Business Requirements Specification

Reliability Demand Response Resource Bidding Enhancements – Track-2

Document Version: 1.1

Current Version Date: 10/12/2022

Revision History

Date	Version	Description
6/21/2022	1.0	Initial Document Release.

10/12/2022	1.1	• Section 1.3 (Overview & Scope)
		   o Replace 0.1 MW with configurable value MW.
		• RDRRBE2-BRQ-04020
		   o Deleted since this requirement is already implied by RDRRBE2-BRQ-04040.
		• RDRRBE2-BRQ-04040
		   o Remove 0.1 MW.
		• Appendix-B: Formulas, Calculation Details, and Examples
		   o Replace 0.1 MW with configurable value MW.

Table of Contents

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 initiative is to better reflect Reliability Demand Response Resources' (RDRR) operational capabilities in the market via select enhancements to real-time bidding for discrete RDRRs.

1.2 Conventions

- None

1.3 Overview and Scope

Market enhancements to real-time bidding for discrete RDRR

- **Infeasible Discrete RDRR RT Dispatch via Pmin Re-Rate**
    - Addressing dispatch to a Pmin of zero to recognize known discrete RDRR operational capabilities.
    - It is achieved via automatically adjusting discrete RDRRs' Pmin re-rate to a value just below the resource's Upper Economic Limit (UEL).
    - A formula will be used to represent to the market the resource's Minimum Load Cost (MLC).
    - This ensures the resource is not viewed as "free" by the market, which will help ensure feasible dispatches.
    - This adjustment will occur after the DAM.
    - This enhancement will not require any action from Discrete RDRRs' SCs.

- **Discrete RDRR Cap Increase**
  - Increase the discrete RDRR registration cap from 50 MW to 100 MW.
  - Allow for exceptions above 100 MW cap.
  - Any exception above the cap would require the discrete RDRR to attest that:
    - It cannot be operationally or safely split,
    - It cannot operate continuously based on the source of load providing curtailment,
    - It is located at a single site (not an aggregated resource),
    - It indicates the type of load or technology providing load curtailment during RDRR events.
  - These exceptions will be reviewed by the CAISO in context of existing market and operational conditions to ensure safety and reliability.
  - This enhancement is contingent on the Pmin re-rate functionality being implemented.

	Discrete RDRR		Continuous RDRR
	Current	**Proposed**	**No Change to Current**
Sizing Cap	Pmax <= Discrete Resource Bid Cap (50 MW).	Pmax <= Discrete Resource Bid Cap (100 MW), or has approved exception by CAISO.	No cap on its size.
Pmin	Must be registered at zero.	• Still must be registered at zero. • Dynamic re-rated Pmin (UEL- configurable value MW) within the market system.	Same as any other supply resources.
MLC	Inputs must be registered at zero.	• Inputs must still be registered at zero; • Dynamic calculated MLC = One-segment Bid Price * Pmin Re-rate within the market system.	Same as any other supply resources.
Number of Bid Segments	Only one-segment bid.		Same as any other supply resources.

	Discrete RDRR		Continuous RDRR
	Current	**Proposed**	**No Change to Current**
DAM Participation	None		Full participation.
RTM Participation	• RT Self-schedules not applicable; • RT economic energy bids available to market after EEA2 declaration.		• DA market awarded energy available prior to EEA2 declaration. • RT Self-schedules not applicable; • RT economic energy bids available to market after EEA2 declaration.
Dispatch	When committed, will be dispatched either to its UEL or its zero registered Pmin.	When committed, will be dispatched either to its UEL or re-rated Pmin (configurable value MW apart).	Can operate anywhere between its Pmin and Pmax, based on the cleared bid quantity.
BCR	When dispatched, may qualify for Bid cost and zero registered MLC.	When dispatched, may qualify for Bid cost and dynamically calculated MLC passed from the market system.	Same as any other supply resources.

Notes

• RDRR resource may update its RDRR designation (Discrete or Continuous), once per RDRR season.

2 Acronym and Terms Definitions

Refer to **Appendix-A – Acronym Definition**

3 Details of Business Need/Problem

3.1 Description

Business Opportunity/Problem Statement:	

What	• **Track-2**
	   o Better reflect Reliability Demand Response Resources' (RDRR) operational capabilities in the market via select enhancements to real-time bidding for discrete RDRRs
	      o Infeasible Discrete RDRR RT Dispatch via Pmin Re-Rate
	      o Discrete RDRR Cap Increase

When	• Policy changes that require tariff amendments must receive WEIM governing body approval and Board approval. • Implementation of Track-2 scope is expected by **Fall 2022**.
Why do we have this opportunity/problem	The CAISO and stakeholders reviewed several potential changes in the recent Market Enhancements for Summer 2021 Readiness initiative. This initiative's goal is to continue reviewing potential enhancements to better reflect RDRR operational capabilities in the market.
Who does this opportunity/problem impact	• Real-Time Operations • MAF • Market Participants • Customer Service • Policy • Legal

4 Business Impacts

4.1 Business Practice Manual (BPM)

BPM	Description of Impact(s)
Demand Response	• Document process of submission and approval of discrete RDRR 100 MW exception.
Market Instruments	• Document MF Changes
Market Operations	• Document RTM Changes
Settlements and Billing	• Documentation-Only Impact

4.2   Other

Impact	Description (optional)
Market Simulation	Yes
Market Participant Impact	Changes to SCs of RDRR: • Attestations/Affidavit Submissions • CMRI Expected Energy, Expected Energy Allocation Details, and ISO Commitment Cost Details reports data changes • Settlements BCR data Changes
External Bid Publication	N/A
Customer Readiness Impact	
• **External Communication Needed**	Yes
• **External Onboarding and Maintenance**	Yes
• **External Training**	Yes
• **External Computer Based Training**	Yes
Policy Initiative	Yes
Tariff Modifications	Yes

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: Resource Management

5.1.1 Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RDRRBE2-BRQ-01020	**Increase Discrete RDRR Registration Cap from 50 MW to 100 MW** Discrete RDRR registration cap shall be set to 100 MW. **Note:** • This enhancement is contingent on the Pmin re-rate functionality being implemented.	**Business Process**	• MF
RDRRBE2-BRQ-01040	**Submission Requests for Exception above 100 MW Discrete RDRR Registration Cap by Discrete RDRR's SC** Each SC of a discrete RDRR that is seeking an exception to the 100 MW discrete cap shall notify CAISO with its intent and sign an attestation that states: • It cannot be operationally or safely split, • It cannot operate continuously based on the source of load providing curtailment, • It is located at a single site (not an aggregated resource), • It indicates the type of load or technology providing load curtailment during RDRR events. **Notes** • The submission request mechanism will be via CIDI. • The process and draft attestation will be described in Demand Response BPM.	**Business Process**	• CIDI
RDRRBE2-BRQ-01060	**CAISO Review of Submitted (or Re-Submitted) Requests for Exception above 100 MW Discrete RDRR Registration Cap** • CAISO business units shall review submitted (or re-submitted) requests for exceptions above 100 MW discrete RDRR registration cap in context of existing market and operational conditions to ensure safety and reliability. • CAISO business units shall notify SCs of discrete RDRRs, who submitted requests for exceptions above 100 MW	**Business Process**	• CIDI

Copyright 2022 California ISO

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	discrete RDRR registration cap, whether their requests have been approved. • At CAISO's discretion, CAISO business units shall have the capability to re-evaluate the impact of the approved exceptions on safety and reliability of the market and operational condition and take necessary actions to address them, including reversing a previously approved decision, if warranted. **Notes** • Details of this business process shall be outlined in the Demand Response BPM. • The approval notification mechanism will be via CIDI.		

RDRRBE2-BRQ-01080	**Re-Submission Requests for Exception above 100 MW Discrete RDRR Registration Cap by Discrete RDRR's SC**
	
	Each SC of a discrete RDRR that has been previously approved for exception to the 100 MW discrete cap shall be required to re-submit its request to CAISO if ANY of the following conditions are met:
	
	• Any changes to most recent previously attested conditions.
	• The Discrete RDRR Max MW Capacity increased by more than 50 MW (configurable).
	
	Examples
	
	    • Approved RDRR resource with approved 110 MW exception has its size changed.
	    • *Acceptable size that does not require re-submission of request of exception:*
	        o *<= 110 + 50*
	        o *<= 160 MW*
	
	| New RDRR Pmax Size
		Required to Re-Submit Request for Exception? |
		|---|---|
		| 90 | N |
		| 130 | N |
			Business Process	• CIDI

ID#	Business Feature				Requirement Type	Potential Application(s) Impacted
		160	N			
		170	Y			
		200	Y			
	Notes • The re-submission request mechanism will be via CIDI. • The process will be described in Demand Response BPM.					
RDRRBE2-BRQ-01100	**Definition of MF Fields to Track CAISO's Approval of the Submitted Requests for Exception above 100 MW Registration Cap** System shall be updated to define fields(s) for each discrete RDRR to indicate whether their submitted request for an exception above the 100 MW registration cap have been approved by CAISO and track the effective date of that approval.				Core	• MF
RDRRBE2-BRQ-01120	**Exclude Approved Discrete RDRRs from the 100 MW Discrete RDRR Registration Cap** System shall set cap of 100 MW unless discrete RDRRs have received approved exceptions from CAISO.				Core	• MF

5.2 Business Process: Manage RTM

- **Manage Real Time Operations**

5.2.1   Business Requirements

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
RDRRBE2-BRQ-04040	**Automatic Adjustment of Pmin-Re-rate of Discrete RDRRs** System shall automatically adjust discrete RDRRs' Pmin to a user-configurable value below the resource's Upper Economic Limit (UEL). Mathematically, - Pmin Re-Rate = UEL – Configurable Parameter **Note:** - System shall make use of the Pmin re-rate functionality, triggered whenever a discrete RDRR submits a bid. - Refer to **Examples** in **Appendix-B: Formulas, Calculation Details, and Examples** - The purpose of this enhancement is to recognize known discrete RDRR operational capabilities by addressing infeasible zero Pmin dispatch of discrete RDRRs. - This enhancement will not require any action from discrete RDRRs' SCs.	Core	• RTM
RDRRBE2-BRQ-04060	**Automatic Adjustment of MLC of Discrete RDRRs** System shall automatically calculate discrete RDRRs' market MLC using the following formula: - Adjusted MLC = Original MLC + (One-Segment Bid Price) * (Pmin Re-rate) **Note:** - System shall make use of the Pmin re-rate functionality, but calculate the adjusted MLC using the bid from the discrete RDRR. - Refer to **Examples** in **Appendix-B: Formulas, Calculation Details, and Examples** - Original MLC value is assumed to be zero for discrete RDRRs (as registered in MF). - The purpose of this enhancement is to ensure the discrete RDRRs are not viewed as "free" by the market, which will help ensure feasible dispatches.	Core	• RTM

ID#	Business Feature	Requirement Type	Potential Application(s) Impacted
	• This enhancement will not require any action from Discrete RDRRs' SCs.		

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

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

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 a WEIM entity or market participant organization (e.g., Load Serving Entity (LSE) as a Local Regulatory Authority (LRA) role). Scenarios are beneficial for market participants taking on a new function or process within their organization.

5.3.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
RDRRBE2-MSIM-10020	**Submit Competitive Bids by Discrete RDRRs' SCs** • Set up a scenario where: ○ SCs of the discrete RDRRs submit competitive bids.	• SIBR	• ADS • CMRI • MRI-S [Settlements]	1. Rule Impact 5. New/Modified model data

ID#	Guidance on Market Participant Impacts	Source System	Sink System	Reason for Potential Scenario
	o CAISO Operators declare EEA2 stage where discrete RDRRs are dispatched. • Follow the results in the sink systems to verify commitment, dispatch, and settlements of discrete RDRRs.			

6 Appendices

6.1 Appendix-A – Acronym Definition

Acronym	Definition
A2A	Application-to-Application
ABC	Available Balancing Capacity
ACL	Access Control List
ADS	Automatic Dispatch System
AGC	Automatic Generation Control
AIM	Access and Identity Management
ALFS	Automated Load Forecast System
Anode	Aggregate Node
API	Application Program Interface
Apnode	Aggregate Pricing Node
AS	Ancillary Services
AUX	Auxiliary
B2B	Business-to-Business
BA	Business Analyst
BAA	Balancing Authority Area
BAAOP	Balancing Authority Area Operations Portal
BCR	Bid Cost Recovery
BPM	Business Process Manual
BRS	Business Requirement Specifications
BSAP	Base Schedule Aggregation Portal

Acronym	Definition
BSC	Base Schedule Coordinator
BSSD	(WEIM) Base Schedule Submission Deadline
CAISO	California Independent System Operator
CB	Convergence Bidding
CC	Commitment Cost
CCDEBE	Commitment Costs and Default Energy Bid Enhancements
CDN	Conformed Dispatch Notice
CIDI	Customer Inquiry, Dispute and Information
CIM	Common Information Model
CIP	Critical Infrastructure Protection
CIRA	Customer Interface for Resource Adequacy
CISO	California Independent System Operator
CLAP	Custom Load Aggregation Point
CMRI	Customer Market Results Interface
Cnode	Connectivity Node
COG	Constrained-Output Generator
CPM	Capacity Procurement Mechanism
CRN	Contract Reference Number
CRR	Congestion Revenue Rights
CRRS	Congestion Revenue Rights Settlements (aka CRR Clawback system)
CSS	Critical Systems Support

Acronym	Definition
DA	Day-Ahead
DACA	Day-Ahead Contingency Analysis
DAM	Day-Ahead Market
DART	Day-Ahead Reliability Tool
DCPA	Dynamic Competitive Path Assessment
DEB	Default Energy Bid
DER	Distributed Energy Resource
DCC	Default Commitment Cost
DGAP	Default Generation Aggregation Point
DMLC	Default Minimum Load Cost
DMM	Department of Market Monitoring
DOP	Dispatch Operating Point
DOT	Dispatch Operating Target
DR	Demand Response
DRP	Demand Response Program
DSA	Dynamic Stability Analysis
DSTC	Default State Transition Cost
DSUC	Default Start Up Cost
ECIC	Energy Costs and Index Calculator
ED	Exceptional Dispatch
EDAM	Extended Day-Ahead Market

Acronym	Definition
EDR	Enterprise Data Repository
EE	Expected Energy
EEA	Expected Energy Allocation
EEA	Energy Emergency Alert
EEA2	Energy Emergency Alert Stage-2
EESC	Energy Imbalance Market Entity Scheduling Coordinator
EFC	Effective Flexible Capacity
EMM	Enterprise Model Management
EMMS	Enterprise Model Management System
EMNA	Energy Management Network Application
EMS	Energy Management System
EPI	Electricity Price Index
ESP	Electronic Security Perimeter
ETC	Existing Transmission Contract
ETSR	Energy Transfer System Resources
FERC	Federal Energy Regulatory Commission
FMCA	Fifteen-Minute Contingency Analysis
FMM	Fifteen-Minute Market
FMU	Frequently Mitigated Unit
FNM	Full Network Model
FODD	FERC Outgoing Data Depository

Acronym	Definition
FRCT	Forbidden Region Crossing Time
FRD	Flexible Ramp Down
FRU	Flexible Ramp Up
GDF	Generation Distribution Factor
GHG	Green House Gas
GIP	Generator Interconnection Procedure
GMC	Grid Management Charge
GPI	Gas Price Index
GRDT	Generator Resource Data Template
GUI	Graphical User Interface
HASP	Hour-Ahead Scheduling Process
HAVGC	Heat Average Cost (for non-gas resources)
HR	Heat Rate
ICE	InterContinental Exchange
ICM	Infrastructure Contracts and Management
ID	Identifier
IFM	Integrated Forward Market
ISL	Intertie Scheduling Limit
ISO	California Independent System Operator
IOOC	Integrated Optimal Outage Coordination
IT	Information Technology

Acronym	Definition
ITC	Inter-Tie Constraint
ITPD	Information Technology Product Development
ITS	Interchange Transaction Scheduler
ITSM	Information Technology Service Management
JOU	Joint Owned Unit
LACA	Look-Ahead Contingency Analysis
LAP	Load Aggregation Point
LDF	Load Distribution Factor
LEL	Lower Economic Limit
LFR	Lower Forbidden Region
LF	Load Forecast
LMP	Locational Marginal Price
LMPM	Locational Market Power Mitigation
LOL	Lower Operating Limit
LRA	*Local Regulatory Authority*
LRL	Lower Regulation Limit
LSE	Load Serving Entity
LTCA	Long-Term Contingency Analysis
MCI	Model and Contract Implementation
MD	Manual Dispatch
MDT	Minimum Down Time

Acronym	Definition
MDUT	Maximum Daily Up Time
MDS	Maximum Daily Startups
MF	Master File
MIBP	Maximum Import Bid Price
MLAC	Minimum Load Average Cost
MLC	Minimum Load Cost
MLHAVGC	Minimum Load Heat Average Cost (for non-gas resources)
MLHR	Minimum Load Heat Rate
MMA	Major Maintenance Adder
MMAMLC	Major Maintenance Adder for Minimum Load Cost
MMASUC	Major Maintenance Adder for Start Up Cost
MMASTC	Major Maintenance Adder for MSG State Transition Cost
MMG	Manage Markets & Grid
MMR	Manage Market & Reliability
MOS	Manage Operations Support & Settlements
MPM	market Power Mitigation
MQS	Market Quality System
MRID	Master Resource IDentifier
MRI-S	Market Results Interface – Settlements
MSSA	Metered Sub System Agreement
MSG	Multi-Stage Generator

Acronym	Definition
MUT	Minimum Up Time
MV&A	Market Validation & Analysis
MVT	Market Validation Tool
N/A	Not Applicable
NA	Network Application
NDEB	Negotiated Default Energy Bid
NGR	Non-Generating Resource
NM	Network Model
NQC	Net Qualifying Capacity
OASIS	Open Access Same-time information System
OATI	Open Access Technology International
OC	Opportunity Cost
OCC	Opportunity Cost Calculator
ODCP	On Demand Capacity Procurement
OES	Operations Engineering Services
OMS	Outage Management System
OOM	Out Of Market
OTS	Operations Training Simulator
PAM	Program and Application Management
PBC	Power Balance Constraint
PC	Pre-Calculation

Acronym	Definition
PCA	Price Correction Admin
PCT	Price Correction Tools
PDR	Proxy Demand Resource
PI	Plant Information
PL	Participating Load
Pmax	Maximum Generation Capacity
Pmin	Minimum Generation Capacity
PMO	Program Management Office
PNM	Public New Mexico
Pnode	Pricing Node
POC	Point Of Contact
PRSC	Participating Resource Scheduling Coordinator
PSH	Pump Storage Hydro
PSTD	Power Systems Technology Development
PSTO	Power Systems Technology Operations
PTO	Participating Transmission Owner
QRB	Quality Review Board
RA	Resource Adequacy
RC	Reliability Coordinator
RC-BSAP	Reliability Coordinator - Base Schedule Aggregation Portal
RCD	Reliability Capacity Down

Acronym	Definition
RCSA	Reliability Coordinator Service Agreement
RCU	Reliability Capacity Up
RDOT	Ramping Dispatch Operating Target (a continuous piecewise linear curve connecting consecutive *DOT*s using their mid-interval points, from RTD, RTCD, or RTDD runs, as applicable)
RDRR	Reliability Demand Response Resource
RDT	Resource Data Template
RIG	Remote Intelligent Gateway
RIMS	Resource Interconnection Management System
RMR	Reliability Must Run
ROPR	Operating Reserve Ramp Rate
RR	Ramp Rate
RREG	Regulation Ramp Rate
RSE	Resource Sufficiency Evaluation
RSEE	Resource Sufficiency Evaluation Enhancements
RT	Real-Time
RTBS	Real-Time Base Scheduler
RTCA	Real-Time Contingency Analysis
RTCD	Real-Time Contingency Dispatch
RTD	Real-Time Dispatch
RTDD	Real-Time Disturbance Dispatch
RTPD	Real-Time Pre-Dispatch

Acronym	Definition
RTM	Real-Time Market
RTUC	Real-Time Unit Commitment
RUC	Residual Unit Commitment
SADS	System And Design Specifications
SC	Scheduling Coordinator
SCME	Scheduling Coordinator Meter Entity
SE	State Estimator
SIBR	Scheduling Infrastructure and Business Rules
SME	Subject Matter Expert
SOA	Service-Oriented Architecture
SQMD	Settlements Quality Meter Data
SRS	System Requirement Specifications
STC	State Transition Cost
STF	Short-Term Forecast
STC	State Transition Cost
STT	State Transition Time
STUC	Short-Term Unit Commitment
SUC	Start Up Cost
SUE	Start Up Energy
SUF	Start Up Fuel
SURT	Start Up Ramp Time

Acronym	Definition
SUT	Start Up Time
T	Trading Hour
TBD	To Be Determined
TEP	Tucson Electric Power
TG	Tie Generator
TNA	Transmission Network Application
TOP	Transmission Operator Provider
TOR	Transmission Ownership Contract
TEE	Total Expected Energy
TTEE	Total Target Expected Energy (based on RDOT)
UAT	User Acceptance Testing
UEL	Upper Economic Limit
UFR	Upper Forbidden Region
UI	User Interface
UIE	Uninstructed Energy Imbalance
UL	User Limited
UOL	Upper Operating Limit
URL	Upper Regulation Limit
VER	Variable Energy Resource
VOM	Variable Operations & Maintenance
VOMC	Variable Operations & Maintenance Cost

Acronym	Definition
WebOMS	Web-based Outage Management System
WEIM	Western Energy Imbalance Market
XML	Extensible Markup Language
XSD	XML Schema Definition

6.2 Appendix-B: Formulas, Calculation Details, and Examples

6.2.1 Examples

➢ **Discrete RDRR MF Characteristics:**
- Registered Pmin = 0 MW
- Registered Pmax = 10 MW
- Maximum Daily Startups (MDS) = 1
- MUT = 1 hour
- Maximum Daily Up Time (MDUT) = 5 hours
- Registered MLC = 0.

➢ **Discrete RDRR RT Bids:**
- Submitted RT bids for $950/MWh for all hours with different Upper Economic Limit UEL (denoted Available Qty (gray bar) in Figure-1 below).

➢ **Discrete RDRR has no DA Awards**

➢ **RTM:**
- Automatically re-rate the minimum operating level (Pmin, reflected as the yellow bar in Figure 3) to configurable value MW below the UEL. As a result, the market will now view the re-rated Pmin as the resources Pmin in real time.
- Automatically set the Market MLC to ($950/MWh) * (5.9 MW) = $5,605/hour. The CAISO will consider this value the resource's commitment costs.
- If committed the resource could be dispatched to 5.9 MW (re-rated Pmin) or 6 MW (bid) (RT Dispatch Qty [blue bar] in Figure-1 below).

➢ **Settlements:**
- For a single interval, in HE 18 when the resource is dispatched to 5.9 MW, its re-rated Pmin of 5.9 MW and market MLC of $5,605/hour will be eligible for Bid Cost Recovery (BCR) consideration if the resource is short over the course of the day.
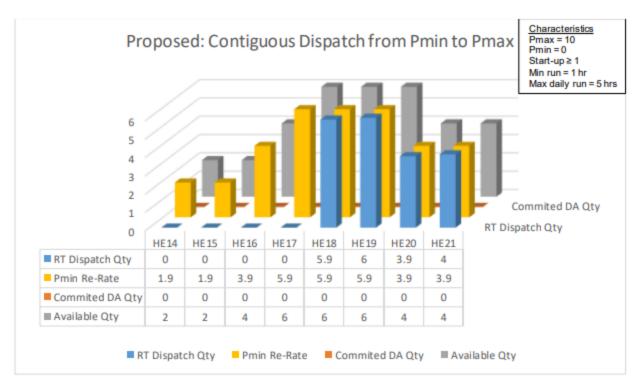
Figure-1: Pmin Re-Rate, Bids, and RT Dispatch for Discrete RDRR