

Business Requirements Specification

Transmission Service and Market Scheduling Priorities-Phase 1

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1 Status of Document

1.1 Purpose

The purpose of this initiative is to explore development of a long-term, holistic, and durable framework for establishing scheduling priorities in the CAISO market. This initiative has two distinct but simultaneously run phases. Phase 1 focuses on near-term enhancements to the existing scheduling priorities framework that the CAISO can implement by summer 2022. Phase 2 focuses on developing a long-term holistic framework.

This Business Requirement Specification is for Phase 1. The draft final proposal for Phase 1 of the initiative identifies several transparency enhancements, while proposing to extend the wheeling-through scheduling priorities and associated framework for summer 2022 and summer of 2023.

Scope:

- 1. Extension of the current, interim, wheeling through scheduling priorities framework for summer 2022 and summer 2023, valid to May 1, 2024
- 2. Enhancements to provide additional visibility of the non-RA capacity for a supporting resource as well as notifications when a high priority export (PT export) schedule exceeds the non-RA capacity of the supporting resource
- Clarification to Tariff language regarding PT exports from Variable Energy Resources (VER)
- 4. Publication of additional requested data and information:
 - a. Aggregate high priority wheel (Priority Wheeling Through) registration data
 - b. Aggregate Resource Adequacy (RA) import data
 - c. Residual Unit Commitment (RUC), HASP, RTPD. RTD load forecast adjustments
 - d. Schedule reduction data for RUC and HASP
- 5. Consolidation of terms applicable to exports and wheels

1.2 References

1. Draft Final Proposal is located in

DraftFinalProposal-TransmissionService-MarketSchedulingPriorities.pdf (caiso.com)

2. FERC Filing is located in

http://www.caiso.com/Documents/Jan27-2022-TariffAmendment-TransmissionSerervice-and-MarketScheduling-WheelingThrough-ER22-906.pdf

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1.3 Acronyms and Definitions

Acronym	Definition
BAA	Balancing Authority Area
ВРМ	Business Practice Manual
BRS	Business Requirement Specifications
CAISO	California Independent System Operator
DALPT	Day-Ahead Lower Price Taker
DAM	Day-Ahead Market
DAPT	Day-Ahead Price Taker
HASP	Hour-Ahead Scheduling Process
IFM	Integrated Forward Market
LPT	Lower Price Taker
MF	Master File
OASIS	Open Access Same-time information System
PT	Price Taker
RTD	Real-Time Dispatch
RTLPT	Real-Time Lower Price Taker
RTM	Real-Time Market
RTPD	Real-Time Pre-Dispatch
RTPT	Real-Time Price Taker
RUC	Residual Unit Commitment
SC	Scheduling Coordinator
SIBR	Scheduling Infrastructure and Business Rules

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Acronym	Definition
TOR	Transmission Ownership Contract
UI	User Interface
VER	Variable Energy Resource
WEIM	Western Energy Imbalance Market

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 own er 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.
- 2. 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.

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2.2 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 Details of Business Need/Problem

3.1 Description

Ві	usiness Opportunity/Problem Statement:
What:	The purpose of this initiative is to explore development of a long-term, holistic, and durable, framework for establishing scheduling priorities in the CAISO market.
	Phase 1 of the initiative will be evaluating near-term enhancements that the CAISO can implement by summer 2022 and proposes the following category of items:
	Transparency enhancements
	 Publication of Aggregate PT Wheel Registration Data Completed-data posted in CAISO website Publication of Aggregate RA showing Import Data Completed – data post in CAISO website Publication of RUC adjustments, in addition, also HASP, RTPD and RTD Publication of curtailment (schedule reduction) data (wheels, exports, load)
	Market Scheduling Priorities enhancements
	 Extension of wheeling through scheduling priorities for summer 2022 to May 1, 2024 (status quo). Provide visibility of non-RA capacity for supporting resource, and notification to PT exports and supporting resource when sum of PT export schedules exceed non-RA capacity. VERs are attesting to their ability to support PT export schedules based on output of most recently forecast used Tariff clarification
When:	System changes target May, 2022
Why do we have this opportunity/problem:	The summer 2021 scheduling priority policy and functionality will be expired before summer 2022. ISO must request extension of current policy.

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4 Project Impact Assessment (IA)

4.1 Business Practice Manuals (BPM)

ВРМ	Description of Impact(s)
Market Instruments	Yes: OASIS reports
Market Operations	Yes: VER attesting process based on latest forecast

4.2 Other

Impact	Description (optional)
Market Simulation	Yes
Market Participant Impact	Yes, OASIS new reports, SIBR notification
Customer Readiness Impact	
External Communication Needed	Yes
External Onboarding and Maintenance	N/A
External Training	Yes, new notification from SIBR, PT export submission, new OASIS reports
External Computer Based Training	No
Policy Initiative	Yes
Intellectual Property Impact	No

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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: <Business Process Data and information in CAISO website >

- Publish aggregate PT wheel registrations at import/export points at CAISO website
- Publish aggregate RA import showing at scheduling points at CAISO website
- Attest process clarification for VER to support PT export with latest forecast

5.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP- BRQ020	Publish aggregated PT wheel registrations	Completed in 2021	MF, ISO Website
	 Providing data on aggregate PT wheel registrations at import/export points 		
	 Post tables in excel format under: 		
	California ISO - Reliability Requirements (caiso.com)		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP- BRQ030	Publish aggregated RA import showing	Completed in 2021	CIRA, ISO Website
	 Providing data on aggregate RA import showing at scheduling points Includes historical aggregate data on RA import showings for last 18 months 		
	 Post tables in excel format under: 		
	California ISO - Reliability Requirements (caiso.com)		
TRMSP- BRQ050	Request SC of VER use latest forecast data in attesting process to support PT export:	Process	N/A
	Based on the most recent forecast, the resource's forecasted output for each of the applicable four (4) fifteen (15) minute intervals in the applicable hour for which a bid has been submitted at the time of bid submission is for Generation that is equal to or greater than the self-schedule export quantity		

5.2 Business Process: <Business Process Extension of wheeling through scheduling priorities >

Tariff related sections and functionality will be extended to May 1, 2024.

Summer 2021 Readiness BRS:

 $\underline{http://www.caiso.com/Documents/BusinessRequirementSpecificationsv21-Summer2021Readiness-Clean.pdf}$

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5.3 Business Process: <Business Process Manage DAM and RTM Market>

- Allow SC of supporting resource to view the available capacity in SIBR
- Notify the SC of PT export when sum of the export exceed supporting resource non-RA capacity from SIBR
- Publish RUC adjustment for CAISO with Reason
- Publish HASP, RTPD, RTD load forecast adjustment for CAISO with Reason
- Publish aggregated Schedule reduction by type once the instruction is issued in RUC
- Publish aggregated Schedule reduction by type once the instruction is issued in HASP that incorporate the post-HASP pro-rate process or operator adjustment

5.3.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP- BRQ100	Provide instantaneous visibility of available capacity in SIBR for the SC of supporting resource System shall:	Core	SIBR
	Calculate the hourly total Self-scheduled exports submitted by SCs for the same designated Supporting Resource ID for each supporting resource before the market close in DAM and RTM: Calculate whenever PT exports resources submit the schedules		
	 Display designated supporting resource ID, non-RA capacity, total submitted self-scheduled PT exports Allow market operator (ISO) to view all the supporting resource displays Allow SC of supporting resource to view their own resources on SIBR 		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP- BRQ102	Retrieve available capacity in SIBR for the SC of supporting resource	Core	SIBR
	System shall:		
	Allow SC of supporting resource to retrieve their own resources on SIBR for non-RA capacity, total submitted self-scheduled PT exports		
TRMSP- BRQ110	Notify all applicable SCs when sum of PT export schedules exceed non-RA capacity of supporting resource	Core	SIBR
	System shall		
	Notify all applicable PT export schedule SCs and supporting resource SC on the export priority status when the latest submission of self-scheduled export trigger the sum of schedules exceeds the non-RA capacity, before the DAM or RTM market closed		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP- BRQ112	Allow Supporting resource and PT exports coordination of submission	Existing	SIBR
	 Allow SC of PT export resubmit to adjust PT exports to keep PT priority in the market before the DAM or RTM market close 		
	After the DAM or RTM market close, verify the total PT exports for the designated supporting resource again. All the existing rule apply If the resource non-RA capacity is not sufficient to cover all associated PT export self-schedules, these PT self-schedules shall be converted to DALPT or RTLPT export self-schedules accordingly.		
	Notify all applicable PT export schedule SCs and supporting resource SC keep PT export priority or the sum of schedules exceeds the non-RA capacity, PT export convert to LPT export after the DAM or RTM market closed.		
TRMSP- BRQ120	Publish RUC adjustment	Core	RUC
	 Publish hourly Load forecast, RUC adjustment, total load forecast, Reason from drop-down list used in RUC market runs for CAISO 		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP- BRQ130	Publish RTPD, RTD binding interval load forecast adjustments	Core	RTPD, RTD
	 Publish Load forecast, load conformance (adjustments made to the load forecasts), Reason from drop-down list in binding and advisory intervals in the market horizon of RTPD, RTD 		
TRMSP- BRQ132	Publish HASP load forecast adjustments for HASP intervals in HASP run	Core	RTPD, RTD
	 Publish Load forecast, load conformance (adjustments made to the load forecasts), total load forecast, reason from drop-down list used in HASP interval (4,5,6,7) in HASP run for BAAs 		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP-BRQ140	Publish Schedule reduction once the instruction is issued in RUC - Calculate the hourly aggregated MW schedule reduction in RUC right after the instruction issued for: Type of transaction - wheel through transaction, - import - exports, - load reduction for each type of transaction summarize - by BAA - by TOR, DAPT, DALPT, economic, - by system and by tie points - Publish the RUC schedule reduction data to the downstream systems	Core	RUC

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
TRMSP-BRQ150	Publish Schedule reduction once the instruction is issued in HASP that incorporate the post-HASP pro-rate process or operator adjustment - Calculate the aggregated MW schedule reduction (Curtailment) in HASP hourly block right after the instruction issued for: Type of transaction Wheel, import, exports, load reduction for each type of transaction summarize by BAA by TOR, DAPT, DALPT, RTPT, RTLPT, economic, by system and by tie points - Publish the HASP schedule reduction data to the downstream systems	Core	HASP

5.4 Business Process: <Business Process OASIS>

- Publish RUC adjustments on OASIS
- Publish RTPD, RTD binding interval load forecast adjustments on OASIS
- Publish aggregated schedule reduction after instruction issued in RUC on OASIS
- Publish aggregated schedule reduction after instruction issued in HASP

5.4.1 Business Requirements

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ID#	Business Feature	Requirement Type	Potential Application(s)
			Impacted
TRMSP-	Publish RUC adjustments	Core	OASIS
BRQ200	 Receive Market published RUC adjustment and Reason 		
	 Publish hourly RUC adjustment and Reason on OASIS for CAISO. 		
	 Allow user to retrieve the RUC adjustment and reason 		
TRMSP- BRQ210	Publish RTPD, RTD binding interval load forecast adjustments	Core	OASIS
	 Receive Market published RTPD and RTD load forecast adjustment and Reason 		
	 Publish RTPD and RTD binding interval load adjustment and Reason for CAISO 		
	 Allow user to retrieve the RTPD/RTD load adjustment and reason 		
TRMSP- BRQ212	Publish HASP intervals in market horizon load forecast adjustments	Core	OASIS
	 Receive Market published HASP load forecast adjustment and Reason for HASP intervals in corresponding market horizon 		
	 Publish HASP intervals in market horizon for load adjustment and Reason for CAISO 		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	 Allow user to retrieve the HASP load adjustment and reason 		
TRMSP-BRQ220	Publish aggregated schedule reduction after instruction issued in RUC Receive aggregated curtailments (Schedule reduction) in RUC Display the hourly reduction in the RUC process Type of transaction wheel through transaction, import, exports, load reduction for each type of transaction summarize by BAA by TOR, DAPT, DALPT, RTPT, RTLPT, economic, by system and by tie points Allow user to retrieve the RUC curtailments	Core	OASIS
TRMSP-BRQ230	 Publish aggregated schedule reduction after instruction issued in HASP Receive aggregated Schedule reduction in HASP Display the hourly reduction in the HASP process by: Type of transaction wheel through transaction, import, exports, 	Core	OASIS

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	 load reduction for each type of transaction summarize by BAA by TOR, DAPT, DALPT, RTPT, RTLPT, economic, by system and by tie points 		
	Allow user to retrieve the HASP curtailments		

5.5 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, Western Energy Imbalance Market (WEIM) implementations, and Reliability Coordination (RC) service implementations.

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

- **Rule Impacts**: Generalized changes in market rules, bidding rules, settlements rules, market design changes, or other business rules.
- 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).
- **New application/report**: Changes that cause addition/modification of market software or reports, especially when market data input is required by the market participant.
- **New system process**: Modification of data flow in systems, especially if the new process requires the market participant to demonstrate proficiency before production.
- New/Modified model data: Addition or substantial modification of model data as a market solution or export provided by the ISO.

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• **New user role**: The addition or modification of access permissions for a user role applied to specific business units within a WEIM 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.

5.5.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
TRMSP- MSIM001	SC of supporting resource view non-RA capacity, total PT Export	SIBR	MP	New report
TRMSP- MSIM002	SC of PT export submit self-scheduled PT export SC receive PT export keep or lose PT priority	SIBP	MP	New/Modified model data
TRMSP- MSIM003	User view and retrieve the RUC adjustment	OASIS	MP	New report
TRMSP- MSIM004	User view and retrieve the HASP, RTPD, RTD adjustment	OASIS	MP	New report
TRMSP- MSIM005	User view and retrieve the RUC schedule reduction	OASIS	MP	New report
TRMSP- MSIM006	User view and retrieve the HASP schedule reduction	OASIS	MP	New report

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