

# Business Requirements Specification

## FERC Order 2222

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### Revision History


Date	Ver.	Description
5/21/2024	1.0	Initial version.
5/22/2024	1.1	<p>Updates to Section 1:</p> <ul style="list-style-type: none"> <li>- Updated Glossary to describe GDF, HDERA, Locations, PNodes, and SCME as they relate to FERC Order 2222.</li> </ul> <p>Updates to Section 3:</p> <ul style="list-style-type: none"> <li>- Updated “When” to reflect November 1, 2024.</li> </ul> <p>Updates to Section 4:</p> <ul style="list-style-type: none"> <li>- Section 4.1: Additional BPMs added to list (summary of impacts identified)</li> <li>- Section 4.2: Market Simulation Unstructured Scenarios added</li> </ul> <p>Updates to Section 5: Sections/BRQs were re-ordered to align with process flow (BRQs no longer in numeric sequence)</p> <p>Section 5.1: RIMS enhancements (moved from Section 5.2)</p> <ul style="list-style-type: none"> <li>- BRQ-018: provided link to DERPA Information Request Sheet and the DERP UDC/MSS Concurrence Letter template</li> <li>- BRQ-009: Revised to align with proposed process flow for user HDERA data submission (see glossary notes as well)</li> </ul>



- BRQ-004: Separated requirement to distinct system (RIMS)
- Section 5.2: Master File Enhancements
- BRQ-012: Added usability requirement
  - BRQ-021: Added requirement to clarify changes to HDERA resources will require re-submission of a Concurrence Letter A to follow same process as the initial interconnection request (as this will require validation/approval processes by ISO)
  - BRQ-012: Added requirement to reconfirm that HDERA data submissions may not process through the GRDT template or API submissions (only through UDC Concurrence Letter A submission).
  - BRQ-002: Added to clarify HDERA resources model as generic NGRs with NREM subtype in the market.
  - BRQ-003: Provided additional clarification on process of HDERA resource baseline methodology approval, upload, and read-only data retrieval.
  - BRQ-110: Elaborated on GDF requirements.
  - BRQ-106: Separated same validation requirements from RIMS (BRQ-104) in new requirement
  - BRQ-101: Elaborated on list of data Master File will publish.
  - BRQ-115: Added GRDT template to new HDERA attributes
  - BRQ-119: Added GRDT service to new HDERA attributes
- Section 5.3 – SIBR Enhancements
- BRQ-006: Added HDERA resource flag to SIBR system
  - BRQ-016: Added HDERA GDF submission with hourly bid submissions (other default MF GDFs)
- Section 5.4.1: MRI-S enhancements (separated from Settlements enhancements)
- BRQ-099: Added HDERA resource attributes feed to MRI-S
- Section 5.4.2: Settlement enhancements (separated from MRI-S enhancements)
- BRQ-008: Settlement overview of HDERA (will settle as a generic NGR, with NREM subtype, and its DCR will meter as supply)


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

		Section 5.5: Market Simulation - MKTSIM-001: Added unstructured scenario for MFRD, SIBR, and MRI-S functionalities.
6/28/24	1.2	Standard disclaimer provision added.

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

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 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

**Table of Contents**

**1 Introduction ..... 6**

    1.1 Purpose ..... 6

    1.2 References ..... 8

    1.3 Glossary ..... 9

**2 Intellectual Property Ownership ..... 11**

    2.1 Guidelines ..... 11

**3 Details of Business Need/Problem ..... 12**

    3.1 Description ..... 12

**4 Business Impacts ..... 13**

    4.1 Business Practice Manuals (BPM) ..... 13

    4.2 Other ..... 15

**5 Business Requirements ..... 16**

    5.1 Business Process: Strategic Client Account Management – RIMs ..... 16

        5.1.1 *Business Requirements* ..... 16

    5.2 Business Process: Manage Resource Implementation – Master File ..... 19

        5.2.1 *Business Requirements* ..... 19

    5.3 Business Process: Manage DAM (MMG LII) Manage RTM – SIBR ..... 23

        5.3.1 *Business Requirements: SIBR Enhancements* ..... 23

    5.4 Business Process: Post Process and Market Billing and Settlements – MRI-S ..... 24

        5.4.1 *Business Requirements: MRI-S Enhancements* ..... 24


        5.4.2 *Business Requirements: Settlements Enhancements* ..... 25

    5.5 Business Process: Market/Business Simulation ..... 26

        5.5.1 *Business Requirements* ..... 27

**Appendix A: HDERA Composition Example ..... 28**

**Appendix B: Listing of Valid Base Methodologies ..... 29**

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

# 1 Introduction


## 1.1 Purpose

### Overview

FERC Order 2222 seeks to remove barriers for DCR (Distributed Curtailment Resources) participation in RTO/ISO markets. Through its prior initiatives, CAISO already supports DER (Distributed Energy Resource) market participation. In this implementation, the CAISO will amend its existing DER policy to accommodate FERC Order 2222, which will include reducing the maximum capacity requirement and introducing a new DERA resource type with underlying DCR. In total, FERC Order 2222 requires RTOs/ISOs to revise the Tariff to establish a DERA participation model, which will:


- 1) Allow DERAs to participate in markets and establish DERAs as a type of market participant,
- 2) allow aggregators to register operational characteristics of a DERA,
- 3) establish maximum capacity requirements for DERAs,
- 4) address locational requirements,
- 5) address distribution and bidding,
- 6) address data and information,
- 7) allow for coordination between necessary entities,
- 8) address metering and telemetry,
- 9) address modifications to the list of resources in DERA, and
- 10) address market participation agreements.

The CAISO and its participating transmission owners have already gone to great lengths to ensure that DERs can easily access the wholesale markets for energy and ancillary services. These include ensuring that the CAISO does not prohibit any particular DER from participating in DERAs. This implementation now builds on this work by adding the DCR as an underlying resource type for the Distributed Energy Resource Aggregate (DERA). DERAs with any underlying DCR will be considered HDERA (given its capability to support both DER and DCR types) as opposed to the existing DERA (which only allows underlying DER). Demand response is considered a type of DCR in this context. Similarly, as with demand response, the metering performance of DCRs will be reflected as supply (or metering channel 4).

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

The existing CAISO Tariff already complies with most of FERC Order 2222; however, a few changes will be needed to align the tariff with the order by including a new resource classification, reducing the minimum allowable DER energy nameplate capacity limit (i.e. Pmax), and the creation of DCRs. Some of these changes will include:

- 1) Adapt small utility opt-in provision in its pro forma Demand Response Provider agreement for the CAISO’s pro forma DERP Agreement, replacing Demand Response references with DER references.
- 2) Change definition of DER to align with the Commission’s definition as found in section III B of the Order No. 2222 DERAs Compliance Filing.
- 3) CAISO proposes to implement a heterogeneous DERA model such that:
  - "Heterogeneous" DERAs must consist of at least one curtailment resource, and may comprise of the aggregate’s underlying capacity in part or total.
  - Heterogeneous DERAs will provide a net response of energy, demand curtailment or both at its PNode(s). Settlements for heterogeneous DERAs will be based on the net service provided to the CAISO. This will be a sum of the net energy and the demand curtailment provided by the aggregate.
- 4) Define “Distributed Curtailment Resource” as a DER providing demand curtailment in a heterogeneous DERA.
- 5) Settle heterogeneous DERAs as a single supply resource, as a sum of net energy provided by DERs and the demand curtailed from DCRs.
- 6) The CAISO will apply a net benefits test to determine a threshold Market Clearing Price for Demand Response Providers and the new HDERA resource type.
- 7) Provision against double counting for any possible future scenarios, prevents a DER from participating in a DERA where the DER already participates in a retail net energy metering program that does not expressly permit wholesale market participation, requiring the distribution company to confer regarding any double-counting concerns
- 8) Reduce the minimum aggregate capacity limit of DERs from 500kW to 100kW for a DERA.
- 9) Revise Tariff to require DERPs to notify the CAISO whenever DERA information changes due to the removal, addition or modification of a DER within a DERA.

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>


Conceptualization and Initiation Phases	<ul style="list-style-type: none"> <li>• Impact Assessment</li> <li>• IT Director Review</li> <li>• Pre-Inception QRB</li> </ul>
Planning Phase	<ul style="list-style-type: none"> <li>• Initial BRS: Sections 1 – 5</li> <li>• Architecture Design</li> <li>• Final BRS: Sections 1 – 11 (Submit for approval without appendices)</li> <li>• System and Technical Requirements (BRS appendices)</li> </ul>
Design Phase	<ul style="list-style-type: none"> <li>• MDD</li> <li>• SADS</li> <li>• DDS</li> </ul>

## 1.2 References

All references represent external requirements documents or stakeholder requests, developed and submitted by the Business Units.


1. [FERC Order 2222 Tariff Filing \(on August 15, 2022\)](#)




 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

### 1.3 Glossary

Acronym	Definition
DCR	Distributed Curtailment Resource
DER	Distributed Energy Resource
DERA	Distributed Energy Resource Aggregation (wholly comprised of underlying DER)
DERP	Distributed Energy Resource Provider
GDF	<p>Generation Distribution Factor.</p> <p>At an aggregate DERA or HDERA resource level, GDFs define the ratio of distribution in generation output and LMP composition across more than one pricing node (“PNode”) in the market.</p> <p>At the resource level, the sum of each GDF should equal to 1 (or 100%).</p>
HDERA	<p>Heterogeneous DERA (partially or wholly comprised of underlying DCR)</p> <p>Note the term “heterogeneous” in this context describes the <i>capability</i> of the aggregate to support both DCR and DER underlying resources. At least one of the underlying resources must be DCR; underlying DER resources are also allowed.</p>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

Acronym	Definition
LOCATIONS	<p>Locations define the geographical placement of an HDERA or DERA resource’s underlying DCRs (and optionally DERs). Location definitions are specific to Attachment A of the UDC Concurrence Letter that will be submitted by the DERP to the ISO as part of the interconnection request.</p> <p>In terms of <i>market locations</i>, where the distributed resources are located in the market model, Attachment A locations each will need to associate with a pricing nodes (“PNode”). It’s possible the total number of DCR/DER locations associate with a single PNode, or are distributed across multiple PNodes.</p> <p>During the NRI process, the DERP/SC will designate whether these distributions are modeled as either ‘Pre-Defined’ PNodes of the shared SubLAP (which will use default PNodes and GDFs and do not need to be specified), or “Customized” PNode/GDF associations defined by the DERP/SC.</p> <p>As with the ‘Pre-Defined’ option, all “Customized” PNodes must reside within the same SubLAP AND all defined GDFs must sum to a value of 1 (or 100%).</p>
MF	Master File
MRI-S	Market Results Interface – Settlements
NBT	Net Benefits Testing
NGR	Non-Generating Resource
NREM	Non-Regulation Energy Management, where resource does not perform Regulation Energy Management in the Real-Time Market.
NRI	New Resource Interconnection
PNODE	<p>Pricing Node.</p> <p>HDERA aggregate resources will associate to one-to-many PNodes, where each PNode may support one-to-many underlying DCR or DER Locations (at least one DCR is mandatory). Each PNode has a GDF associated with it at the HDERA/DERA resource level, which must some up in total to 1 (or 100%).</p>
RDT	Resource Data Template

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

Acronym	Definition
RIMS	Resource Interconnection Management System
SC	Scheduling Coordinator
SCME	Scheduling Coordinator Meter Entity HDERA resources will require the SC entity submitting metering data to register as an SCME.
UDC	Utility Distribution Company


## 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 performed, the business owner of the project must determine Intellectual Property Ownership.

### 2.1 Guidelines


All information in this document is the Intellectual Property of the California ISO (copyright, trademark, patent, design, and/or methodologies).

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## 3 Details of Business Need/Problem

### 3.1 Description


<b>Business Opportunity/Problem Statement:</b>	
<b>What:</b>	<p>The proposed changes amend the CAISO’s Tariff to comply with FERC Order 2222. FERC Order 2222 requires that all RTOs/ISOs allow for Distributed Curtailment Resources (DCRs) that can provide a minimum qualified aggregate Pmax value of at least 100kW to participate in all markets. The CAISO already allows for DER participation but will have to make some adjustments to ensure compliance with FERC 2222.</p> <p><b>Key Notes:</b></p> <ul style="list-style-type: none"> <li>- Reduces DERA and HDERA minimum participation capacity to 100kW</li> <li>- Introduction of HDERA Resource, aggregate with underlying DCR</li> <li>- Settlements for HDERAs</li> <li>- Same Net Benefits testing as PDR for HDERAs</li> </ul>
<b>When:</b>	Fall 2024 (November 1) – Independent Release
<b>Why do we have this opportunity/problem:</b>	FERC Mandate

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>


## 4 Business Impacts

### 4.1 Business Practice Manuals (BPM)

BPM	Description of Impact(s)
<b>Definitions and Acronyms</b>	<b>Yes:</b> Include HDERA, DCR terms
<b>Demand Response</b>	<b>Yes:</b> Elaboration of net benefit testing
<b>Distributed Generation for Deliverability</b>	<b>Yes:</b> Addition of the HDERA resource type.
<b>Generator Management</b>	<b>Yes:</b> Inclusion of DCR in DERPAs, Schedule 1, and Concurrence Letter A template (add HDERA language)
<b>Market Instruments</b>	<b>Yes:</b> Revision to minimum allowed Pmax limit; and HDERA (aggregate includes both DER and DCR child units, models as an aggregate generic NGR, bids have NBT applied, may submit GDFs with bids else default used)
<b>Market Operations</b>	<b>Yes:</b> Revision to minimum allowed Pmax limit; and HDERA (aggregate includes both DER and DCR child units, models as an aggregate generic NGR, bids have NBT applied, may submit GDFs with bids else default used)
<b>Metering</b>	<b>Yes:</b> New HDERA resource type includes net energy meter submission for DERA, as well as monitoring requirement data from DCR and underlying consumption/energy data used with metering basis for baseline determination); HDERA monitoring
<b>Settlements and Billing</b>	<b>Yes:</b> Impacts on settlements for HDERAs
<b>Scheduling Coordinator Certification and Termination</b>	Not Impacted
<b>BPM Change Management</b>	Not Impacted
<b>Candidate CRR Holder Registration</b>	Not Impacted
<b>Compliance Monitoring</b>	Not Impacted
<b>Congestion Revenue Rights</b>	Not Impacted
<b>Credit Management and Market Clearing</b>	Not Impacted
<b>Direct Telemetry</b>	Not Impacted
<b>Energy Imbalance Market (EIM)</b>	Not Impacted


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

<b>BPM</b>	<b>Description of Impact(s)</b>
<b>Generator Interconnection and Deliverability Allocation Procedures</b>	Not Impacted
<b>Generator Interconnection Procedure (GIP)</b>	Not Impacted
<b>Managing Full Network Model</b>	Not Impacted
<b>Outage Management</b>	Not Impacted
<b>Reliability Coordinator Services</b>	Not Impacted
<b>Reliability Requirements</b>	Not Impacted
<b>Rules of Conduct Administration</b>	Not Impacted
<b>Transmission Planning Process</b>	Not Impacted

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## 4.2 Other

<b>Impact</b>	<b>Description (optional)</b>
<b>Market Simulation</b>	Yes. Unstructured Scenarios
<b>Market Participant Impact</b>	Yes
<b>User Acceptance Testing (UAT)</b>	Yes
<b>Customer Readiness Impact</b>	Yes
<b>External Communication Needed</b>	Yes. For new resource types.
<b>External Onboarding and Maintenance</b>	No
<b>External Training</b>	Yes
<b>External Computer Based Training</b>	No
<b>Policy Initiative</b>	Yes
<b>Development/Vendor</b>	Yes

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## 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: Strategic Client Account Management – RIMs

#### 5.1.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ018	<p>To initiate a new Distributed Energy Resource Provider Agreement (DERPA), the Distributed Energy Resource Provider (DERP) must download the <a href="#">DERPA Information Request Sheet and the DERP UDC/MSS Concurrence letter template from the CAISO web site</a> (look in Pro Forma Agreements group).</p> <p>Attachment A of the Concurrence Letter template will be amended to include DCR information, in similar manner as DER, as well as the baseline methodology type (which include same baseline methods defined in the Demand Response BPM, Section 5).</p>	Process  Tariff § 4.17.7	RIMS




 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ009	<p>User shall provide the following associated resource data through the Project Details Form at the resource level for upload to system:</p> <ol style="list-style-type: none"> <li>1. Distributed Resource Type, one of the following options (required)               <ul style="list-style-type: none"> <li>• 'HDERA (contains some/all DCR)'</li> <li>• 'DERA (only contains DER)'</li> </ul> </li> <li>2. Baseline Methodology (required for HDERA only)               <ul style="list-style-type: none"> <li>• Only applies to HDERA resources (not DERA)</li> <li>• System drop-down would allow selection from any of the methodologies defined in Section 4.13.4 of the ISO Tariff (also referenced in Demand Response BPM Section 5); see <i>Appendix A of the BRS</i></li> </ul> </li> <li>3. SubLAP (required)               <ul style="list-style-type: none"> <li>• All underlying locations must be associated within the same SubLAP</li> </ul> </li> <li>4. 'Pre-Defined' vs 'Customized' PNode/GDF Option (see glossary for 'PNode' and 'GDF' to see how relates to Locations provided in Concurrence Letter Attachment A)               <ul style="list-style-type: none"> <li>• If PNode(s) are 'Pre-Defined', system will note setting only (ISO will apply default PNode and GDF pairings during the Master File GRDT creation process)</li> <li>• If PNode(s) are 'Customized', DERP/SC must specify all PNode Names associated with the resource, each PNode with an associated GDF</li> </ul> </li> </ol> <p><u>Note to users regarding their submissions:</u></p> <ul style="list-style-type: none"> <li>• Total sum of resource's GDFs must equal to 1; All Custom PNodes must share same SubLAP</li> </ul>	Core  Tariff § 4.17.7	RIMS



ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ004	<p>System shall validate each DERA and HDERA aggregate resource has a maximum Nameplate MW <math>\geq</math> 0.1 MW:</p> <ul style="list-style-type: none"> <li>error message shall be displayed yellow banner while value is invalid</li> </ul> <p>The maximum capacity value may not be saved until a valid setting is submitted or submission is cancelled</p>	<p>Tariff Core</p> <p>Tariff § 4.6.3.2 (existing)</p> <p>Appdx K: A 1.1 B 1.1 C 1.1 (existing)</p>	RIMS
FERC2222-BRQ012	<p>If any of the required fields are not populated/selected in FERC2222-BRQ009, system shall not allow the user to save changes, and will post relevant fail errors in the user display's yellow banner.</p>	<p>Core</p> <p>Tariff § 4.17.7</p>	RIMS
FERC2222-BRQ010	<p>All HDERA SCMEs submitting resource-level Baseline Methodologies in the Project Details display form must receive ISO approval of their selected baseline methodology prior to uploading to Master File.</p>	<p>Process</p> <p>Tariff § 4.17.7</p>	N/A
FERC2222-BRQ021	<p>If the DERP/SC wishes to modify any of the technical details of an existing HDERA resource (such as new/removed underlying locations, modified maximum capacity amount, new baseline methodology, change in resource SC, etc.), changes may only be processed by initiating the concurrence submission process, where updated data is provided to the ISO as in FERC2222-BRQ018.</p> <p>If the updated resource's technical characteristics no longer support HDERA qualification (e.g. no underlying DCR resources are present or the aggregate max capacity of the resource falls below 100 kW), the resource technical data must be updated accordingly by the DERP/SC.</p>	<p>Process</p> <p>Tariff § 4.17.7</p>	N/A

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## 5.2 Business Process: Manage Resource Implementation – Master File

### 5.2.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ112	<p>System shall only receive DERA and HDERA resource attributes through the existing New Resource Implementation (NRI) process as defined in FERC2222-BRQ018 and FERC2222-BRQ009.</p> <p>DERA/HDERA resource data modifications (e.g. changes to Baseline Methodology, GDF, DCR/DER locations, etc.) must also follow the same process.</p> <p>Any submission of DERA and HDERA Master File data will be rejected through the following processes to comply with required approvals, agreements necessary for HDERA/DERA registration:</p> <ul style="list-style-type: none"> <li>• Master File GRDT xls template</li> <li>• Master File submitGeneratorRDT API service</li> </ul>	<p>Core</p> <p>Tariff</p> <p>§ 4.17.7</p>	Master File
FERC2222-BRQ001	<p>System shall provide a read-only indicator determining whether resources are DERA, HDERA, or neither.</p> <p>Attribute flag will be HDERA_YN, wherein:</p> <ul style="list-style-type: none"> <li>• If flag = N, the resource type is DERA</li> <li>• If flag = Y, the resource type is HDERA</li> <li>• If flag is null, the resource is not DERA or HDERA</li> </ul>	<p>Core</p> <p>Tariff</p> <p>§ 4.17.7</p>	<p>Master File</p> <p>MFRD</p>




ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ002	<p>System shall model DERA/HDERA resources as generic NGR (non-generating resource), such that:</p> <ul style="list-style-type: none"> <li>Entity Type = 'GNRC' (Generic)</li> <li>Sub-Entity Type = 'NREM' (non-Regulation Energy Management)</li> </ul> <p><u>Implementation Note:</u> Master File associates the data above with the following GeneratorRDT_v6 schema elements:</p> <ul style="list-style-type: none"> <li>/RegisteredGenerator/fuelSource (= 'GNRC')</li> <li>/RegisteredGenerator/REMFlag (= 'NO')</li> </ul>	<p>Core</p> <p>Tariff § 4.17.7</p>	<p>Master File</p>
FERC2222-BRQ003	<p>System shall indicate the assigned baseline methodology used for HDERA resources.</p> <p>Baseline methodology will be uploaded to Master File through the NRI process once the methodology is approved for the resource.</p> <p>HDERA data will be read-only in both the Generator Resource Data Template (GRDT) and submitResourceGRDT web service.</p> <p><u>Implementation Notes:</u></p> <ul style="list-style-type: none"> <li>The same baseline methodologies may apply for DR or HDERA resources, as provided in Section 5 of the Demand Response BPM</li> </ul>	<p>Core</p> <p>Tariff § 11.6.5.1</p>	<p>Master File</p>



ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ110	<p>System shall define the default GDFs (Generation Distribution Factors) that apply to the HDERA/DERA aggregates.</p> <p>Default GDF will be designated for the DERA and HDERA resources during the NRI process, and will be read-only in the Generator Resource Data Template (GRDT) and submitResourceGRDT web service.</p> <p>Only a single GDF is allowed per PNode, and is used by default if new resource-level GDFs are not submitted with hourly/daily IFM/RTM bids in SIBR.</p>	<p>Existing</p> <p>Tariff § 4.17.7 § 30.5.2.6</p>	<p>Master File</p>
FERC2222-BRQ106	<p>System shall validate the following when receiving input of DERA/HDERA records:</p> <ul style="list-style-type: none"> <li>Each DERA and HDERA resource must have a Pmax greater or equal than 100 kW in aggregate</li> </ul>	<p>Tariff Core</p> <p>Tariff § 4.6.3.2 (existing)</p> <p>Appdx K: A 1.1 B 1.1 C 1.1 (existing)</p>	<p>Master File</p>




ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ101	<p>System shall publish the following DERA/HDERA resource attributes to downstream systems, as applicable.</p> <p>Resource data may include (but is not limited to):</p> <ul style="list-style-type: none"> <li>• Scheduling Coordinator ID</li> <li>• Resource ID</li> <li>• HDERA_YN flag</li> <li>• Baseline Methodology</li> <li>• PNode(s)</li> <li>• Default GDF(s)</li> <li>• SubLAP</li> </ul>	<p>Core</p> <p>Tariff § 4.17.7</p>	<p>Master File</p>
FERC2222-BRQ115	<p>System shall display DERA/HDERA resource attributes (HDERA_YN flag, Baseline Methodology) within the Generator Resource Data Template spreadsheet.</p> <p>DERA and HDERA resource attributes will be read-only in the template and may only be submitted to the Master File through the NRI process.</p>	<p>Core</p> <p>Tariff § 4.17.7 § 11.6.5.1</p>	<p>MFRD</p>
FERC2222-BRQ119	<p>System shall publish DERA/HDERA resource attributes as defined in FERC2222-BRQ101 (including HDERA_YN flag, Baseline Methodology) for private consumption by its associated SC via the Generator RDT web service.</p> <p>DERA and HDERA resource attributes will apply to retrieve services only, and have submissions and may only be submitted to the Master File via the NRI process.</p>	<p>Core</p> <p>Tariff § 4.17.7 § 11.6.5.1</p>	<p>MFRD</p>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

### 5.3 Business Process: Manage DAM (MMG LII) Manage RTM – SIBR

#### 5.3.1 Business Requirements: SIBR Enhancements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ006	System shall consume all applicable HDERA resource attributes and identify resources as the HDERA resource type if its Master File attribute HDERA_YN = 'Y'.	Core  Tariff § 4.17.7 § 30.5.2.6	SIBR
FERC2222-BRQ005	System shall apply the Net Benefit Test to all HDERA resource bid submissions using the same price threshold as for PDRs.	Core  Tariff § 30.5.2.6	SIBR
FERC2222-BRQ116	System UI shall accept DERA/HDERA resource GDF with hourly/daily bid submission from its associated SC.  Only one set of GDFs may be submitted for a given hour. If no GDFs are submitted, default Master File GDFs shall apply.	Existing  Tariff § 11.6.5.1	SIBR


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## 5.4 Business Process: Post Process and Market Billing and Settlements – MRI-S

### 5.4.1 Business Requirements: MRI-S Enhancements


ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ099	<p>System shall consume the Master File HDERA_YN flag (see FERC2222-BRQ001 for flag options) and resource attributes (as defined in FERC2222-BRQ101), and correctly identify/process DERA, HDERA, or non-DERA resource types, as appropriate.</p>	<p>Core</p> <p>Tariff § 4.17.7 § 11.6.5.1 § 30.5.2.6</p>	MRI-S
FERC2222-BRQ007	<p>System shall receive the following HDERA resource <i>metering measurement data</i> from its associated SCME:</p> <ol style="list-style-type: none"> <li>1. Net energy from the DER Resource</li> </ol> <p>System shall receive the following HDERA resource <i>monitoring measurement data</i> from its associated SCME:</p> <ol style="list-style-type: none"> <li>1. Demand curtailment provided by DCRs</li> <li>2. Customer Load Baseline or Generator Output Baseline used to calculate the demand curtailment for the DCR</li> <li>3. Actual underlying consumption or energy during all hourly intervals for the calendar days for which the Meter Data was collected to develop the baseline.</li> </ol>	<p>Core</p> <p>Tariff § 11.6.5.1</p>	MRI-S Metering



 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

#### 5.4.2 Business Requirements: Settlements Enhancements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
FERC2222-BRQ008	<p>System shall perform Settlement of HDERA resources as a generic NGR NREM resource.</p> <p>HDERA settlement energy quantity shall be determined as the aggregate sum of net energy provided by the DERs (accounting for Load and any negative energy) and DCRs (demand curtailment represented as positive supply).</p> <p>See sample HDERA representation in Appendix A.</p> <p>DCRs shall participate in generation measurement for settlements.</p>	Core  Tariff § 11.6.5.1	Settlements


 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## 5.5 Business Process: Market/Business Simulation

This section shall provide a basis for the development of the Market/Business Simulation Scenarios. These requirements will provide guidance on the market participant impacts, inputs into the Scenarios, endpoints to the Scenarios and reasons for potential Scenarios.


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)
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).

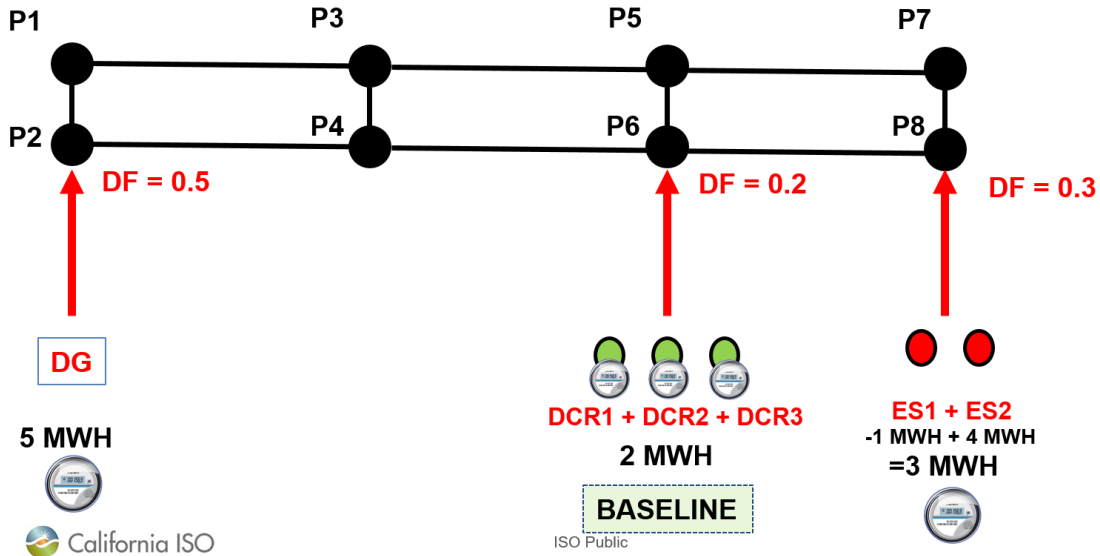
 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>


**5.5.1 Business Requirements**

<b>ID#</b>	<b>Guidance on Market Participant Impacts</b>	<b>Source System</b>	<b>Sink System</b>	<b>Reason for Potential Scenario</b>
FERC2222-MKTSIM-001	<p>Unstructured Testing.</p> <p>SIBR, MFRD, MRI-S enhancements will be made available if a market participant wants to test the HDERA resource type.</p> <p>Unstructured testing requires participant has at least one HDERA and one DERA resource set up in Master File for:</p> <ul style="list-style-type: none"> <li>• MFRD web service data retrieval</li> <li>• SIBR NBT process (HDERA only), GDF submission with bids</li> <li>• MRI-S meter and (for HDERA only) monitor measurement data submission</li> </ul>	SC	RIMS MFRD MRI-S Settlements SIBR	<ul style="list-style-type: none"> <li>• Interface Changes</li> <li>• New/Modified Model Data</li> <li>• New system process</li> </ul>

 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## Appendix A: HDERA Composition Example



 <b>California ISO</b>	<b>Technology</b>	<b>Template Version:</b>	<b>6.1</b>
		<b>Document Version:</b>	<b>1.2</b>
<b>FERC Order 2222 Business Requirements Specification - Planning</b>		<b>Date Created:</b>	<b>5/21/2024</b>

## Appendix B: Listing of Valid Base Methodologies

Pursuant to Section 4.13.4 of the tariff, the following PEMs will be available for request:

- Weather Matching
- Control Group
- Day Matching 10-in-10
- Day Matching 5-in-10 (residential only)
- Day Matching Combined
- Meter Generator Output
- Meter Generation Output with Day Matching 5-in-10
- Meter Generation Output with Day Matching 10-in-10
- Meter Generation Output with Day Matching Combined
- Meter Generation Output with Weather Matching
- Electric Vehicle Supply Equipment (EVSE) non-residential
- Electric Vehicle Supply Equipment (EVSE) non-residential with Day Matching 10-in-10
- Electric Vehicle Supply Equipment (EVSE) non-residential with Day Matching Combined
- Electric Vehicle Supply Equipment (EVSE) non-residential with Weather Matching
- Electric Vehicle Supply Equipment (EVSE) residential
- Electric Vehicle Supply Equipment (EVSE) residential with Day Matching 5-in-10
- Electric Vehicle Supply Equipment (EVSE) residential with Day Matching 10-in-10
- Electric Vehicle Supply Equipment (EVSE) residential with Day Matching Combined
- Electric Vehicle Supply Equipment (EVSE) residential with Weather Matching
- PDR-LSR
- PDR-LSR with Day Matching 5-in-10
- PDR-LSR with Day Matching 10-in-10
- PDR-LSR with Day Matching Combined
- PDR-LSR with Weather Matching