPM) shall identify the best practices of submitting an E-Tag with a transmission profile by T-40.	Market Operations - BPM	Not applicable
IDS- BRQ009	Market Operations business practice manual (BPM) shall describe the update/adjustment process of energy profiles until T-20.	Market Operations - BPM	Not applicable
IDS- BRQ010	For hourly intertie resources, Settlements shall apply a penalty to the difference between the HASP schedule and the final tagged value (energy profile), excluding any reliability curtailment MWs.	Core Billing & Settlements - BPM	Settlements
IDS- BRQ027	The ISO shall update the tariff to state that day-ahead market resources shall be subject to the HASP reversal rule if the E-Tag is withdrawn prior to publication of the HASP results.	Tariff 11.32 Market Operations - BPM	Not applicable

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ028	In order to support BRS018, system shall provide the ability for the operator to enter exceptional dispatch (ED) instructions on the interties within the ED tool. Market awards must honor the ED MW level (this supersedes ADS accept, transmission profile, and the energy profile from ITS). Implementation Note: This applies to RTPD, RTD, and STUC. Operators must enter ED instructions after HASP runs but prior to the 6 interval run. Only FIXED ED type needs to be supported and will be made available on the UI.	Core	Real Time Market

5.3 Business Process: Manage Market Billing & Settlements (Price and Allocation of the Under/Over Delivery Charge)

5.3.1 Business Requirements

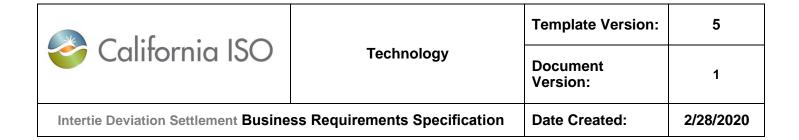
ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ021	The under/over delivery charge shall be settled at a price equal to 50% of the greater of the real-time dispatch or 15-minute locational marginal price. This charge shall be applied for each interval in which an under/over delivery quantity is calculated.	Core Billing & Settlements BPM Tariff 11.31.2	Settlements

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ023	System shall keep a floor of \$10 for the under/over delivery charge.	Core Billing & Settlements BPM Tariff 11.31.2	Settlements
IDS- BRQ031	The charge funds collected will be allocated to measured demand less existing transmission contracts (ETCs) and transmission ownership rights (TORs). Note: This ensures a charge exists even when pricing is low or negative.	Core Billing & Settlements BPM Tariff 11.31.3	Settlements

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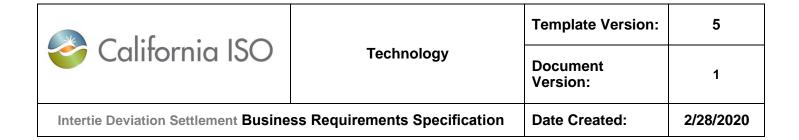


5.4 Business Process: Manage Market Billing & Settlements (15-Minute Dispatchable Resources)

5.4.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ014	System shall calculate the undelivered quantity for 15-minute dispatchable resources by comparing the E-Tag transmission profile to the HASP schedule for each 15-minute interval. If this value is less than 0 (the transmission profile does not fully support the HASP schedule), the charge will apply to the difference between the two. If this value is greater than or equal to 0 (the transmission profile adequately supports the HASP schedule), the charge will not apply.	Core Billing & Settlements BPM Tariff 30.5.7.3	Settlements
IDS- BRQ015	Settlements must receive the 15 minute transmission profile and the HASP schedule for all intertie resources. Implementation Note: This is new service that accommodates the change in granularity from hourly to 15 minutes.	Core Billing & Settlements BPM Tariff 30.5.7.3	Settlements

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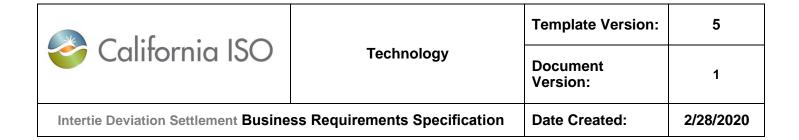


5.5 Business Process: Manage Real Time Hourly Market (RTPD) (Determination of 15-Minute Binding for Hourly Intertie Resources)

5.5.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ005	System shall determine the 15-minute binding award for hourly intertie resources based on the E-Tag at T-40. The 15-minute market binding award for hourly interties shall equal the lower of the HASP schedule, HASP accepted award (ADS accepted value), or E-Tag transmission profile. This applies to RTPD #5 which corresponds to interval 1 for the operating hour. This also applies to RTPD #4 which corresponds to interval 2 for the operating hour. If the tag is in place between T-40 and T-23, RTPD #4 shall consider it.	Core Market Operations BPM Tariff 30.5.7.1	Real Time Market (RTM)

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5.6 Business Process: Manage Real Time Hourly Market (RTPD) (Accept/Decline Functionality in the Automated Dispatch System)

5.6.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
IDS- BRQ025	System must have the ability to display the HASP schedule, the scheduling coordinator accepted value, and the difference between the two (delta MW).	Core Market Operations BPM	Automated Dispatch System (ADS)
IDS- BRQ026	System must provide additional time for the scheduling coordinator to accept, partially accept, or decline awards in the ADS system. To accomplish this, the system shall extend the existing timeframe to T-45.	Core Market Operations BPM	Automated Dispatch System (ADS)

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5.7 Business Process: Market/Business 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. The Reason for the Potential Scenario column will be to offer guidance regarding what potential Scenarios, and their context, may be needed for this project. This section applies to all policy development projects, market enhancements, technology enhancements, operation enhancements, Energy Imbalance Market (EIM) implementations and Reliability Coordination (RC) service implementations.

In the Reason for Potential Scenario column, the Business Analyst must select one or more of the following reasons:

- **1. Rule Impacts**: Generalized changes in market rules, bidding rules, settlements rules, market design changes, or other business rules.
- **2. Interface changes**: Changes that impact templates (e.g. the Resource Adequacy {RA} supply plan), user interface (UI), and application programming interface (API) (e.g. retrievals of new shadow settlement data).
- **3. New application/report**: Changes that cause addition/modification of market software or reports, especially when market data input is required by the market participant.
- **4. New system process**: Modification of data flow in systems, especially if the new process requires the market participant to demonstrate proficiency prior to production.
- **5.** New/Modified model data: Addition or substantial modification of model data as a market solution provided by the ISO.
- **6. New user role**: The addition or modification of access permissions for a user role applied to specific business units within an EIM entity or market participant organization (e.g. Load Serving Entity (LSE) as a Local Regulatory Authority (LRA) role). Scenarios are beneficial for market participants taking on a new function or process within their organization.

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5.7.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
IDS- BRQ032	Accept a tagging value different from the resource awards and submit through ITS the tagged value different than the ADS accept value.	ADS ITS (Internal System)	Settlement	1. Rule Impacts
IDS- BRQ033	Scheduling Coordinator shall submit a tag value higher than the HASP award. This shall test the over allocation delivery charge.	ITS (Internal System) Market (RTM)	Settlement	1. Rule Impacts
IDS- BRQ034	Scheduling Coordinator shall submit a tag value lower than the HASP award. This shall test the over allocation delivery charge.	ITS (Internal System) Market (RTM)	Settlement	1. Rule Impacts
IDS- BRQ035	Scheduling Coordinator fails to submit a transmission profile by T-40. This is to test that the market does not give FMM resource in absence of the transmission profile.	ITS (Internal System)	Market (RTM)	1. Rule Impacts
IDS- BRQ036	Scheduling Coordinator submits between T-40 and T-22.5 a transmission profile. This is to test that the market awards in the subsequent interval.	ITS (Internal System)	Market (RTM)	1. Rule Impacts
IDS- BRQ037	If there is a reliability curtailment, the system must not levy an under/over delivery allocation charge.	ITS (Internal System)	Settlement	1. Rule Impacts
IDS- BRQ038	If there is a non-reliability curtailment, the system must levy an under/over delivery allocation charge.	ITS (Internal System)	Settlement	1. Rule Impacts

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6 Appendix A

IDS-BRQ013:

Figure 19: Proposed reference level and determination of under/over delivery quantity for intertie bid options.

Bid Option	Determination of Under/Over Delivery Quantity
Self-Schedule Hourly Block	Absolute Value (HASP Schedule – after the fact E-Tag
Economic Hourly Block	Energy Profile)

IDS-BRQ015:

As a result, as long as the transmission profile is submitted, the energy profile will be adjusted to match the award. If the transmission profile is not submitted, the resources is deemed unavailable.

Figure 21: Proposed reference level and determination of under/over delivery quantity for intertie bid options.

Bid Option	Determination of Under/Over Delivery Quantity
Economic (fifteen-minute dispatchable) Economic Variable Energy Resource	E-Tag transmission profile – HASP schedule, If < 0, charge applies to amount of de√iation If >= 0, charge does not apply

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