Business Requirements Specification

Advisory Shutdown MLC Disqualification in Bid Cost Recovery

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Revision History

Date	Ver.	Description
5/2/2024	1.0	Document Created.

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1 Introduction

1.1 Purpose

The California ISO will implement system changes regarding Tariff Section 11.17.2.1 ("Disqualification Based on Advisory Schedules"). Due to a missing data parameter in the settlements system, this section, which went into effect in 2014, was never implemented fully. The CAISO is now addressing that issue by creating the missing parameter and implementing other related system updates.

Tariff section 11.17.2.1 disqualifies resources from being credited for minimum load costs (MLC) in the bid cost recovery (BCR) calculations based on the relationship between a resource's dispatch operating point, minimum load, and the value of a term called the "Shut-Down State Variable."

The resource shutdown state variable is a mechanism used to track a resource's positive Uninstructed Imbalance Energy (+UIE) once it receives an advisory shutdown instruction. For resources not following their shutdown instruction, it provides the cumulative MWh over those Real-Time Unit Commitment (RTUC) intervals.

This project addresses a current inability of the market to successfully transmit advisory shutdown instructions, and for Settlements to create a corresponding advisory shutdown flag that is then used as an input to the existing MLC disqualification rules in section 11.17.2.1.

This compliance implementation will include the following deliverables:

1) RTM publishing of advisory shutdown instruction to downstream systems

2) Enhancement to the Settlement system so it can receive the published advisory shutdown instructions needed to create an advisory shutdown flag input for its existing MLC disqualification assessment formulas for resources.

3) Published reports to alert those Scheduling Coordinators with resources receiving an advisory shutdown

4) An after-the-fact internal ISO monitoring report to ensure no manipulation of the MLC disqualification occurs prior to, and after, implementation of the compliance action

2 Details of Business Need/Problem

2.1 Description

Business Opportunity/Problem Statement:	
What:	Tariff section 11.17.2.1 ("Disqualification Based on Advisory Schedules") disqualifies resources from receiving relevant Minimum Load Costs with their calculated Bid Cost Recovery for a period when a resource receives an advisory shutdown instruction while its Dispatch Operating Point *minus* its shutdown state variable is at or below its registered Minimum Load. MLC reinstates within the BCR calculation once the variable resets during completed shutdown.
When:	Independent 2024 release. Please refer to the Release Users Group (RUG) postings for specific timelines.
Why do we have this opportunity/problem:	Determination of the Minimum Load Cost (MLC) Disqualification was determined to be in error, requiring immediate correction in order to meet compliance with Tariff Section 11.17.2.1.

3 Project Information

3.1 Business Practice Manuals (BPM)

BPM	Description of Impact(s)
Market Instruments	**YES** (Added new CMRI Advisory Shutdown Report)
Settlements and Billing	**YES** (Determination of existing Advisory Shutdown Flag bill determinant will be revised)
BPM Change Management	*N/A*
Candidate CRR Holder Registration	*N/A*
Compliance Monitoring	*N/A*
Congestion Revenue Rights	*N/A*
Credit Management and Market Clearing	*N/A*
Definitions and Acronyms	*N/A*
Demand Response	*N/A*
Direct Telemetry	*N/A*
Distributed Generation for Deliverability	*N/A*
Energy Imbalance Market	*N/A*
Generator Interconnection and Deliverability Allocation Procedures	*N/A*
Generator Interconnection Procedures	*N/A*
Generator Management	*N/A*
Managing Full Network Model	*N/A*
Market Operations	*N/A*
Metering	*N/A*
Outage Management	*N/A*

BPM	Description of Impact(s)
Reliability Coordinator Services	*N/A*
Reliability Requirements	*N/A*
Rules of Conduct Administration	*N/A*
Scheduling Coordinator Certification and Termination	*N/A*
Transmission Planning Process	*N/A*

3.2 Tariff Business Ownership

Tariff Section
Tariff Section 11.17.2.1 No Change in language, compliance impact

3.3 Other

Impact	Description (optional)
Market Simulation	**Yes**
Market Participant Impact	**Yes**
External Bid Publication	**No**
Customer Readiness Impact	**Yes (Training, Communications, Market Simulation)**
Policy Initiative	**No**

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. These business requirements directly relate to the high-level scope items determined for the project.

4.1 Business Process: Real-Time Markets

4.1.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ001	For each RTUC market run, system shall publish all advisory shutdown commitment instructions to downstream systems.	Core Tariff: §11.17.2.1	RTPD

4.2 Business Process: Automated Dispatch System (ADS)

4.2.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ010	System shall filter all advisory shutdown instructions for RTUC resources from consumption by ADS. Implementation Notes: - ADS API will also filter out published advisory resource commitment data from market (which will publish in CMRI Report)	Core	ADS
ADVSD-BRQ011	System shall not filter from consumption by ADS any advisory shutdown RTPD instructions that are intentionally broadcasted from the market or operators. Implementation Notes: - Regression test requirement from business to ensure existing advisory data currently consumed by ADS still occurs.	Existing	ADS

4.3   Business Process: Settlements

4.3.1   Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ015	For all RTPD market runs, system shall consume advisory shutdown instructions from RTPD.	Core Tariff: §11.17.2.1	Settlements
ADVSD-BRQ017	In the event a market correction is performed for advisory shutdown instructions, system shall consume and process advisory shutdown commitment instructions from corrections payload.	Core Tariff: §11.17.2.1	Settlements

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ019	System shall flag resource shutdown instructions in the advisory period, excluding the energy binding interval of the payload horizon, such that the resource advisory shutdown flag will be set as follows: - *1: (Advisory Shutdown exists) when Interval Start Time < InstructionStartTime* - *0: (no Advisory Shutdown exists) when Interval Start Time >= InstructionStartTime* Implementation Notes: - Logic is used to populate the BD, BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG - For each resource in an RTUC run output, create this flag with a value of 1, if there is an advisory shutdown for the resource within the RTUC horizon. Otherwise, the flag value is zero, or not created at all. - Always associate this flag to RTPD (energy) binding interval timeframe, i.e., the three five-minutes corresponding to that binding interval timeframe of the RTUC run. - Binding shutdowns do not count since not considered advisory. - The instruction time of advisory shutdown can be within the RTUC run horizon or beyond.	Core Tariff: §11.17.2.1	Settlements
ADVSD-BRQ026	If receiving a correction record, system shall perform the correction to the following bill determinant: BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG	Core Tariff: §11.17.2.1	Settlements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ017	System shall disqualify any resource's relevant Minimum Load Cost (MLC) from Bid Cost Recovery (BCR) during the period *from* its first dispatch interval in which Dispatch Operating Point (DOP) minus shutdown state variable *is less or equal* to minimum load *until* the shutdown state variable is reset. Reset of shutdown state variable occurs when its resource dispatch no longer has an advisory shutdown instruction within its RTM dispatch horizon or when the resource has an offline status.	Existing *Tariff: §11.17.2.1*	Settlements
ADVSD-BRQ018	Effective once an advisory shutdown instruction is issued to a resource, system shall track resource's positive uninstructed imbalance energy (+UIE). System shall determine the accumulated +UIE *once* there is an advisory shutdown instruction in the RTM dispatch horizon *until* either: resource status is offline, or metered energy - regulation energy - expected energy > performance metric tolerance band *Note:* A scenario may occur when an advisory interval with shutdown instructions does not maintain its status when the interval is finally binding due to revised optimization results. In this scenario, the shutdown state variable will be reset.	Existing *Tariff: §11.17.2.1*	Settlements

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ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ025	In the event of an RTM market disruption, no gap-fill records will populate advisory shutdown instruction data. In this case, no advisory shutdown flag will be created for the RTPD energy binding interval. The effect will be a reset of the shutdown state variable to zero for all resources with in-progress advisory shutdowns (effectively cancelling the potential MLC disqualification).	Existing	Settlements

4.4 Business Process: Customer Market Reporting Interface (CMRI)

4.4.1 Business Requirements

ID#	Business Feature	Req Type	Potential Application(s) Impacted
ADVSD-BRQ041	System shall consume and process for reporting both RTPD advisory shutdown commitment instructions and any of its correction data.	Core	CMRI
ADVSD-BRQ042	In the event of a market disruption, missing interval data will not be backfilled.	Existing	CMRI
ADVSD-BRQ045	System shall privately publish through a report interface the following RTPD Advisory Commitment Instruction data by SC and resource: - Scheduling Coordinator ID - Resource ID - Instruction Type – (Shutdown only) - Binding Instruction (Y/N) – Advisory ("N") only - Interval Start Time (interval when first submitted) - Instruction Start Time (start of instruction)	Core	CMRI
ADVSD-BRQ046	System shall privately publish through a service API the following RTPD Advisory Commitment Instruction data by SC and resource: - Scheduling Coordinator ID - Resource ID - Instruction Type (Shutdown only) - Binding Instruction (Y/N) – Advisory ("N") only - Interval Start Time (interval when first submitted) - Instruction Start Time (start of instruction)	Core	CMRI

4.5 Business Process: Market/Business Simulation

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

The *Reason for the Potential Scenario* column will 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.

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4.5.1 Business Requirements

ID#	Guidance on Market Participant Impacts	Source System(s)	Sink System	Reason for Potential Scenario
ADVSD-MSIM-001	Unstructured Test Scenario: Generator receives advisory shutdown instruction for one of its generator resources and settles appropriately. - Prior to T-1 1000 Hrs (day before trade date at 10am), SC submits IFM and RTM bids for its portfolio of generator resources - Both IFM and RTM markets run for the simulation trade date - During a FMM/RTPD run for the simulated trade date, the market instructs an advisory shutdown for one or more of the generators in the portfolio - SC receives the advisory shutdown instruction in real-time through the new CMRI report (instead of through ADS) - After the simulated trade date is over, the simulation will provide a settlement statement to show the BD BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG is correctly aligned with the CMRI report.	CMRI Settlements	External Resource SC	1. New Interface 2. New Report 3. Modified System/Process

4.6 Business Process: Market Monitoring and Reporting

Prior to implementation of the revised MLC disqualification logic, the CAISO will monitor participant performance to ensure participants are not strategically deviating from dispatch to create MLC that would be disqualified once the appropriate settlement treatment is applied. Behavior determined by the CAISO or the CAISO's Department of Market Monitoring to reflect such strategic deviations may be referred to FERC's Office of Enforcement.