

Business Requirements Specification

FERC Order 881 – Track 1

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Table of Contents

1 Introduction 3

 1.1 Purpose 3

2 Details of Business Need/Problem..... 4

 2.1 Description 4

3 Project Impact Assessment (IA) 6

 3.1 Business Practice Manuals (BPM) 6

3.2 Tariff Business Ownership 8

 3.3 Other 8

4 Business Requirements 10

 4.1 Business Requirements: 10

 4.1.1 *Business Requirements: Internal System*..... 10

 4.2 Business Requirements: 13

 4.2.1 *Business Requirements: EMNA - RT*..... 13

 4.3 Business Process: Market/Business Simulation 15

 4.3.1 *Business Requirements*..... 15

 4.4 Business Process: Market Monitoring and Reporting 17

 4.4.1 *Business Requirements*..... 17

Appendix C: Display Mockup and Report Questionnaire 18

 TO Submission Template (BRQ068) 18

 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

1 Introduction

1.1 Purpose

This document describes high level business requirements and establishes the basis for the agreement between the initiators and implementers of the project.

Background

On December 16, 2021, the Federal Energy Regulation Commission issued a final rule in RM20-16 – Managing Transmission Line Ratings (Order No. 881), which adopts various reforms pursuant to section 206 of the Federal Power Act. Order No. 881 directs public utility transmission providers, transmission owners, and regional transmission operators (RTOs) and independent system operators (ISOs) to implement the following reforms:

- **Ambient-adjusted ratings and seasonal ratings:** Public utility transmission providers (RTOs/ISOs and non-RTOs/ISOs) must implement ambient-adjusted ratings (AARs) and seasonal ratings. They must use ambient-adjusted ratings for evaluating requests for near-term transmission service (defined as transmission service that ends within 10 days of the date of the request). They must use seasonal ratings for evaluating other, longer-term transmission service requests.
- **Electronic updates to transmission ratings:** RTOs/ISOs must establish and implement the systems and procedures necessary to allow transmission owners to electronically update transmission line ratings at least hourly.
- **Use of emergency ratings:** Public utility transmission providers (RTOs/ISOs and non-RTOs/ISOs) must use uniquely determined emergency ratings for contingency analysis in the operations horizon and in post-contingency simulations of constraints.
- **Transparency:** Transmission owners must share transmission line ratings and transmission line rating methodologies with their respective transmission providers and, in RTOs/ISOs, with their respective market monitors. Order No. 881 requires transmission providers to maintain a database of each transmission owner’s transmission line ratings and transmission line rating methodologies on the transmission provider’s open access same-time information system website, or on another password-protected website.

Note: This BRS focuses on items for market participant visibility for Track 1 only.

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		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

Project Scope:

Track 1: Real Time Reliability Applications

- TO submission via ICCP

Track 2: Operational

- New transmission line submission interface

Track 3: Market Applications and Look Ahead Applications

- Market updates/changes and downstream systems
- Reporting requirements
- Impacts to transmission scheduling priorities

2 Details of Business Need/Problem

2.1 Description

Business Opportunity/Problem Statement:	
What:	This initiative will allow the ISO to use regularly updated AARs for near-term transmission service requests and in market processes. AARs provide more accurate transmission line ratings, and regular updates will better reflect real-time weather conditions.
When:	<ul style="list-style-type: none"> • FERC compliance filing due July 12, 2022 • Implementation for all tracks required by July 12, 2025 <p>Refer to RUG for updated implementation timeline for individual tracks.</p>

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 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

Business Opportunity/Problem Statement:	
Why do we have this opportunity/problem:	FERC Order 881 requires these changes.

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 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

3 Project Impact Assessment (IA)

3.1 Business Practice Manuals (BPM)

BPM	Description of Impact(s)
BPM Change Management	N/A
Candidate CRR Holder Registration	N/A
Compliance Monitoring	N/A
Congestion Revenue Rights	Track 3: Moving from two seasons to four
Credit Management and Market Clearing	N/A
Definitions and Acronyms	Updates to reflect new terms to align with updates to Appendix A of the Tariff (Ambient Adjusted Rating.)
Demand Response	N/A
Direct Telemetry	N/A
Distributed Generation for Deliverability	N/A
Energy Imbalance Market (EIM)	N/A
Generator Interconnection and Deliverability Allocation Procedures	N/A
Generator Interconnection Procedure (GIP)	N/A
Generator Management	N/A
Managing Full Network Model	Track 1 and Track 2. Impacts FNM update processes.

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 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

BPM	Description of Impact(s)
Market Instruments	N/A
Market Operations	Track 1, 2, and 3, use of AARs and seasonal ratings in market processes.
Metering	N/A
Outage Management	Track 1, 2, 3, changes to reflect AARs, seasonal ratings in outages.
Reliability Coordinator Services	N/A
Reliability Requirements	N/A
Rules of Conduct Administration	N/A
Scheduling Coordinator Certification and Termination	N/A
Settlements and Billing	N/A
Transmission Planning Process	N/A

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FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

3.2 Tariff Business Ownership

Tariff Section	Business Owner
Section 6.5.17 Transmission Line Ratings	Track 1, 2, 3. Operations Engineering Services
Appendix A - Definitions	Track 1
Appendix JJ	Track 1, 2, 3. Operations Engineering Services

3.3 Other

Impact	Description (optional)
Market Simulation	Yes, Refer to Market Sim for more information.
Market Participant Impact	Yes, TO submission of data in Track 1 and Track 2, and usability of Track 2 User Interface.
External Bid Publication	No
Customer Readiness Impact	<i>Yes, see below.</i>
<ul style="list-style-type: none"> • External Communication Needed 	Yes This is being managed through the stakeholder process, and visibility of externally facing items will be disclosed in publication of External BRS to CAISO.com.
<ul style="list-style-type: none"> • External Onboarding and Maintenance 	No

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 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

Impact	Description (optional)
<ul style="list-style-type: none"> • External Training 	<p>Yes</p> <p>Track 1: Training for TO submission of TLRs and limit duration.</p> <p>Track 2: TO's utilizing new user interface and application for rating submission.</p> <p>Track 3: TBD</p>
<ul style="list-style-type: none"> • External Computer Based Training 	<p>Yes,</p> <p>Will be completed in parallel to External Training.</p>
<p>Policy Initiative</p>	<p>Yes,</p> <p>Refer to Policy Initiative site for more information.</p> <p>https://stakeholdercenter.caiso.com/StakeholderInitiatives/FERC-order-no-881-managing-transmission-line-ratings</p>

 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

4 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.

4.1 Business Requirements:

4.1.1 Business Requirements: Internal System

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
Not Applicable	<p>CAISO must have business process when TO's submissions are rejected due to being outside of reasonability limits.</p> <p>Tariff Appendix JJ "If the CAISO detects an apparent inaccurate transmission line rating, the CAISO will inform the Participating Transmission Owner and take appropriate actions to resolve any inaccuracy, including use of an alternate rating specified by the Participating Transmission Owner."</p>	Tariff Appendix JJ	Not Applicable

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
F881 – BRQ068	<p>System (Internal ISO System) must receive electronic transmission line rating data through ICCP. When the ICCP is defined in the Internal ISO System database, a static duration for the limit must be defined.</p> <p>Implementation note: New template will be provided to TOs. Refer to Appendix C for the template example. This template may be subject to change.</p> <p>Appendix JJ: Participating TOs may submit Ambient Adjusted Ratings using SCADA, ICCP or similar communication systems as described in the applicable Business Practice Manual or Operating Procedures.</p>	Core Appendix JJ	Internal ISO System
F881 – BRQ069	System (HANA) must display the updated rating slots from Internal System which contains the values from ICCP.	Existing	HANA
F881 – BRQ161	System (Internal System) must broadcast Real-Time (Current Time) TLRs (originally from ICCP, or Internal ISO System override) and limit duration to Internal ISO System.	Core	Internal System



ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
F881 – BRQ186	<p>System (Internal ISO System) must store Real-Time TLRs received by Internal System through ICCP for at least five years.</p> <p>Note: This may be stored in new application as part of Track 2.</p> <p>Tariff Section 6.5.17 "The database will include a record of all Transmission Line Ratings used in real-time operations and in each future period for which they are calculated. Any postings of temporary alternate Transmission Line Ratings or exceptions will be part of this database. The database will include records of which Transmission Line Ratings and Transmission Line Rating methodologies were in effect at which times over the previous five years, including records of which temporary alternate Transmission Line Ratings or exceptions in effect during the previous five years. Each record in the database will reflect which transmission line to which the record applies and the date and time the record was entered into the database."</p>	<p>Core</p> <p>Tariff Section 6.5.17</p>	<p>Internal ISO System</p>

 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

4.2 Business Requirements:

4.2.1 Business Requirements: EMNA - RT

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
F881 – BRQ101	<p>System (HANA) must display updated season definition per SubGeographical Level based on TO submission in FNM.</p> <p>Note: Geographical regions are BAAs, sub Geographical regions can be one to one with the geographical region or many to one. In most cases geo and sub geo are one to one, but when the geo is very large the BAA will break up the geo into multiple subgeo regions.</p>	Existing	HANA
F881 - BRQ071	<p>System (HANA) must have functionality to consume both <u>Thermal</u> ratings and associated time durations from the EMNA save case.</p> <p>Implementation note: Template submitted by TOs in FNM into EMMS. Ratings provided must be associated with the proper time durations. (Currently HANA shows default 4 hours ER durations for all equipment and manual entries are used for variations; however per FAC-011, these time durations should be provided by TOPs).</p>	Core	HANA

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ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
F881 - BRQ073	<p>System (HANA) must display all emergency ratings with corresponding durations.</p> <p>Implementation note: will show at least three ratings for each element: Normal, Emergency and Highest Emergency Ratings, and have a duration slot for each of these. Operational Emergency and Highest Emergency Ratings will both show the durations of those ratings. For each additional rating provided there should be a duration shown with the rating. On displays where ratings are shown with multiple units, such as Amps and MVA, each additional rating will show each of these quantities.</p> <p>Implementation note: Refer to Appendix C “EMNA Ratings and Durations Solution Options” for potential vendor solutions.</p>	Core	HANA
F881 - BRQ077	<p>On both the Operator RT Monitor for Base Case Thermal Violation and Post Contingent Thermal Violations UI, the Emergency Rating field and ER Duration field will show the next available rating above the current flow when an applicable rating is violated.</p>	Core	HANA

 California ISO	Technology	Template Version:	6.8
		Document Version:	1.0
FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

4.3 Business Process: Market/Business Simulation

This section shall provide a basis for the development of the Market/Business Simulation Scenarios. These requirements will provide guidance on the market participant impacts, inputs into the Scenarios, endpoints to the Scenarios and reasons for potential Scenarios. The guidance on market participant impacts shall be gathered from the requirements that impact rules, interfaces, applications/reports, new system processes, new/modified data models, and new user roles. The source and sink systems shall be determined through the development of the system context diagram and the web service requirements. The *Reason for the Potential Scenario* column will be to offer guidance regarding what potential scenarios, and their context, may be needed for this project. This section applies to all policy development projects, market enhancements, technology enhancements, operation enhancements, Energy Imbalance Market (EIM) implementations, and Reliability Coordination (RC) service implementations. If the project team has deemed that no structured testing is needed, an end-to-end test case must be specified.

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

1. **Rule Impacts:** Generalized changes in market rules, bidding rules, settlements rules, market design changes, or other business rules.
2. **Interface changes:** Changes that impact templates (e.g., the Resource Adequacy (RA) supply plan), user interface (UI), and application programming interface (API) (e.g., retrievals of new shadow settlement data).
3. **New application/report:** Changes that cause addition/modification of market software or reports, especially when market data input is required by the market participant.
4. **New system process:** Modification of data flow in systems, especially if the new process requires the market participant to demonstrate proficiency prior to production.
5. **New/Modified model data:** Addition or substantial modification of model data as a market solution or export 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.

4.3.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario												
MSIM - 001	<p>End-to-End, Unstructured:</p> <p>TOs submit Transmission Line Ratings (TLR) and corresponding duration limits via ICCP for applicable facilities.</p> <p>Implementation note: E.g., duration limits of 15min, 30min, 60min). Duration in this instance refers to the amount of time the operator has to reduce the flow across the device to below the normal rating or the next rating.</p> <table border="1" data-bbox="280 968 808 1272"> <thead> <tr> <th>XFMR 1 Rating</th> <th>Rating Value</th> <th>Rating Duration</th> </tr> </thead> <tbody> <tr> <td>Normal</td> <td>100</td> <td>Continuous</td> </tr> <tr> <td>Emergency</td> <td>120</td> <td>240 min</td> </tr> <tr> <td>HER</td> <td>140</td> <td>30 min</td> </tr> </tbody> </table> <p>If the flow across XFMR 1 is 110 MVA then the operator has 240 minutes to take actions that will reduce the flow below 100 MVA. If the flow is above 120 MVA then they only have 30 mins to take action to reduce the flow below 120 and then they need to continue to take actions until the flow is below 100.</p> <p>Note: This unstructured market sim is applicable to TOs when TOs transition to utilizing the new submission template. For most TOs this will be in Track 3.</p>	XFMR 1 Rating	Rating Value	Rating Duration	Normal	100	Continuous	Emergency	120	240 min	HER	140	30 min	N/A	Internal ISO System	End-to-End, Unstructured Market Simulation, New/Modified Data
XFMR 1 Rating	Rating Value	Rating Duration														
Normal	100	Continuous														
Emergency	120	240 min														
HER	140	30 min														

 California ISO	Technology	Template Version:	6.8
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FERC Order 881 Business Requirements Specification - Planning		Date Created:	4/10/2023

4.4 Business Process: Market Monitoring and Reporting

4.4.1 Business Requirements

ID#	Business Feature	Requirement Type	Business Unit(s) Affected	Manual Or Auto	Application(s) Impacted
	TBD – shall be completed during Track 3 requirement gathering.				

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Appendix C: Display Mockup and Report Questionnaire

Provide any display mockups that may help the implementation team in the design of the solution.

TO Submission Template (BRQ068)

Note: this template is subject to change.



DraftDataSubmis:

Template BRQ068