



Business Requirements Specification

Intertie Shadow Pricing Resolution (ISPR)

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1 Introduction

1.1 Purpose

In the Day Ahead Market at the Malin500 Intertie, an uncommon special case can occur where two constraints bind, each creating a shadow price: ‘Energy + Ancillary Services’ (‘EA’) for import, and Ancillary Services (‘AS’) for export. This is due to the fact that Energy and AS capacity compete for transmission to or from the CAISO Balancing Authority Area. When this happens, it causes a problem:

The shadow price is appearing in OASIS (Open Access Same-Time Information System), however it is not labelled as being for AS, and thus participants incorrectly assume it is for EA. This causes confusion when it does not match expected shadow prices.

This initiative seeks to resolve the issue of intertie shadow pricing. This issue occurs 4-5 days per year. Although this issue has only occurred on the Malin intertie it could occur on any intertie.

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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.

2.2 Checklist

Intellectual Property created per this BRS will be owned by the CAISO in accordance with existing contract provisions with the software developer.

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3 Acronyms and Definitions

Acronym	Definition
AS	Ancillary Services
BPM	Business Practice Manual
BRS	Business Requirements Specification
DA	Day-Ahead
EA	Energy + Ancillary Services
ID	Identification Code
ISL	Interchange Scheduling Limit
ISPR	Intertie Shadow Pricing Resolution
ITC	Intertie Transmission Constraint
MPM	Market Power Mitigation
OASIS	Open Access Same-Time Information System
RTD	Real-Time Dispatch
RTPD	Real-Time Pre-Dispatch

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4 Details of Business Need/Problem

4.1 Description

Business Opportunity/Problem Statement:	
What:	Fix AS shadow price ambiguity in OASIS.
When:	It occurs at the Malin500 intertie 4-5 days per year.
Why do we have this opportunity/problem:	The shadow price is appearing in OASIS, however it is not labelled as being for AS, and thus participants incorrectly assume it is for EA. This causes confusion when it does not match expected shadow prices.

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5 Business Impacts

5.1 Business Practice Manual (BPM)

BPM	Description of Impact(s)
Market Instruments	Update description of shadow prices to reflect change in how AS shadow prices are displayed. Section 12.1: Public Market Information: Prices

5.2 Other

Impact:	Description: (optional)
Market Simulation	Not Impacted
Market Participant Impact	Not Impacted
User Acceptance Testing (UAT)	Not Impacted
Internal Training	Not Impacted
External Training	Not Impacted
Policy Initiative	Not Applicable
Vendor	Not Applicable
Architectural Framework and Roadmap	This project will follow the architectural framework and roadmap as set forth by the architect.

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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 Market Results Reporting: OASIS

6.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
ISPR-BRQ006	<p>On the existing OASIS shadow-price related reports, the report must be able to indicate whether the Intertie Transmission Constraint (ITC) or Intertie Scheduling Limit (ISL) Shadow Price was congested due to either (1) Energy and Ancillary Service [EA] or (2) Ancillary Service [AS] only for each market interval (suggested identifier attribute "Limit Type").</p> <ul style="list-style-type: none"> • Market runs DA, RTPD, RTD = report: Intertie Constraint Shadow Prices • Market run real-time Contingency Dispatch = report: Contingency Dispatch Intertie Constraint Shadow Prices • Market runs DA, RTPD, RTD MPM process = report: MPM Intertie Constraint Shadow Prices <p>The report must publish the market output "Limit Type" result per interval, as well any post-market corrections.</p> <p>This report enhancement must be effective based on project activation trade date; prior trade dates is not needed to be back-filled; i.e. will remain blank.</p>	<p>Core</p> <p>BPM Impact: Market Instruments</p> <p>Tariff Section(s): §11.10.1.1.1 §11.10.1.2.1</p>	OASIS

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6.2 Business Process: Manage Market Billing & Settlements

6.2.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
ISPR-BRQ009	Settlements shall map to TIE CONGESTION component to define AS Imports Congestion Shadow Price in the import direction. <ul style="list-style-type: none"> • For Regulation Up, Non-Spinning Reserve, and Spinning Reserve, the tie congestion component will reflect the shadow prices of EA and AS type in the import direction. • The direction drives the value that goes into the Upward AS Note: Value for import direction is expected to usually be negative	Core BPM Impact: Settlements and Billing Tariff Section(s): §11.10.1.1.1 §11.10.1.2.1	Settlements
ISPR-BRQ010	Settlements shall map to TIE CONGESTION component to define AS Imports Congestion Shadow Price for the export direction. <ul style="list-style-type: none"> • For Regulation Down, the tie congestion component will reflect the shadow prices of EA and AS types in the export direction. • The direction drives the value that goes into the Downward AS Note: Value for import direction is expected to usually be negative	Core BPM Impact: Settlements and Billing Tariff Section(s): §11.10.1.1.1 §11.10.1.2.1	Settlements