California ISO

Business Requirements Specification

CRR System Upgrade

Document Version: 1.7

Current Version Date: 2/24/2024

Revision History

Date	Version	Description
04/26/2022	1.0	Creation of Document
8/10/2022	1.1	Added Phase 2 Requirements: BRQ00220, BRQ03630, BRQ05264, BRQ05786, BRQ06770, BRQ06871. Requirements are red-lined in BRS below. Note: These requirements will not be included in the initial go-live and will be included in subsequent phase 2.
11/11/2022	1.2	**Updated the following BRQs:** 3440, 3460, 3480, 3630, 5262, 5786, 6770, 6871 **Added the following BRQs:** 2091, 2100, 2280, 2291, 2294, 3495, 3496, 3497, 3498, 3500, 3545, 3560, 3585, 3587, 3632, 3634, 5268, 5788, 6774, 6872, 6872-B, 6873, 6875 **Deleted Section 4.1, internal section only.**
3/28/2023	1.3	**Updated the following BRQs:**

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Date	Version	Description
		2020, 2040, 2100, 3634, 4120, 3660, 5262, 5268, 5786, 6774, 6875, and 3545 BRQ identifier corrected to 3560 **Deleted the following BRQs:** 3630, 3632, 5264, 6770, 6871, 6873, 5788
4/28/2023	1.4	**Updated the following BRQs:** 2093 **Updated to Phase 2:** 5900, 6020, 6040, 6120 **Deleted the following BRQs:** 3560
11/3/2023	1.5	Updated BRQ5180
12/14/2023	1.6	Updated BRQ2550
2/24/2024	1.7	Added BRQ00763, and MSIM – 001 through MSIM – 019. Note: see redline for more information.

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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).

The purpose of this project is to replace the existing Congestion Revenue Rights (CRR) application with a new application that adopts the latest technology stack that is aligned with CAISO's technology standards, consolidate all CRR related functions, minimize human errors, reduce processing time, eliminate manual workarounds, and position the system to be able to accommodate policy changes down the road.

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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 because 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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2.2 Acronyms and Definitions Table

Note: Refer to **Appendix 1 – Acronym Definition** for more information.

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3 Details of Business Need/Problem

3.1 Description

Congestion Revenue Rights (CRR) system replacement project scope is the roll-out of a:

- Brand new user-interface (UI) system with an updated new look-and-feel, to replace the existing legacy system implemented during the MRTU 2008 go-live and brought up to current ISO technology standards
- Set of application-programming interfaces (APIs) to enable integration between ISO and market participant systems

Overall, to support the following in one consolidated CRR external-facing system:

- Annual/Monthly Auction and Allocation market participant bid submission and results retrieval
- Load data submission by CRR LSEs, CEC
- Load migration data submission by CRR UDCs
- Secured "Congestion Revenue Rights Full Network Model" information access
- Private and public access of CRR market input and output information

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4 Business Impacts

4.1 Business Practice Manual (BPM)

BPM	Description of Impact(s)
Congestion Revenue Rights	Document: • Enhancements made to the new CRR product. • Automatic publishing of CRR market results. • Automatic CRR notification. • New CRR schedule calendar. • New CRR FNM access. • New CRR data submission and download interface UI/API. • New CRR market results interface. • Load Migration

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4.2 Other

Impact:	Description: (optional)
Market Simulation	**Yes**
Market Participant Impact	**Yes**
External Training	**Yes**
Policy Initiative	No
Vendor	**Yes**

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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 Congestion Revenue Rights

5.1.1 Business Requirements – Posting CRR Calendar Schedule

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ00220	Solution shall provide the capability for authorized CRR users to post approved CRR calendar schedule to CRR participants. Note: The CRR system publishing of the calendar to OASIS shall be automatic. Published once per year and ability to edit before publication.	Core Phase 2	- CRR - OASIS - Integration

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5.1.2 Business Requirements – Annual/Monthly CRR Allocation Process

5.1.2.1 Automatic Notification to CRR Participants of Open Load Window

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ01520	**Participants Notification of Open Load Submission Window for CRR Allocation Markets** Solution shall have the capability to automatically and on-Demand (by authorized users) notify external CRR participants of open load submission window for each allocation market by utilizing the posted CRR calendar schedule and configurable number of lead business days. **Note:** • Refer to **CRRSU-BRQ01540** for notification methods.	Core Tariff 36.8.2	- CRR
CRRSU-BRQ01540	**Automatic Notification Methods for External CRR Participants:** External CRR participants' notification provided by Solution shall meet the architecture standard for external notifications and may include any combinations of the following (as selected by authorized users): • Message Log accessible by external CRR participants via API. • Message Log accessible by external CRR participants via UI. • Dedicated UI.	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Web Services		

5.1.2.2 Prepare Set-Aside CRR Data

ID#	Business Feature	Req. Type	Potential Application(s) Impacted

CRRSU-BRQ03634	The CRR market annual and monthly allocation process interface set-aside results must be published to the public, with the following:
	• Interface Name = transmission constraint interface identifier
	• Market start/end date = annual (4 seasons) or monthly allocation market period start/end effective dates
	• Time of Use = On or Off; each interface must have an On or Off value
	• Set Aside Value = the amount that was set aside for the monthly or annual CRR Auction.
	  ○ This process is governed by the tariff (see section 36.8.4.2.2) and CRR Business Practice Manual (see section 10.5.1);
	  ○ Must publish if value is zero, if non-zero must publish rounded-up to three decimal places
	
	Example data
	Monthly set-aside:
		Business Process
		
		Tariff 36.8.4.2.2
			- CAISO.com

Market Term	Interface Name	Market Start Date	Market End Date	TOU	Interface Set-Aside for CRR Monthly Auction

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted

Monthly	ADLANTO-SP_ITC	9/1/2022	9/30/2022	OFF	299.901
Monthly	ADLANTO-SP_ITC	9/1/2022	9/30/2022	ON	447.742
Monthly	ADLANTOVICTVL-SP_ITC	9/1/2022	9/30/2022	OFF	2,395.536
Monthly	ADLANTOVICTVL-SP_ITC	9/1/2022	9/30/2022	ON	-

Annual set-aside:

Market Term	Interface Name	Market Start Date	Market End Date	TOU	Interface Set-Aside for CRR Annual Auction
Seasonal	ADLANTO-SP_ITC	1/1/2023	3/31/2023	ON	299.598
Seasonal	ADLANTO-SP_ITC	1/1/2023	3/31/2023	OFF	-
Seasonal	ADLANTO-SP_ITC	4/1/2023	6/30/2023	ON	299.971
Seasonal	…				
Seasonal	ADLANTO-SP_ITC	7/1/2023	9/30/2023	ON	299.964

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<table>
<tr><th>ID#</th><th>Business Feature</th><th>Req. Type</th><th>Potential Application(s) Impacted</th></tr>
<tr><td></td><td>
<table>
<tr><td>Seasonal</td><td>…</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Seasonal</td><td>ADLANTO-SP_ITC</td><td>10/1/2023</td><td>12/31/2023</td><td>ON</td><td>299.952</td></tr>
<tr><td>Seasonal</td><td>…</td><td></td><td></td><td></td><td></td></tr>
</table>

Publication timeline:
• Initial publication
  ○ Monthly – once a month, before monthly T2 market opens
  ○ Annual – once a year, before annual T3 market opens
• Post Initial publication; Data corrections may be published post its first publication, as needed/applicable
</td><td></td><td></td></tr>
</table>

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5.1.2.3 Historical & Forecasted Demand Data

5.1.2.3.1 Data Submission

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ01680	**Forecast & Historical Load Data Submission:** Solution shall have the capability for authorized external participants to submit their hourly forecast and historical load data into the system. **Note:** • This also applies to OBAALSE load data submission. • CAISO Tariff mandates ISO to receive the historical load data from CRR participants.	Core 36.8.2.1 Tariff 36.8.2.2.1 Tariff	- CRR - Integration
CRRSU-BRQ01720	**Forecast & Historical Load Data Format:** The external participants submitted hourly forecast and historical load data shall include the following data elements: **Data Element** / **Description** Short Name — Participant unique alpha identification, SCID Sink Name — Sink node name (typically DLAP).	Core 36.8.2.1 Tariff 36.8.2.2.1 Tariff	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	HF Flag: Historical or Forecast flag Date: Hour Ending: Data Type: Final Load, Gross Load, Gross Generation, Pump Load MW: MW amount **Note:** • This also applies to OBAALSE load data types of EXP and METER. • Refer to **CRRSU-BRQ03220** for OBAALSE load data submission.		

5.1.2.3.2 Data Validation against Settlements & CEC Data

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ01780	**CEC Load Data Submission:** Solution shall have the capability for authorized CEC external participant to submit their CEC load data into the system.	Core	- CRR - AIM

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ01900	**CEC Load Data Format - CPUC-Jurisdictional LSEs:** The external participants submitted hourly load data shall follow the following data format: **Data Element** / **Description** Company / Company Name LSE ID / MF ID / Forecasted Month / Month-Ahead Non-Coincident Peak Forecasts by TAC Area / Broken down by SCE, SDGE, PGE TAC areas and Total	Core	- CRR
CRRSU-BRQ02000	**CEC Load Data Format - Non-CPUC-Jurisdictional LSEs:** The external participants submitted hourly load data shall include the following data elements:	Core	- CRR

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<table>
<tr><th>ID#</th><th>Business Feature</th><th>Requirement Type</th><th>Potential Application(s) Impacted</th></tr>
<tr><td></td><td>
<table>
<tr><th>Data Element Included in Submission</th><th>Description</th></tr>
<tr><td>LSE</td><td>LSE Name</td></tr>
<tr><td>TAC</td><td>TAC Name</td></tr>
<tr><td>RAR MF ID</td><td></td></tr>
<tr><td>Forecasted Month</td><td></td></tr>
<tr><td>Non-Coincident peak submitted by LSE</td><td></td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>CRRSU-BRQ02020</td><td>CPUC-Jurisdictional LSEs CEC Load Data Mappings to Submitted Load Data Nodes on DLAPs:
The CEC MF ID column shall be mapped to the applicable MF SC ID that is used in the CRR System. Note: CEC Company Name and MF ID are part of the CPUC-Jurisdiction Non- Coincident data and is provided by the CEC.
DLAP sinking locations shall be automatically mapped to MF SC ID.
Entities with value in the SDGE, SCE and/or PGE columns shall be</td><td>Core</td><td>- CRR</td></tr>
</table>

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	assigned that associated DLAP as their Load sinking location and shall be given the MW quantity as their CEC Non-Coincident Peak load. • CEC Company Name shall be mapped to CEC TAC Area. • Certain LSEs will submit hourly load data into the CRR system at the pump/CLAP location level. This pump/CLAP location needs to be mapped to a specific DLAP/TAC location in order for the CRR system to perform the necessary validation of the submitted CEC data • For example, assume LSE 1 has submitted hourly load data to two CLAP/pump locations with a peak load value of 50MW for each pump. The system would have a mapping table that shows both of these pump locations are within the PGAE_DLAP location. The CRR system would sum up these two values to 100MW and compare this value to the CEC submitted value for the PGE TAC location for this LSE. • The CRR system will provide a mechanism for the CRR operator to add/delete/edit this data which would include the following; o LSE Name o Pump Location name, this would agree with location submitted by LSE in the load submittal data o Mapped DLAP location name		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

	• The resulting mapping dataset in current system contains:
	  ○ LSE (Previously Company Name)
	  ○ SC ID (MF)
	  ○ SS Name (i.e. DLAP Name)
	  ○ CEC Peak		

CRRSU-BRQ02040	**Non-CPUC-Jurisdictional LSEs CEC Load Data Mappings to Submitted Load Data Nodes on DLAPs:** • The RAR MF ID column shall be mapped to the applicable MF SC ID that is used in the CRR System. **Note:** RAR MF ID is part of the Non-CPUC-Jurisdiction Non-Coincident data and is provided by the CEC. • Multiple RAR MF ID shall be able to be mapped to same MF SC ID. • DLAP sinking locations shall be automatically mapped to CEC TAC Area. **Note:** MSS will submit to its MLAP if it has elected Net Settlement. • TAC Area is used to determine the DLAP assigned for load sinking location to be used for submission. **Note:** MSS will submit to its MLAP if it has elected Net Settlement. • While performing the mapping, Solution shall automatically aggregate the CEC Peak MW that are mapped to same TAC area	Core 36.8.2 Tariff	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

	• Certain LSEs will submit hourly load data into the CRR system at the pump/CLAP location level. This pump/CLAP location needs to be mapped to a specific DLAP/TAC location in order for the CRR system to perform the necessary validation of the submitted CEC data
	• For example, assume LSE 1 has submitted hourly load data to two CLAP/pump locations with an exceedance value of 50MW for each pump. The system would have a mapping table that shows both of these pump locations are within the PGAE_DLAP location. The CRR system would sum up these two values to 100MW and compare this value to the CEC submitted value for the PGE TAC location for this LSE.
	• The CRR system will provide a mechanism for the CRR operator to add/delete/edit this data which would include the following;
	  ○ LSE Name
	  ○ Pump Location name, this would agree with location submitted by LSE in the load submittal data
	  ○ Mapped DLAP location name
	• The resulting mapping dataset in current system contains:
	  ○ LSE
	  ○ SC ID
	  ○ SS Name (i.e. DLAP Name)
	  ○ CEC Peak		

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02080	**Historical Load Data Validation:** Solution shall have the capability to automatically validate the submitted historical load data against the following rules: **Note:** • No validation is required on OBAALSE submitted load data. OBAALSE participants sign a declaration of their submitted data accuracy. • The interface for submission and validation of historical load data needs architectural vetting to align with system functionalities.	Core	- CRR
CRRSU-BRQ02093	**Participants Notification of Exceedance Load Validation** Upon validation failure the market participant should receive a notification of failure containing the submitted exceedance load value, the meter exceedance load value	Core	- CRR
CRRSU-BRQ02240	**Participants Notification of Forecast Load Data Validation:** Solution shall automatically notify the CRR participants of the status of the **forecast** load validation to be either one of the following: • Successful validation and acceptance of the submitted data. • Validation errors and rejection of the submitted data and ask the	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	CRR participants to correct the data and resubmit. The validation error details shall be communicated to the CRR participants.		

5.1.2.3.3 Calculation & Publishing

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02280	**Seasonal Load Metric Calculations:** Solution shall have the capability to automatically calculate the load metric per sink location per TOU for each entity (CRR MP) for each effective allocation market effective period by calculating the 99.5 percentile (user-configurable) exceedance load from the validated historical load submitted by market participants at that sink location. Business rule: If there is no MP submission, then system will use locally stored SQMD per CRRR-BRQ02091 for the load metric calculation.	Core 36.8.2.1 Tariff 36.8.2.2.1 Tariff	-CRR
CRRSU-BRQ02291	Solution shall have capability to calculate load metric per sink location per TOU for each CRR entity that has made the election to use a 5 year rolling average for their seasonal eligibility.	Core	-CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Solution shall create a five-year average hourly load data set using the previous 5 years of validated historical submissions for each entity and sink location. • Solution shall calculate the 99.5 Exceedance load(user-configurable) using the 5 year average for each TOU. Business rule: If there is no MP submission, then system will use locally stored SQMD per CRRR-BRQ02091 for the load metric calculation.		
CRRSU-BRQ02294	Solution shall have capability to calculate monthly load metric from historical submission per sink location per TOU for each entity (CRR MP) for each effective allocation market effective period by taking the average of corresponding submitted historical load over past x years period where x is 5 years or less per approval from authorized CRR users. Business rule: If there is no MP submission, then system will use locally stored SQMD per CRRR-BRQ02091 for the load metric calculation.	Core	-CRR
CRRSU-BRQ02360	**MEQ Publishing to CRR MP:** Upon completion of MEQ calculation and prior to the corresponding allocation market open window, Solution shall have the capability to automatically or on-demand privately publish MEQ to each	Core	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	external CRR MP. The publishing data shall include the following data elements: • Short Name (Participant unique alpha identification) • Month • Sink Name • TOU • Peak load • Load Metric • TOR MW Quantity • ETC MW Quantity • Load Migration CRR • Seasonal CRR • LT CRR • MEQ Tier 1 • Tier 1 Awards • MEQ Tier 2 •		
CRRSU-BRQ02400	**SEQ Publishing to CRR MP:** Upon completion of SEQ calculation and prior to the corresponding allocation market open window, Solution shall have the capability to automatically or on-demand privately publish SEQ to each external CRR MP. The publishing data shall include the following data elements: • Short Name (Participant unique alpha identification)	Core	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Season • Sink Name • TOU • Peak load • Load Metric • Load Migration Adjustment • TOR MW • ETC MW • Adjusted Load Metric • SEQ Total • Load Migration CRR • LT CRR • SEQ Tier 1 • Tier 1 Awards • SEQ Tier 2 • Tier 2 Awards • SEQ Tier 3		
CRRSU-BRQ02480	**Annual Tier-1 Sink Upper Bound Publishing to CRR MP:** Upon completion of SUB calculation and prior to the corresponding allocation market open window, Solution shall have the capability to automatically or on-demand privately publish SUB to all external CRR MP. The publishing data shall include the following data elements:	Core	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Short Name (Participant unique alpha identification) • Season • Sink Name • TOU • Previous Year Annual CRR • LT CRR • Load Migration CRR • SUB		
CRRSU-BRQ02520	**Signature Pair Data Publishing to CRR MP:** Upon completion of Signature Pair data calculation (for Annual Tier-1 or Tier-T) and prior to the corresponding allocation market open window, Solution shall have the capability to automatically or on-demand privately post Signature Pair data to all external CRR MP. The posting data shall include the following data elements: • Short Name (Participant unique alpha identification) • Season • TOU • Source Name • Sink Name • Past Year CRR MW • Load Migration CRR	Core	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• LT CRR • Signature Pair Data Tier 1 • Signature Pair Data Tier LT		

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5.1.2.3.4 Automatic Notification to CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02540	**Automatic Notification to CRR Participants – Reporting:** Solution shall have the capability to automatically and on-demand (by authorized users) notify external CRR participants of publishing the following data for each applicable allocation market by utilizing the posted CRR calendar schedule and configurable number of lead business days: • Monthly Eligible Quantities • Seasonal Eligible Quantities • Sink Upper Bound • Signature Pair data **Note:** • Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.2.4 LT Re-nomination Election

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02550	**LT Re-nomination Election** Solution shall provide market participants with the ability to elect whether they would like to re-nominate expiring LT CRRs in the upcoming LT market or in the subsequent annual PNP.	Core	CRR

5.1.2.5 Load Migration CRRs

5.1.2.5.1 UDC Submission of LM Data

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02580	**Posting of UDC N-Hour Data:** Solution shall provide the capability for authorized users to post the calculated N-Hour data to each UDC that are needed to compute the KW/customer rates.	Core	- CRR - Integration - AIM
CRRSU-BRQ02600	**UDC Submission of LM Data:** Solution shall have the capability for authorized external UDC participants to submit their load migration data into the system.	Core	- CRR - Integration - AIM
CRRSU-BRQ02620	**UDC LM Data Format:** The external UDC participants submitted LM data shall follow the following data format: **UDC's Number of Customers:**	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

Data Element	Description
UDC	
LSE	Current LSE
DUNS Number	
CAISO Classification	
# of Customers	
Date Stamp	

UDC's DASR Summary :

Data Element	Description
Record ID	
Customer Class	
Old LSE	
New LSE	
Number of Customers Transferring	
Effective Date	
Time Stamp	

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	UDC's Customers Rates: **Data Element** / **Description** UDC Customer Class TOU Season kw Per customer rate Year **Note:** • DUNS Number is a new data element ISO is requesting from UDCs.		

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5.1.2.5.2 Validate Submitted LM Results LM Data

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02670	**DUNS Number Definition** The DUNS number must be provided/defined for every registered CRR LSE (application process) and to be maintained within the MF.	Core	- CRR - MasterFile (MF)
CRRSU-BRQ02680	**Display of LM Data Validation Results:** Upon completion of UDC-submitted LM data validation, Solution shall have the capability to automatically store and display via UI the validation results to authorized CRR users.	Core	- CRR

5.1.2.5.3 Automatic Notification to UDCs of Submitted LM Data Issues and Request of Data Re-Submission

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02700	**Automatic Notification to UDCs of Submitted LM Data Issues and Request for Data Re-Submission:** Upon completion of UDC-submitted LM data validation, Solution shall have the capability to automatically notify the UDC with list of validation issues that are associated with the submitted data	Core	- CRR

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5.1.2.5.4 Publishing of LM Results to MPs

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02800	**Publishing of LM Results to MPs** Upon completion of LM results calculation and prior to the corresponding allocation market open window, Solution shall have the capability to automatically or on-demand publish LM results to all external CRR MP.	Core	- CRR - Integration

5.1.2.5.5 Private Automatic Notification to all MPs that are impacted by LM Results

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ02820	**Automatic Notification to Impacted CRR MPs by the LM Results:** Upon completion of the validation process of Final LM Results Integration with Core CRR Data, Solution shall have the capability to automatically notify (privately) the impacted CRR MPs with the LM results.	Core	- CRR

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5.1.2.6 Creation Annual/Monthly CRR Allocation Market

5.1.2.6.1.1 Validate Data

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03212	**Validation of CRR Transfer Registration** Solution should validate the transferor and the transferee of the CRRs must register the transfer of the CRR with the CAISO using the Secondary Registration System five (5) Business Days prior to the effective date of transfer of revenues associated with a CRR, or with sufficient time necessary for the CAISO to evaluate the creditworthiness of the transferor and transferee, whichever is shorter.	Core	- CRR

5.1.2.6.1.2 OBAALSE Source & Sink Data

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03220	**OBAALSE Source & Sink Data Submission:** • Solution shall provide the capability for external OBAALSE participants to submit their load data with multiple designations, such as: o OBAALSE-EXP o OBAALSE-METER	Core 36.8.2 Tariff	- CRR - Integration - MF - AIM

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• OBAALSE entity shall submit both types of load data, else the entity can choose not to submit anything for the specific market window • Solution shall have a separate tab for OBAALSE entity to submit their source and sink da **Note:** • Refer to **CRRSU-BRQ01720** for load data submission format. • There must be only one combination of date, hour, TOU, sink location, and load type (METER/EXPORT)		
CRRSU-BRQ03225	**OBAALSE participant identification** An OBAALSE participant who is eligible to participate in the CRR allocation market must be a registered CRR LSE	Core	- Masterfile (MF)
CRRSU-BRQ03440	**For Accepted Response from Finance: OBAALSE Final Eligible Quantity Determination:** If Finance's response is "Accept", Solution shall have the capability to automatically set the OBAALSE Final Eligible Quantity to request in the allocation market [$FEQ_{(a,tou,p,t)}$] to $EQ_{(a,tou,p,t)}$.	Core Phase 2	- CRR
CRRSU-BRQ03460	**For Rejected Response from Finance: Automatic Notification to OBAALSEs of Insufficient Collateral:** If Finance's response is "Reject", Solution shall have the capability to automatically notify the submitting OBAALSE that it does not have sufficient collateral to participate and to contact the CAISO finance department.	Core Phase 2	- CRR
CRRSU-BRQ03480	**Publishing of Eligible Quantity to MPs:** Upon completion of OBAALSE seasonal/monthly EQ calculation and prior to the corresponding allocation	Core	- CRR

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<table>
<tr><th>ID#</th><th>Business Feature</th><th>Requirement Type</th><th>Potential Application(s) Impacted</th></tr>
<tr><td></td><td>market open window, Solution shall have the capability to automatically or on-demand privately post OBAALSE seasonal/monthly EQ to each external CRR MP, similar to MEQ/SEQ publishing, respectively.

Note:
• Refer to CRRSU-BRQ02360 for MEQ publishing requirement.
• Refer to CRRSU-BRQ02400 for SEQ publishing requirement.</td><td></td><td></td></tr>
<tr><td>CRRSU-BRQ03495</td><td>OBAALSE’s must be able to indicate to the ISO what MW amount they are willing to prepay WAC for annual or monthly allocations. This MW amount may be up to a maximum of the EQ calculated by the CRR system.
• SCID = alphanumeric ID; must be a registered OBAALSE CRR participant
• Start Date = effective start date of the market period
• End Date = effective end date of the market period
• Sink Location
• Time Of Use = On or Off peak
• Requested Eligible Quantity = mw; must be up to the maximum EQ as calculated/posted by the system; up to 3 decimal places 0.001 is accepted
Example: Jan 2022 Monthly
<table>
<tr><th>MP</th><th>Start Date</th><th>End Date</th><th>Sink</th><th>TOU</th><th>Requested EQ, mw</th><th>Max EQ, mw</th></tr>
<tr><td>SMUD</td><td>1/1/2022</td><td>1/31/2022</td><td>DLAP_PGAE-APND</td><td>OFF</td><td>271.001</td><td>348.771</td></tr>
</table>
</td><td>Core</td><td>-CRR</td></tr>
</table>

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	<table><tr><td>SMUD</td><td>1/1/2022</td><td>1/31/2022</td><td>SMD8_ASR-APND</td><td>ON</td><td>142.001</td><td>192.851</td></tr></table> Business rules: • Market participation election must be validated per CRRR-BRQ03480, if failed any validation then CRR must raise any exception to the user • For the OBAALSE SEQ max to elect in annual market *SEQtotal(a,tou,p,t) = 0.75 * Adjusted Load Metric(a,tou,p,t)-LT CRR(a,tou,p,t)*		
CRRSU-BRQ03496	If the OBAALSE entity did not submit any EQ election (WAC prepayment) pass the submission window, then the system will use entity's maximum EQ in WAC prepayment calculation for credit approval.	Core	-CRR
CRRSU-BRQ03497	**WAC Long-Term Market** Market participant can elect to carry over the same annual adjusted load metric for use in calculating the LT SEQ and the applicable WAC for the Long Term market. Business rules: • For the OBAALSE SEQ max to elect in LT market ○ $SEQtierLT_{(a,tou,p,t+1)} = 0.50 * Adjusted\ Load\ Metric_{(a,tou,p,t)} - LT\ CRR_{(a,tou,p,t+1)}$	Core	-CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	In effect, have one Annual year and nine Long Term years, thus credit is requested to be approved/disapproved under an Annual vs Long-Term market (different name).		
CRRSU-BRQ03498	If market participant has elected to carry over the annual adjusted load metric for the long term market the system will allow the participant to elect how much of the long term SEQ amount they wish to be able to nominate in the long term market. The system will then use this elected Long Term SEQ amount to calculate the required WAC for the total market period.	Core Phase 2	-CRR
CRRSU-BRQ03500	**WAC Actual Credit Obligation Calculations:** Upon posting an allocation market, and for all "Accept" responses, Solution shall have the capability to automatically calculate WAC Actual Credit Obligation value based on the OBAALSE awarded MW value [$Award_{(a,tou,p,t)}$] from the allocation market results that the OBAALSE participated in at the period/TOU/sink location as follows: • Record OBAALSE award MW for the allocation market period, TOU, and sink location level [$Award_{(a,tou,p,t)}$]. • If this amount is NOT zero, from the awards noted in step 'a' above find the sink location in the WAC rate table and take the associated WAC rate and multiply this value by the MWh amount from step 'a' above. Add both TOU amounts for the respective market. This amount will be the CRR WAC Actual value. • Convert the $Award_{(a,tou,p,t)}$ MW value to MWh [$Award_{MWH(a,tou,p,t)}$] based on the term. • Sum up both TOU amounts so that there is a single value at the market level [$Award_{MWH(a,p,t)}$]:	Core Phase 2	-CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	$$Award_{\mathrm{MWH(a,p,t)}} = \sum_{tou} Award_{\mathrm{MWH(a,tou,p,t)}}$$ • CRR WAC Actual value shall be calculated as the multiplication of $Award_{MWH(a,p,t)}$ and the WAC rate for the corresponding sink location: $WAC_{Actual(a,p,t)} = Award_{MWH(a,p,t)} * WACrate_{(a)}$ **Note:** Any awarded CRRs to the OBAALSE shall be done via the normal market award process with the CRR Type being labeled as "OBAALSE".		
CRRSU-BRQ03540	**Finance and Settlement Consumes WAC Actual Credit Obligation Value:** Finance shall have the capability to automatically consume CRR WAC Future (actual) value [$WAC_{Actual(a,p,t)}$]. **Notes for Finance:** • Finance will take accepted requests and first hold any WAC Estimated Credit Obligation as an EAL component until such time as the WAC Actual Credit Obligation is received at which time the WAC Estimated EAL component will be removed and replaced with the WAC Actual EAL component. • Each month as the monthly prepayment amount is billed to the OBAALSE, the WAC Actual EAL component will be reduced by this amount until the end date of the market for which the prepayment is being made, at which time, the WAC Actual EAL component for that market will be zeroed out. **Notes for Settlement:**	Core	- Integration - Market Clearing - Settlement

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Settlements shall use the WAC actual credit obligation value in the existing CC 6722 configuration.		
CRRSU-BRQ03545	**Finance Consumes WAC Actual Credit Obligation Value into EAL:** Finance shall have the capability to include the CRR WAC ACTUAL as the WAC Actual EAL Liability component to calculate EAL.	Core Phase 2	-Market Clearing
CRRSU-BRQ03585	Solution shall provide an external OBAALSE participant capability to change their EQ election, as long as: • Load submission window is open • Election mw has not yet exceeded the maximum EQ • EQ election has not yet been submitted Once an EQ election has passed the final collateral validation, it shall first be removed before it can be modified.	Core Phase 2	-CRR
CRRSU-BRQ03587	Solution must allow an external OBAALSE participant to remove/cancel an approved EQ election submission. Upon doing so, solution shall have the capability to automatically broadcast the removal/cancellation request to Finance so that the bidder's Secured Available Credit can be adjusted. Business/validation rules:	Core Phase 2	-CRR -CTS

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• An external user must only be able cancel the EQ election it has provisioned entity access to • EQ election record to be cancelled must exist		

5.1.2.6.1.3 Automatic Notification of Prepared CRR Data Readiness to MPs

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03640	**Automatic Notification of Prepared CRR Data Readiness to MPs:** Solution shall have the capability to automatically and on-demand (by authorized users) notify external CRR participants of **prepared CRR data readiness** for each **allocation** market by utilizing the posted CRR calendar schedule and configurable number of lead business days. **Note:** Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.2.7 CRR FNM Data Publishing to CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03660	**Authorized users** Solution shall have the capability for authorized CRR users, external CRR participants, or external 3rd parties that have executed CRR FNM NDA, to access, view and export the following information • Released approved CRR FNM model. • All associated data to the CRR FNM model. **Note:** • Only external CRR users need to execute CRR FNM NDA in order to access CRR FNM information.	Core	- CRR -MPP - Integration - AIM

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5.1.2.8 Automatic Notification of Open CRR Allocation Market

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03680	**Participants Automatic Notification of Open CRR Allocation Market** Solution shall have the capability to automatically notify external CRR participants of open CRR allocation market by utilizing the posted CRR calendar schedule.	Core	- CRR
CRRSU-BRQ03700	**Participants On-Demand Notification of Open CRR Allocation Market** Solution shall provide the capability for authorized users to on-demand notify external CRR participants of open CRR allocation market.	Core	- CRR
CRRSU-BRQ03720	**Architecture Standards of Participants Notification of Open CRR Allocation Market** External CRR participants notification provided by Solution shall meet the architecture standard for external notifications and may include any combinations of the following (as selected by authorized users): • Message Log accessible by external participants via API. • Message Log accessible by external participants via UI.	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Web services		

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5.1.2.9 CRR Allocation Nomination

5.1.2.9.1 Submission by CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03740	**Submission of CRR Allocation Nomination by CRR Participants:** Solution shall have the capability for authorized external participants to submit their nomination data for each effective allocation market period and TOU into the system. The submission data shall have the following elements: • Market Name • CRR Participant SCID • CRR Type (e.g. LSE) • Source Name • Sink Name • MW • TOU (On-Peak or Off-Peak) • Hedge Type (Option or Obligation)	Core	- CRR - Integration
CRRSU-BRQ03780	**CRR Participants Nominations Re-Submission:** Solution shall provide the capability for CRR participants that have their original submission rejected to resubmit the nominations again after correction.	Core	- CRR
CRRSU-BRQ03800	**CRR Participants Nominations Submission Withdrawal:** Solution shall provide the capability for CRR participants to withdraw their submitted nominations (whether	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	accepted or rejected) at any time before the corresponding allocation market close window.		
CRRSU-BRQ03820	**CRR Participants Nominations Download:** Solution shall provide the capability for CRR participants to retrieve accepted nominations from the CRR system.	Core	- CRR

5.1.2.9.2 Automatic Notification to CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03920	**Automatic Notification to CRR Participants:** • Solution shall have the capability to automatically notify each CRR participant who submitted a nomination with the status of their data submission (either accepted or rejected). • For the rejected nominations, Solution shall provide the submitting CRR participant with the reason of the rejection. • The notification shall be done via the CRR system upon	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	participant's submission of the nomination data.		

5.1.2.10 Automatic Notification to CRR Participants of CRR Allocation Market Nomination Close

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ03940	**Participants Automatic Notification of Close of CRR Allocation Market Nomination** Solution shall have the capability to automatically notify external CRR participants of close of CRR allocation market nomination by utilizing the posted CRR calendar schedule.	Core	- CRR
CRRSU-BRQ03960	**Participants On-Demand Notification of Close of CRR Allocation Market Nomination** Solution shall provide the capability for authorized users to on-demand notify external CRR participants of close of CRR allocation market nomination.	Core	- CRR
CRRSU-BRQ03980	**Architecture Standards of Participants Notification of Close of CRR Allocation Market Nomination** External CRR participants notification provided by Solution shall include any combinations of the following (as selected by authorized users): • Message Log accessible by external participants via API.	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• Message Log accessible by external participants via UI.		

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5.1.2.11 Market Report & Executive Summary

5.1.2.12 Communication of CRR Allocation Market Results to CRR Participants

5.1.2.12.1 Publishing

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04120	**OASIS – Public Data (CRR Inventory):** • This shall include: o CRRs created from Auctions o CRRs created from Allocations o CRRs created from Load Migration o CRRs created from all Ad-Hoc processes o CRRs created from SRS o Awarded sell offers in the auction	Core	- CRR - OASIS - Integration

5.1.2.12.2 Automatic Notification

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04240	**Automatic Notification to CRR Participants – CRR Allocation Market Results:** Upon, posting CRR **allocation** market results, Solution shall have the capability to automatically and on-demand (by authorized users) notify external CRR participants of **posted CRR Allocation market results** for each **CRR allocation** market by utilizing the posted CRR calendar schedule and configurable number of lead business days. **Note:** • Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.3 Business Requirements – Annual/Monthly Auction Process

5.1.3.1 Automatic Notification of Open CRR Auction Market

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04420	**Participants Notification of Open CRR Auction Market** Solution shall have the capability to automatically and on-Demand (by authorized users) notify external CRR participants of **open CRR auction window** for each **auction** market by utilizing the posted CRR calendar schedule and configurable number of lead business days. **Note:** Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.3.2 CRR Bid Data

5.1.3.2.1 Submission by CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04450	**Submission of CRR Auction Bids by CRR Participants:** CRR system shall allow CRR auction participants to submit buy and sell offers according to the validation rules listed below. **Note:** • Refer to Section **CRR Buy & Sell Bid Portfolios Validation**.	Core	- CRR

5.1.3.2.2 CRR Buy & Sell Bid Portfolios Validation

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04660	**Preparation of CRR Bids Validation Results (Accept/Reject):** Solution shall have the capability to automatically prepare CRR bids validation results (accept/reject) along with the reasons of rejection, if any.	Core	- CRR
CRRSU-BRQ04680	**Publishing Rejection Status and Reason to CRR MPs:** If any reject status, Solution shall have the capability to automatically and on-demand provide the reasons	Core	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	for the CRR bid rejection to CRR external participant bidders.		

5.1.3.2.3 Automatic Notification to CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04800	**Automatic Notification to CRR Participants – Post-CRR Auction Market Data:** Upon publishing **post-**CRR **auction** market data, Solution shall have the capability to automatically and on-demand (by authorized users) notify external CRR participants of published **post-CRR auction market data** for each **CRR auction** market by utilizing the posted CRR calendar schedule and configurable number of lead business days. **Note:** • Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.3.2.4 CRR Participants Re-submission

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04820	**CRR Bid Portfolio Creation/Edit Capability for External CRR** • Solution shall provide external CRR participants the capability to create and edit their bid portfolios as long as the CRR auction bid submission window is open. Once a portfolio has passed the final collateral validation, it shall first be removed before it can be edited.	Core	- CRR
CRRSU-BRQ04840	**Broadcast Portfolio Removal Request to Finance:** Upon requesting to remove a submitted CRR bid portfolio, Solution shall have the capability to automatically and on-demand broadcast the removal request to Finance so that the bidder's collateral can be adjusted.	Core	- CRR - CTS - Integration

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5.1.3.3 Automatic Notification to CRR Participants of CRR Auction Market Close

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ04860	**Participants Notification of Close of CRR Auction Market** Solution shall have the capability to automatically and on-Demand (by authorized users) notify external CRR participants of **close of CRR auction window** for each **auction** market by utilizing the posted CRR calendar schedule and configurable number of lead business days. **Note:** Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.3.4 Communication of CRR Auction Market Results to CRR Participants & Internal Finance

5.1.3.4.1 Publishing

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ05040	**OASIS – Public Data (Market Clearing Prices; Masked Bid Data):** • Solution shall have the capability to automatically provide a payload with the results of CRR auction market results and bid data. • This shall include: o Clearing Prices o Bid Data	Core	- CRR - OASIS - Integration
CRRSU-BR05050	**OASIS – Publication of CRR Market Names** Publication of all available CRR market names & its effective period (as to date of request).	Core	- OASIS - Integration

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5.1.3.4.2 Automatic Notification

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ05180	**Automatic Notification to CRR Participants –CRR Auction Market Results:** Upon posting CRR **auction** market results, Solution shall have the capability to automatically and on-demand (by authorized users) notify external CRR participants of posting **CRR auction market results** for each **CRR auction** market by utilizing the posted CRR calendar schedule. **Note:** • Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.3.5 SRS Trade

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ05340	**SRS Submission & Validation:** Solution shall have the capability to make available the function for a CRR holder to transfer active CRRs to other CRR holders.	Core	- CRR
CRRSU-BRQ05360	**CRR Holders SRS Transfers:** Solution shall provide the capability for current CRR holders to transfer a single CRR or bulk transfer any CRRs within their portfolio.	Core	- CRR

5.1.3.6 CRR Editor Function

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ05785	**Participants Notification of Updated Apnode Mapping of Retired Generating Units** Solution should send MP notification of updated Apnode mapping for retired generating units based on the closest electrically connected CRR biddable Anode.	Core	- CRR

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5.1.3.7 CRR Holding Requirement Calculations – common functionality

<table>
<tr><th>ID#</th><th>Business Feature</th><th>Req. Type</th><th>Potential Application(s) Impacted</th></tr>
<tr><td>CRRSU-BRQ05262</td><td>Credit margin report
System must make available credit margin information in a public manner with the following:
Start/End date = effective start/end dates of the month
Time of Use = Off, On
Source-to-Sink credit $ margin value, round-up to 2 decimal places
Sink-to-Source credit $ margin value, round-up to 2 decimal places
Source = source node identifier
Sink = sink node identifier
<table>
<tr><th>Start Date</th><th>End Date</th><th>TOU</th><th>Source-to-Sink Credit Margin</th><th>Sink-to-Source Credit Margin</th><th>Source</th><th>Sink</th></tr>
<tr><td>1/1/2022</td><td>1/31/2022</td><td>OFF</td><td>0</td><td>0.29</td><td>0096WD_7_N001</td><td>AMARGOSA_1_SN001</td></tr>
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<tr><td></td><td>
<table>
<tr><td>1/1/2022</td><td>1/31/2022</td><td>OFF</td><td>0</td><td>0.05</td><td>0096WD_7_N001</td><td>CAPTJACK_5_N003</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>CRRSU-BRQ05268</td><td>The calculated CRR 3yr historical expected monthly average values must be published to the public, with the following:
Trade Month = effective start/end dates of the trade month
Pnode/Apnode name
Time of Use = Off, On; each node must have both on or off values
Three year daily average value = 3yr daily congestion LMP average per node, round-up to 2 decimal places
Example:
<table>
<tr><th>Start Date</th><th>End Date</th><th>NODE_NAME</th></tr>
<tr><td>7/1/2022</td><td>7/30/2022</td><td>0096WD_7_N001</td></tr>
<tr><td>7/1/2022</td><td>7/30/2022</td><td>0096WD_7_N001</td></tr>
<tr><td>7/1/2022</td><td>7/30/2022</td><td>2PBLSM34_7_N001</td></tr>
<tr><td>7/1/2022</td><td>7/30/2022</td><td>2PBLSM34_7_N001</td></tr>
</table>
</td><td>Business Process</td><td>-CAISO.com</td></tr>
</table>

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5.1.4 Business Requirements – Data Validation Against Settlements & CEC Data

ID#	Business Feature	Req. Type	Potential Application(s) Impacted
CRRSU-BRQ02091	Solution shall receive 5-minute SQMD for load resources, for the effective period of the load window to validate the Historical load submission	Core	- CRR
CRRSU-BRQ02100	**Historical MSS Load Data Validation – Net Settlement Election:** Solution shall have the capability to automatically validate, unless the user is exempt from the corresponding market period, the submitted historical MSS load data that have elected "Net Settlement" option using the following rules: • For each hour: Final Load = Gross load – Gross Generation (with 0.1 MW tolerance - configurable by the user). Apply same rules as regular load using Final Load for the MSS.	Core 36.8.2 Tariff	- CRR

5.1.5 Business Requirements – Daily/Ad Hoc Process

5.1.5.1 CRR Editor Function

ID#	Business Feature	Req. Type	Potential Application(s) Impacted
CRRSU-BRQ05786	**Broadcast Retired Pnode/Apnode Name Change Mapping**	Business Process	- CAISO.com -

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted
	In the event when either a pnode or anode retires and a its respective replacement pnode/anode is defined for use in the CRR market, the following must be published: • Old Source/Sink Name = original Pnode or Apnode identifier • New Source/Sink Name= replacement Pnode or Apnode identifier • Implementation Date = when the global update is applied for CRR Example:		

Old Source/Sink Name	New Source/Sink Name	Implementation Date
APPLEHL_1_N004	APLHILGN_7_N002	9/15/2022

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5.1.6 Business Requirements – Merchant Transmission Markets Process

5.1.6.1 Setup of MT Final Results Market

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ05900	**MT CRR Type Submission by External MT Sponsors:** Solution shall provide the capability for external MT sponsors to submit MT CRR type as either: • Option • Obligation	Core Phase 2	- CRR - Integration - AIM - MasterFile (MF)
CRRSU-BRQ05905	**MT Owner Identification** A merchant transmission owner who is eligible to participate in the CRR Merchant Transmission type market must be a registered CRR Holder.	Core	- Masterfile (MF) -AIM

5.1.6.2 Communication of MT Market Results to CRR Participants

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06020	**Publishing MT Market Results to CRR Participants:** Upon completion of MT Market, Solution shall have the capability to automatically or on-demand publicly post the following data to all external CRR MP, in same manner as allocation market, but	Core Phase 2	- CRR - OASIS - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	with a different CRR type enumeration: • MT market results. **Note:** Refer to the following requirement: • **CRRSU-BRQ04120**		
CRRSU-BRQ06040	**Publishing CRR Nomination Data to CRR Participants:** Upon completion of MT Market, Solution shall have the capability to automatically or on-demand privately post the following data to all external CRR MP, in same manner as allocation market, but with a different CRR type enumeration: • CRR Nominations.	Core Phase 2	- CRR - Integration
CRRSU-BRQ06120	**Automatic Notifications to External MT Sponsor Participants:** Upon, posting MT market results, Solution shall have the capability to automatically and on-demand (by authorized users) notify external MT sponsor participants of **posted MT market results** for each **MT** market by utilizing the posted CRR calendar schedule	Core Phase 2	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	and configurable number of lead business days. **Note:** Refer to **CRRSU-BRQ01540** for notification methods.		

5.1.7 Business Requirements – Reporting

5.1.7.1.1 Internal Reports

ID#	Business Feature	Req. Type	Potential Application(s) Impacted
CRRSU-BRQ06774	The CRR market annual and monthly allocation binding constraints must be published to the public, *with the following:* • *Market Name = market name of the monthly or annual/season* • *Market start/end dates* = annual (4 seasons) or monthly allocation market period start/end effective dates • *Binding Constraint Type = Interface, Line Transformer* • *Binding Constraint Name = PSLF name of the device* • *Interface Direction = import or export; only applies to ITC* • *Contingency Name = only applies to the binding constraint if it is a line or transformer* • *Time of Use = On or Off of the market* *Example data* *Monthly market for Oct 2022:*	Business Process	- CAISO.com

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted

Market Name	Market Start Date	Market End Date	Binding Constraint Type	Binding Constraint Name	Interface direction	Contingency Name	Time of Use
ALLOC_MN_2022_M11_T1	11/1/2022	11/30/2022	Interface	NOB_ITC	Import	NA	On

Annual market for 2023 year:

Market Name	Market Start Date	Market End Date	Binding Constraint Type	Binding Constraint Name	Interface direction	Contingency Name	Time of Use
ALLOC_AN_2023_S01	1/1/2023	3/31/2023	Interface	NOB_ITC	Import	NA	On
ALLOC_AN_2023_S02	4/1/2023	6/30/2023					
ALLOC_AN_2023_S03	7/1/2023	9/30/2023					
ALLOC_AN_2023_S04	10/1/2023	12/31/2023					

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5.1.7.2 External Reports

ID#	Business Feature	Req. Type	Potential Application(s) Impacted
CRRSU-BRQ06872	Credit Management Portal The addition of one new liabilities CRR_HOLDING must be reflected and aggregated in the EAL / available credit reports of scheduling coordinators: Reports: • CRR Parent-Child EAL • CRR Parent-Child EAL Historical Report • Detailed Charge Code Report • Detailed Charged Code Historical Report • Parent-Child EAL • Parent Company EAL • Parent Company EAL Historical Report Available Credit for CRR Auction display • Total Estimated Aggregate Liabilities • Available Credit • CRR Liabilities • Usable Secured Available Credit	Existing	-MPP -Market Clearing
CRRSU-BRQ06872 - B	Credit Management Portal The addition of two new liabilities WAC_ESTIMATED , WAC_ACTUALS must be reflected and aggregated in the EAL / available credit reports of scheduling coordinators: Reports: • CRR Parent-Child EAL • CRR Parent-Child EAL Historical Report • Detailed Charge Code Report	Existing Phase 2	-MPP -Market Clearing

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted
	• Detailed Charged Code Historical Report • Parent-Child EAL • Parent Company EAL • Parent Company EAL Historical Report Available Credit for CRR Auction display • Total Estimated Aggregate Liabilities • Available Credit • CRR Liabilities • Usable Secured Available Credit		

CRRSU-BRQ06875	The CRR monthly and annual eligible CRR auction and allocation market source/sink list must be published to the public via CAISO.com, with the following:
	• Market start/end date = season (4 quarters/year) or monthly auction period start/end effective dates
	• Source or Sink name = Pnode or APnode identifier
	• Open to MP = biddable flag Yes/No
	• Resource = either:
	  ○ Resource identifier (resID) mapped to the individual pnode or aggregated pnode source/sink
	  ○ Tie mapped to the scheduling point source/sink
	• Matrix Designation = source/sink defined as any of the following:
	  ○ CAISO – based on inclusion list
	  ○ GEN – Generator Pnode or APnode location
	  ○ LAP – Load Aggregation Point; includes DLAPs, Sub-LAPs, MSS LAPs, CLAPs for participating loads
	  ○ SP – Scheduling Point associated with interfaces/Ties
	  ○ TH – Trading Hub locations
		Business Process	CAISO.com

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted

- Scheduling Point Restriction = if specified, it can be bid as either a source or sink; otherwise no restriction
- Tie Gen – Tie Settlement Location

Example:

Monthly market

Market Term	Market Start Date	Market End Date	Source/Sink Name	Open to MP?	Resource
Monthly	11/1/2022	11/30/2022	AVLYSLR_7_N005	Yes	ARLVAL_5_SOLAR
Monthly	11/1/2022	11/30/2022	DLAP_PGAE-APND	Yes	
Monthly	11/1/2022	11/30/2022	CLAP_EAGLEMTN-APND	No	
Monthly	11/1/2022	11/30/2022	CLAP_EAGLEMTN-APND	No	
Monthly	11/1/2022	11/30/2022	0096WD_7_N001	Y	7STDRD_1_SOLAR1
Monthly	11/1/2022	11/30/2022	MLAP_ANHM-APND	Y	
Monthly	11/1/2022	11/30/2022	CLAP_BANKPP-APND	Y	

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted

Monthly	11/1/2022	11/30/2022	BARRE_6_N001	N	
Monthly	11/1/2022	11/30/2022	AMARGOSA_1_SN001	Y	AMARGOSA230
Monthly	11/1/2022	11/30/2022	SYLMARDC_2_N501	Y	NOB
Monthly	11/1/2022	11/30/2022	TH_NP15_GEN-APND	Y	

Annual market

Market Term	Market Start Date	Market End Date	Source/Sink Name	Open to MP?	Resource
Seasonal	1/1/2023	3/31/2022	AVLYSLR_7_N005	Yes	ARLVAL_5_SOLAR
Seasonal	4/1/2023	6/30/2023	…		
Seasonal	7/1/2023	9/30/2023	…		
Seasonal	10/1/2023	12/31/2023	…		

Publication timeline:

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ID#	Business Feature	Req. Type	Potential Application(s) Impacted
	• Initial publication – occurs on the post model date of the monthly or annual market • Post Initial publication; Data corrections may be published post its first publication, as needed/applicable		

5.1.8 Business Requirements – Conversion of TORs to MT-TOR CRRs

5.1.8.1 TOR Owner's Submission of Conversion Data through CRR UI

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06160	**TOR Owner's (Transferor) Submission of Conversion Data through CRR UI:** Solution shall provide the capability for external TOR owners to submit their own conversion data via UI and API. The submitted data shall include: • Source and Sink Locations • MW Conversion Amount • Transfer Period (Start and End Dates) • Transferee Identification	Core	- CRR - Integration - AIM - Masterfile (MF)
CRRSU-BRQ06165	**TOR Owner (Transferor) registration** The TOR Owner must be registered to transact business with the CAISO (turning over capacity to the ISO) after contract	Core	- Masterfile (MF) - AIM

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	signing and FERC authorization is granted. A TOR owner: • does not need to be a registered CRR Holder, example PacifiCorp • can be at the same time a CRR Holder, example: TANC		

5.1.8.2 TORs' Transferee of Confirmation of Transfer Data through CRR UI

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06200	**Viewing of Conversion Data by TOR Transferees:** Solution shall provide the capability for Transferee of TORs to view their own conversion data via UI.	Core	- CRR
CRRSU-BRQ06220	**Acceptance/Rejection of Conversion Data by TOR Transferees:** Solution shall provide the capability for Transferee of TORs to accept or reject their TOR conversion data via UI. **Note:** • All TOR conversions shall be in Pending status until	Core	- CRR

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	the Transferee accept or reject them.		

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5.1.8.3 Automatic Notification to TOR Transferor and Transferee of Approval or Denial

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06420	**Post TOR Conversion Transfer to External CRR Participants:** Upon approval of TOR conversion transfer by authorized CRR users, Solution shall have the capability to automatically or on-demand publicly post the following data to all external CRR participants, in same manner as allocation market, but with a different CRR type enumeration: • TOR Conversion Transfer.	Core	- CRR - OASIS - Integration
CRRSU-BRQ06440	**Approval Status Notification to External TOR Transferors & Transferees:** Solution shall have the capability to automatically notify external TOR Transferor and TOR Transferee of **the approval status (accept/reject)**. **Note:** Refer to **CRRSU-BRQ01540** for notification methods.	Core	- CRR

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5.1.9 Business Requirements – Integration

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06580	**Web Services Format Support** Solution shall have the capability to consume web services supporting SOAP and REST APIs for inbound and outbound services data connections from internal CAISO systems. Note: At the time of writing the BRS, SOAP over HTTP based web services is the production implementation. But POC is underway to evaluate REST/JSON for B2B services and JSON/AVRO over Kafka for internal pub/sub pattern.	Core	- CRR - Integration
CRRSU-BRQ06600	**Web Services Standard Format Support** Solution shall be able to consume and broadcast payloads from/to external CAISO CRR participants, using standard web services format. Note: The interaction with external CRR participants will follow the request/response pattern.	Core	- CRR - Integration
CRRSU-BRQ06680	**System Capability to Integrate with the CAISO's Provisioning Application** Solution shall have the capability to integrate with the CAISO's provisioning application.	Core	- CRR - AIM - Integration

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5.1.9.1 External Reports

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted

CRRSU-BRQ06800	**Pre-Configured External Reports**
	Solution-provided pre-configured external reports shall support, at a minimum, generation of these basic category types:
	• Generic reports:
	  ○ Contains same information and are shared by all CRR entities.
	  ○ These reports shall not be accessible by public users (e.g. only CRR entities can access these reports).
	• Private reports:
	  ○ Contains private information and are accessible by each individual CRR entity.
	• CRR FNM NDA Related reports:
	  ○ Contains CRR FNM related data for external entities that signed CRR FNM NDA.
		Core	- CRR
			- Integration
			- MPP

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06820	**Pre-Configured External Generic Reports** Solution-provided pre-configured external generic reports shall, at minimum, support inclusion of the following sample data in the report: • List of all active existing CRRs for all CRR holders from the date the report is requested. • List of awarded CRRs by market. • List of binding constraints by market. • List of biddable locations by market. • List of base loading CRRs by market. • Clearing prices by auction market.	Core	- CRR - Integration
CRRSU-BRQ06840	**Pre-Configured External Private Reports** Solution-provided pre-configured external private reports shall, at minimum, support inclusion of the following sample data in the report: • List of all active existing CRRs for only the logged in CRR holder from the date the report is requested. • List of awarded CRRs by market for the logged in CRR holder. • Reports that show market validation data for the logged in CRR holder.	Core	- CRR - Integration

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ06860	**Pre-Configured External CRR FNM NDA Related Reports** Solution-provided pre-configured external CRR FNM NDA Related reports shall, at minimum, support inclusion of the following sample data in the report: • Constraint definitions. • Constraint limits. • Biddable location definitions. • FNM data model.	Core	- CRR - Integration - MPP
CRRSU-BRQ06870	**Update and Publishing of Biddable Source and Sink List** Solution should update CRR biddable source and sink list and publish to MP in the event that unforeseen changes to network conditions and warrant revisions to that list, the CAISO will provide updates to the list prior to the closing of nominations for the CRR Allocation.	Core	CRR

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5.1.10 Business Requirements – Application Access

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ07880	**Granular Role Permission Based on Internal User Access** Solution shall provide the capability of granular role permissions based on internal user access to perform distinct business functions.	Core	- CRR - AIM
CRRSU-BRQ07920	**Support External CRR Participants' Access via UI and API** Solution shall provide the capability to support external CRR participants' access via UI and API.	Core	- CRR - AIM

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5.1.11 Business Requirements – CRR FNM

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
CRRSU-BRQ00763	**Designated Nomination Source – six LSEs:** System should only allow 6 LSE CDWR, WFLS, WDOE, WEPA, WNAS, WPUL to nominate WAPAMEEA APnodes for allocation market.	Core	- CRR

5.2 Business Process: Market/Business Simulation

Note: *This section is not required for the RFP and initial BRS. It will be added later, once a vendor is selected.*

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.

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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.

5.2.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
MSIM - 001	**External CRR Participant Registration in CRR** • External CRR Participant must pre-register information per existing MasterFile process. • CRR to automatically retrieve and store CRR registration information	MF	CRR	New System Process, New Data

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MSIM - 002	**External CRR Participant Access to CRR** ISO to setup access provisioning for External CRR participants to CRR for all of the following user types: 1. External CRR Holder (Read/Write) 2. External CRR Holder (Read Only) 3. External CRR NDA Reports Read-Access 4. External Utility Distribution Company (UDC) (Read/Write) 5. External Transmission Ownership Right (TOR) Owner (Read/Write)	AIM	CRR	User Interface, New Role (for CRR)

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MSIM - 003	**External Participant Access to OASIS** • Set up a scenario where External CRR participants access OASIS to view, and download the following data: 1. Inventory Data: • CRRs created from Auctions • CRRs created from Allocations • CRRs created from Load Migration • CRRs created from all Ad-Hoc processes • CRRs created from SRS • Awarded sell offers in the auction • MT Market Results • TOR Conversion Transfers 2. Masked Bid Data 3. All available CRR market names & its effective period (as to date of request) 4. Clearing Prices	CRR	OASIS	User Interface, New Data, New Report

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MSIM - 004	**Miscellaneous Process – UDC Load Migration** • ISO user to calculate N Hours data for each UDC. • ISO user to post calculated N-Hour data to each UDC. • Set up a scenario for External CRR participant to receive private notification of corresponding Load Migration open window • Set up a scenario for External CRR participant to submit their load migration data • CRR consumption of submitted load migration data and complete validation • Display UDC-submitted and validated LM Data • Set up a scenario for External CRR participant to receive and view notification of submitted LM data issues and request for data re-submission • CRR to calculate and validate final LM results • Set up a scenario for External CRR participant to receive private notification of LM results calculation • CRR to automatically update/recalculate the	N/A	CRR	User Interface, New Data, New Report

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	MEQ per sink location per TOU for entities impacted by LP for each effective allocation market period • Set up a scenario for External CRR participant to receive private notification of corresponding Load Migration window close			

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MSIM - 005	**Miscellaneous Process – LT Re-nomination** • ISO user to create election window for external CRR participant submission of election choice during each annual market (open/close dates for submitting nominations) • Set up a scenario for External CRR to receive and view notification with election open window information for nomination • Set up a scenario to allow External CRR participant to elect whether to re-nominate expiring LT CRRs in upcoming LT market or subsequent annual PNP. • Set up a scenario for External CRR to receive and view notification with election close window information • CRR to include re-nominated expiring LT CRRs into the expiring LT CRR Source/Sink Paths and MW quantities in LT signature data. Note: If no election made then system shall default to not add expiring LT CRRs to	N/A	CRR	User Interface, New Data, New Process

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	external participant LT signature data for that year. If elected to re-nominate in previous LT market then signature data excluded from PNP of the annual allocation.			

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MSIM - 006	**Miscellaneous Process – TOR Conversion** • ISO user to manually upload ETC/TOR Nomination Data for consumption. • CRR to validate and create ETC nominations. • ISO user to review/modify and submit ETC/TOR for each allocation market. • Set up a scenario for Transferee of TORs to accept or reject their TOR conversion data • Set up a scenario for Transferee of TORs to view and download their own conversion data • Set up a scenario to notify external CRR participant of all pending TOR Conversions data • CRR to automatically validate each TOR conversion transfer • CRR to automatically mark TOR conversion transfer as Accepted, Rejected, or Pending. • Set up a scenario to notify external CRR (Transferor and Transferee) participant of Accepted, Pending, or Rejected TOR Conversions by the Transferee	N/A	CRR	User Interface, New Data, New Process

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	• CRR to automatically create new MT-TORs for accepted TOR conversions (Modeled TORs) Note: See MSIM – 003 for posting of TOR Accepted data to OASIS.			
MSIM - 007	**Allocation Monthly Participants – CEC Load Forecast Submissions** • Set up a scenario for CEC external participant to submit their CEC load data Note: See corresponding data formats for CUPU Jurisdictional LSEs (BRQ01900) and Non-CPUC Jurisdictional LSEs (BRQ02000)	N/A	CRR	User Interface, New Data

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MSIM - 008	**Allocation Monthly Participants – Historical Load Submissions** • Set up a scenario for external CRR participant to submit their historical load data • Set up a scenario for external CRR participant to receive and view public notification for Historical Load submission open window for season or monthly submission • CRR to automatically utilized external participant's submitted historical load data • CRR to automatically validate submitted historical load data • Set up a scenario for external CRR participant to receive and view status of historical load validation as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit historical load data if was rejected • Set up a scenario for external CRR participant to receive and view public notification for Historical Load submission close window for season or monthly submission	N/A	CRR	User Interface, New Data, New Process

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	• CRR shall utilize submitted historical load data for MEQ calculation • CRR to automatically post MEQ calculation to CRR UI Note: See BRQ01720 for submission format. See BRQ02360 for list of all data elements for MEQ posting.			

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MSIM - 009	**Allocation Monthly Participants – Forecast Load Submissions** • ISO user to select and setup Market Name, Market Term, Market Allocation Type, Effective Market Start/End Date, and Open/Close Market Dates/Times • Set up a scenario for external CRR participant to receive and view public notification for Forecast Load submission open window for season or monthly submission • Set up a scenario for external CRR participant to submit their hourly Forecast Load data • CRR to automatically utilize external participant's submitted Forecast Load data • CRR to automatically validate submitted Forecast Load data • Set up a scenario for external CRR participant to receive and view status of Forecast Load validation as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit Forecast	N/A	CRR	User Interface, New Data, New Process

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	Load data if was rejected • Set up a scenario for external CRR participant to receive and view public notification for Forecast Load submission close window for season or monthly submission			

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MSIM - 010	**Allocation Annual Participants – Historical Load Submission** • ISO user to select and setup Market Name, Market Term, Market Allocation Type, Effective Market Start/End Date, and Open/Close Market Dates/Times • Set up a scenario for external CRR participant to receive and view public notification for Annual Historical Load open submission window • Setup scenario for External CRR participant to submit annual Historical Load • Set up a scenario for external CRR participant to receive and view status of Historical Load validation as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit Historical Load data if was rejected	N/A	CRR	User Interface, New Data, New Process

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	• Set up a scenario for external CRR participant to receive and view public notification for Annual Historical Load close of submission window • CRR shall utilize submitted annual historical load data for SEQ calculation • CRR to automatically post SEQ calculation to CRR UI Note: See BRQ02400 for list of all data elements for SEQ posting.			

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MSIM - 011	**Allocation Monthly Participants – Tier 1** • ISO user to schedule window open/close dates and times for nominations submissions for Tier 1 Monthly Market • Set up a scenario for External CRR Participants to receive public notification of Tier 1 open submission window • Set up a scenario for External CRR Participants to submit their Tier 1 Monthly Market data • Set up a scenario for external CRR participant to receive and view status of Tier 1 submission as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit Tier 1 data if was rejected • Set up a scenario for External CRR Participants to view and download their nomination cap-Tier 1 data • Set up a scenario for External CRR	N/A	CRR	User Interface, New Data, New Process

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	• Participants to view and download their allocation Market MN V0 ETC and T1 model results (NDA user) • Set up a scenario for External CRR Participants to receive public notification of Tier 1 close submission window • Set up a scenario for External CRR Participants to view and download their Allocation Market Tier 1 Results			

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MSIM - 012	**Allocation Annual Participants – Tier 1** • ISO user to schedule window open/close dates and times for nominations submissions for Tier 1 Annual Market • Set up a scenario for External CRR Participants to receive public notification of Tier 1 open submission window • Set up a scenario for External CRR Participants to submit their Tier 1 Annual Market data • Set up a scenario for external CRR participant to receive and view status of Tier 1 submission as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit Tier 1 data if was rejected • Set up a scenario for External CRR Participants to view and download their nomination cap-Tier 1 data • Set up a scenario for External CRR	N/A	CRR	User Interface, New Data, New Process

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	• Participants to view and download their allocation Market MN V0 ETC and Tier 1 model results (NDA user) • Set up a scenario for External CRR Participants to receive public notification of Tier 1 close submission window • Set up a scenario for External CRR Participants to view and download their Allocation Market Tier 1 Results			

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MSIM - 013	**Allocation Monthly Participants – Tier 2** • ISO user to schedule window open/close dates and times for nominations submissions for Tier 2 Monthly Market • Set up a scenario for External CRR Participants to receive public notification of Tier 2 open submission window • Set up a scenario for External CRR Participants to submit their Tier 2 Monthly Market data • Set up a scenario for external CRR participant to receive and view status of Tier 2 submission as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit Tier 2 data if was rejected • Set up a scenario for External CRR Participants to view and download their nomination cap-Tier 2 data • Set up a scenario for External CRR	N/A	CRR	User Interface, New Data, New Process

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	Participants to view and download their allocation Market T2 model results (NDA user) • Set up a scenario for External CRR Participant to view their set aside data • Set up a scenario for External CRR Participants to receive public notification of Tier 2 close submission window • Set up a scenario for External CRR Participants to view and download their Allocation Market Tier 2 Results			

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MSIM - 014	**Allocation Annual Participants – Tier 2** • ISO user to schedule window open/close dates and times for nominations submissions for Tier 2 Annual Market • Set up a scenario for External CRR Participants to receive public notification of Tier 2 open submission window • Set up a scenario for External CRR Participants to submit their Tier 2 Annual Market data • Set up a scenario for external CRR participant to receive and view status of Tier 2 submission as either Accepted or Rejected. • Set up a scenario for external CRR participant to resubmit Tier 2 data if was rejected • Set up a scenario for External CRR Participants to view and download their nomination cap-Tier 2 data • Set up a scenario for External CRR	N/A	CRR	User Interface, New Data, New Process

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	Participants to view and download their allocation Market Tier 2 model results (NDA user) • Set up a scenario for External CRR Participant to view their set aside data • Set up a scenario for External CRR Participants to receive public notification of Tier 2 close submission window • Set up a scenario for External CRR Participants to view and download their Allocation Market Tier 2 Results			

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MSIM - 015	**Auction Monthly Participants** • ISO user to schedule window open/close dates and times for Auction Submissions • Set up a scenario for External CRR Participants to receive public notification of Auction monthly open submission window • Set up a scenario for External CRR Participants to submit their Auction Portfolios • Set up a scenario for External CRR Participants to create and edit their bid portfolios as long as the CRR auction bid submission window is open • Set up a scenario for External CRR Participants to receive public notification of Auction monthly close submission window • Set up a scenario for External CRR Participants to view and download their Auction Market	N/A	CRR	User Interface, New Data, New Process

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	Model Results (NDA user) • Set up a scenario for External CRR Participants to view and download their Post CRR Auction Market Data for each CRR auction. Note: See MSIM – 003 for posting of Auction Monthly results to OASIS. Note: No changes to existing Credit Management Reports, External Participants may review on Market Participant Portal (MPP)			

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MSIM - 016	**Auction Annual Participants** • ISO user to schedule window open/close dates and times for Auction Submissions • Set up a scenario for External CRR Participants to receive public notification of Auction Annual open submission window • Set up a scenario for External CRR Participants to submit their Auction Portfolios • Set up a scenario for External CRR Participants to create and edit their bid portfolios as long as the CRR auction bid submission window is open • Set up a scenario for External CRR Participants to receive public notification of Auction Annual close submission window • Set up a scenario for External CRR Participants to view and download their Auction Market Model Results (NDA user)	N/A	CRR	User Interface, New Data, New Process

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	• Set up a scenario for External CRR Participants to view and download their Post CRR Auction Market Data for each CRR auction. Note: No changes to existing Credit Management Reports, External Participants may review on Market Participant Portal (MPP)			
MSIM - 017	**WAPAMEEA Nominations** Set up a scenario for the following LSEs (CDWR, WFLS, WDOE, WEPA, WNAS, WPUL) must have the capability to nominate WAPAMEEA APnodes for allocation market.	N/A	CRR	User Interface, New Data

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MSIM - 018	**External CRR Participant Reports in CRR** Set up scenario for External CRR participant to access, view, and download all of the following reports: • Generic Reports • Private Reports • CRR FNM NDA Reports • List of all active existing CRRs for all CRR holders from the date the report is requested. • List of awarded CRRs by market. • List of binding constraints by market. • List of biddable locations by market. • List of base loading CRRs by market. • Clearing prices by auction market. • List of all active existing CRRs for only the logged in CRR holder from the date the report is requested. • List of awarded CRRs by market for the logged in CRR holder.	N/A	CRR	New Report, New Data, User Interface

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	• Constraint definitions. • Constraint limits. • Biddable location definitions. • FNM data model. • CRR Monthly and Annual Eligible CRR Auction and allocation market source/sink list			

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MSIM - 019	**Secondary Market – SRS Trade** • Set up scenario for a CRR holder to agree to a trade (prior to starting collateral evaluation) • Set up a scenario for CRR to receive from Market Clearing the completed evaluation for Secured Available Credit for Transferor and Transferee • CRR System to calculate required credit for SRS trades and approve/reject • Set up a scenario where credit check is rejected display rejection message in CRR to CRR holder • Set up scenario for approved CRR holder to transfer active CRRs (single or bulk) to other approved CRR holders • Set up a scenario to ensure SRS transfer cannot be completed two days before effective day of CRR • CRR to automatically validate CRR sell offers submission and not allow SRS trades for any CRR that has an active sell offer in an open auction market	Market Clearing	CRR	User Interface, New Data

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	• CRR to automatically identify SRS trades of allocated CRR entities that are subject to load migration and ensure has sufficient collateral to hold counter-flow position of traded CRR.			

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6 Appendices

6.1 Appendix 1 – Acronym Definition

Acronym	Definition
A2A	Application to Application
AF	Allocation Factor
Anode	Aggregate Node
API	Application Program Interface
APnode	Aggregate Price Node
B2B	Business to Business
BA	Business Analyst
BA	Balancing Authority
BAA	Balancing Authority Area
BOG	Board Of Governors
BPM	Business Process Manual
BRS	Business Requirement Specifications
CAISO	California Independent System Operator
CBT	Computer-Based Training
CEC	California Energy Commission
CIM	Common Information Model
CIP	Critical Infrastructure Protection
CLAP	Custom Load Aggregation Point
CLSE	*CRR participant which is Load Serving Entity*

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Acronym	Definition
CMRI	Customer Market Results Interface
Code	Connectivity Node
CPUC	California Public Utility Commission
CRR	Congestion Revenue Right
CRRH	Congestion Revenue Right Holder
CRRSU	Congestion Revenue Right Replacement project
CSS	Critical Systems Support
CSV	Comma Separated Values
CTS	Credit Tracking System
DA	Day-Ahead
DAM	Day-Ahead Market
DASR	Direct Access Service Request
DB	Data Base
DDS	Design & Development Specifications
DI	Develop Infrastructure
DIM	Data Input Model
DLAP	Default Load Aggregation Point
DM	Develop Markets
DMM	Department of Market Monitoring
DST	Daylight Saving Time

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Acronym	Definition
DUNS	Data Universal Numbering System
EAL	Estimated Aggregate Liability
EDR	Enterprise Data Repository
EIM	Energy Imbalance Market
EMM	Enterprise Modeling Management
EMMS	Enterprise Modeling Management System
EQ	Eligible Quantity
ERC	Equipment Rating Change
ESP	Electronic Security Perimeter
ETC	Existing Transmission Contracts
FERC	Federal Energy Regulatory Commission
FEQ	Final Eligible Quantity
FNM	Full Network Model
FODD	FERC Outgoing Data Depository
FR	Frequency Response
GCARM	Generator Contingency and RAS Modelling
GDF	Generation Distribution Factor
GFF	Generation Flow Factor
GIP	Generator Interconnection Procedure
GRDT	Generator Resource Data Template

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Acronym	Definition
GUI	Graphical User Interface
HF	Historical or Forecast
IAIQ	IT Architecture, Integration and QA
IBAA	Inter-Balancing Authority Area
IEC	International Electrotechnical Commission
IC	Injection Change
ID	Identification
IFM	Integrated Forward market
IS	Information Security
ISL	Intertie Scheduling Limit
ISO	California Independent System Operator
IT	Information Technology
ITC	Inter-Tie Constraint
ITPD	Information Technology Product Development
ITPM	Information Technology Product Management
kW	Kilo Watt
LAP	Load Aggregation Point
LDF	Load Distribution Factor
LM	Load Migration
LMP	Local Marginal Price

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Acronym	Definition
LMT	Load Migration Tool
LSE	Load Serving Entities
LT	Long Term
MCI	Model & Contract Implementation
MEQ	Monthly Eligible Quantity
MF	Master File
MHC	Manage Human Capabilities
MLAP	MSS Load Aggregation Point
MMG	Manage Markets & Grid
MMR	Manage Market & Reliability Data & Modeling
MOI	Market Operator Interface
MOS	Manage Operations Support & Settlements
MP	Market Participant
MPP	Market Participant Portal
MQRI	Market Quality and Renewable Integration
MQS	Market Quality System
MSG	Multi-Stage Generator
MSS	Metered Sub System
MT	Merchant Transmission
MUI	Market User Interface

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Acronym	Definition
MVA	Mega Volt Ampere
MVQ	Market Validation Quality
MVQA	Market Validation Quality & Analysis
N/A	Not Applicable
NGR	Non-Generating Resource
OASIS	Open Access Same-Time Information System
OBAALSE	Out-of-Balancing Authority Area Load Serving Entities
OES	Operations Engineering Services
OMS	Outage Management System
PA	Participant
PAID	Participant numeric ID
PCA	Price Correction Application
PDF	Portable Document Format
PDR	Proxy Demand Response
Pmax	Maximum Generation (Load) MW Level
PMB	Plan & Manage Business
Pmin	Minimum Generation (Load) MW Level (same as ML)
Pnode	Price Node
PNP	Priority Nomination Process
PSS/E	Power System Simulation for Engineering

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Acronym	Definition
PSTD	Power Systems Technology Development
PSTO	Power Systems Technology Operations
PTO	Participating Transmission Owner
QRB	Quality Review Board
RAR	Resource Adequacy Requirement
RAS	Remedial Action Scheme
RC	Reliability Coordinator
RDT	Resource Data Template
RES	Resource
REST	Representational State Transfer
RRDR	Reliability Resource Demand Response
RT	Real-Time
RTCA	Real-Time Contingency Analysis
RTM	Real-Time Market
RTN	Real-Time Market
RUC	Residual Unit Commitment
SADS	System And Design Specifications
SaMC	Settlements system
SaMP	Settlements Production system
SAMQ	Security, Architecture, Model management & Quality

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Acronym	Definition
SBS	Support Business Services
SC	Scheduling Coordinator
SCED	Security Constrained Economic Dispatch
SCS	Support Customers & Stakeholders
SCUC	Security Constrained Unit Commitment
SEQ	Seasonal Eligible Quantity
SF	Shift Factor
SFT	Simultaneous Feasibility Test
SFTP	Secure File Transfer Protocol
SIBR	Scheduling Infrastructure Business Rules
SLAP	Sub-Load Aggregation Point
SME	Subject Matter Expert
SOA	Simple Object Access
SOAP	Simple Object Access Protocol
SP	Scheduling Point
SQMD	Settlements Quality Meter Data
SRS	System Requirement Specifications
SRS	Secondary Registration System
SS	Source/Sink
STUC	Short-Term Unit Commitment

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Acronym	Definition
SUB	Sink Upper Bound
TAC	Transmission Access Charge
TH	Trading Hub
TBD	To Be Determined
TOR	Transmission Ownership Rights
TOU (tou)	Time Of Use
TRTC	Transmission Rights and Transmission Curtailment
UDC	Utility Distribution Company
UI	User Interface
WAC	Wheeling Access Charges
WebOMS	Web-based Outage Management System
WECC	Western Electricity Coordinating Council
WLS	Weighted Least Squares
XML	Load Aggregation Point

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