Advisory Shut-down Bid Cost Recovery Pre-Market Simulation Training and Scenario Walkthrough

Today’s Trainer
Cynthia Hinman
Lead Customer Readiness Trainer
Housekeeping

REMAIN MUTED
Keep yourself muted to minimize background noise

ASKING QUESTIONS
Unmute to ask verbal questions or write in the chat pod

RAISING HAND
Raise your hand using WebEx interactivity tools

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Our Meeting
Agenda

Summary (10 min)
Settlements (20 min)
CMRI (10 min)
Market Simulation (15 min)
Wrap Up (5 min)
Summary

Section Focus

• Background
• Example
• Q&A
“Disqualification Based on Advisory Schedules From the Dispatch Interval in which the CAISO has determined that the Dispatch Operating Point minus the Shut-Down State Variable is less than or equal to the Minimum Load as registered in the Master File, or if applicable, as modified pursuant to Section 9.3.3, and until the Shut-Down State Variable is reset, the IFM Minimum Load Costs, RUC Minimum Load Costs, or RTM Minimum Load Costs, as applicable, will be disqualified from the Bid Cost Recovery calculation.”
Example of shut-down instruction

1. At the 9:00 FMM market run, SC receives a shut-down instruction for 12:00 (SC also receives DOTs to gradually reduce output to Pmin)

2. Assuming a 2 hour shut-down time, the instruction becomes binding

3. Shut-down

Resources that persistently deviate in the positive direction are not eligible for Minimum Load Cost (MLC) compensation for any potential bid cost recovery (BCR) during this period.
Resources may not be eligible for minimum load cost during an advisory shut-down period.

**Schedulers**

- Persistently incrementing output during an advisory shut-down period makes a resource ineligible for minimum load costs during that period.

**Settlements**

- The ISO is implementing a flag that sends advisory shut-down information to settlements
- During this period a resource with positive UIE may be ineligible for minimum load cost compensation
- Could potentially impact bid cost recovery
Q&A

• Is this a new process?
  – No, this is an existing tariff requirement. The change is that the advisory period information will be sent to settlements.

• What happens if the unit’s advisory instruction is dropped or reversed?
  – The shutdown variable that re-qualifies MLC for BCR will reset.

• Is this only for day-ahead market?
  – No, Can impact IFM, RUC or RTM MLC

• Will this change be retroactive?
  – No, it will start as of the effective date

Acronyms
MLC – Minimum Load Cost
BCR – Bid Cost Recovery
IFM – Integrated Forward Market
RUC – Residual Unit Commitment
RTM – Real-time Market
Milestones

- 6/12 Training
- 6/25 Market simulation
- 7/10
- Before 8/1 Go-live
What Questions Do You Have?

Unmute yourself  or  Raise your hand
Settlements

Section Focus

• Introduction
• Shut-down state variable
Problem Statement & Resolution

• Problem:
  – Missing input data value for existing bill determinant (BD), BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG, prevents CAISO from qualifying Minimum Load Cost even though the settlements formulations currently exist.

• Solution:
  – Ensure advisory shutdown instruction data is broadcasted so that advisory shutdown flag BD can be created
  – Use the input and reflect Minimum Load Cost qualification in Settlements
What does the Shut-Down State Variable do?

- Keeps track of +UIE once there is an advisory shut-down instruction. Provides MWh cumulative over RTUC intervals when a resource follows their shut-down instruction.

- Begins to accumulate +UIE as soon as an advisory shutdown instruction exists w/in RTM dispatch horizon and continues to accumulate +UIE as long as (1) unit is On, and (2) Metered Energy less Regulation Energy less EE > Performance Metric Tolerance Band.

- Will be reset to zero when most recent RTUC run no longer has an advisory shutdown instruction w/in RTM dispatch horizon or when resource is Off.

**Acronyms**

+UIE – positive uninstructed imbalance energy  
RTUC – Real-Time Unit Commitment  
EE – expected energy
Advisory Shut-Down Data

- Advisory shutdown (yellow) w/in each RTUC run horizon (row) moves from RTUC to RTUC until later binds (in orange)

- Scenario above shows advisory shutdown was maintained and CAISO didn’t change its instruction to have a shutdown. It is possible for CAISO to change its instruction depending on optimization results from each RTUC run.

- Each row or RTUC run above is at least 15-minutes earlier than the first column RTPD binding interval.
Settlement example

Assumptions
- $P_{min} = 20$ MW
- MLC = $300$ per 5-min interval

<table>
<thead>
<tr>
<th>Interval (5-min)</th>
<th>97</th>
<th>98</th>
<th>99</th>
<th>100</th>
<th>101</th>
<th>102</th>
<th>103</th>
<th>104</th>
<th>105</th>
<th>106</th>
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<tr>
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<td>$300$</td>
<td>$300$</td>
<td>$300$</td>
<td>$300$</td>
<td>$300$</td>
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<tr>
<td>Meter</td>
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<tr>
<td>Pos UIE</td>
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<td>5</td>
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<td>Advisory Shutdown Flag</td>
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<td>1</td>
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<td>0</td>
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<tr>
<td>UIE Cumulative (pos UIEs only)</td>
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<td>15</td>
<td>20</td>
<td>25</td>
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<td>300</td>
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Reminder:
If Dispatch Operating Point – Shut-Down State Variable ≤ Minimum Load, then Minimum Load Costs are disqualified from Bid Cost Recovery.
Charge codes that could be impacted

CAISO BAA Charge Codes:
CC 6630 - IFM Bid Cost Recovery Settlement
CC 6636 - IFM Bid Cost Recovery Tier 1 Allocation
CC 6637 - IFM Bid Cost Recovery Tier 2 Allocation
CC 6806 - RUC Bid Cost Recovery Tier 1 Allocation
CC 6807 - RUC Bid Cost Recovery Tier 2 Allocation
CC 6620 - Bid Cost Recovery Settlement
CC 6678 - Real Time Bid Cost Recovery Allocation

EIM Charge Codes:
CC 66200 - Bid Cost Recovery EIM Settlement
CC 66780 - Real Time Bid Cost Recovery EIM Allocation
What Questions Do You Have?

Unmute yourself or Raise your hand
Customer Market Results Interface - CMRI

Section Focus
- New CMRI Report
CMRI Technical Specification Version 6.5.2 for Independent 2024

New version for an existing API. Includes:
• retrieveStartupShutdownInstructions_v2
• retrieveStartupShutdownInstructions_v2_DocAttach
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<thead>
<tr>
<th>Trade Date</th>
<th>Resource Type</th>
<th>SC ID</th>
<th>Instruction Source</th>
<th>Instruction Type</th>
<th>Binding Instruction</th>
<th>Interval Start Time</th>
<th>Instruction Start Time</th>
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<tr>
<td>05/21/2024</td>
<td>Generator</td>
<td></td>
<td>RTUC</td>
<td>SHUTDOWN</td>
<td>N</td>
<td></td>
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<tr>
<td>05/21/2024</td>
<td>Generator</td>
<td></td>
<td>RTUC</td>
<td>SHUTDOWN</td>
<td>N</td>
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<td></td>
<td>RTUC</td>
<td>SHUTDOWN</td>
<td>N</td>
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What Questions Do You Have?

Unmute yourself  or  Raise your hand
Market Simulation Scenario Walkthrough

Section Focus

- Current scenarios
- Recommendations for participation
<table>
<thead>
<tr>
<th>Scenario Number</th>
<th>Guided unstructured scenario</th>
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<tbody>
<tr>
<td><strong>1</strong></td>
<td></td>
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<tr>
<td><strong>Description</strong></td>
<td>Verify advisory shutdown instructions for generating resources in the new CMRI report.</td>
</tr>
<tr>
<td><strong>ISO Actions</strong></td>
<td>Run IFM and RTM markets for the simulation trade date.</td>
</tr>
</tbody>
</table>
| **WEIM Market Participant Actions** | 1) SC submits RTM bids for its portfolio of generator resources  
2) SC receives the advisory shutdown instruction in real-time through the new CMRI report (instead of through ADS)  
3) 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. |
| **ISO Market Participant Actions** | 1) SC submits IFM and RTM bids for its portfolio of generator resources  
2) SC receives the advisory shutdown instruction in real-time through the new CMRI report (instead of through ADS)  
3) 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. |
| **Expected Outcome** | Verify CMRI report for advisory shutdown flag and compare with settlements report  
CMRI report:  
Real-Time ==> Real-Time Advisory Shutdown Instructions |
<p>| <strong>Anticipated Settlement Outcome</strong> | Verify Settlements report BD BA_5M_RSRC_ADVISORY_SHUTDOWN_FLAG is correctly aligned with the CMRI report. |
| <strong>Expected Settlement Outcome</strong> | N/A |</p>
<table>
<thead>
<tr>
<th>Scenario Number</th>
<th>Structured scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Description: Verify BCR minimum load cost is assessed for resources with advisory shutdown. ISO will trigger BCR for generating resources with advisory shutdown. ISO will submit dummy meter data for the resource.</td>
</tr>
<tr>
<td>ISO Actions</td>
<td>N/A</td>
</tr>
<tr>
<td>WEIM Market Participant Actions</td>
<td>N/A</td>
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<tr>
<td>Expected Outcome</td>
<td>Verify settlements statements for the BCR assessed charge codes.</td>
</tr>
<tr>
<td>Anticipated Settlement Outcome</td>
<td>BCR minimum load cost is assessed and seen as part of SUC_MLC pre-calc.</td>
</tr>
<tr>
<td>Expected Settlement Outcome</td>
<td>SUC_MLC pre-calc, 6630, 6620, 66200</td>
</tr>
</tbody>
</table>
Participate in Market Simulation

Register to participate in the simulation at MarketSim@caiso.com mailbox by June 14, 2024

Attend Market Simulation Forum calls to stay informed on timing of activities for this and other release
• Monday and Thursday 2pm PPT

Submit questions and additional scenario requests to the ISO via the CIDI application
What Questions Do You Have?

- Unmute yourself
- Raise your hand

or
Wrap Up

Summary, Q&A

• What’s happening next.
What do you need to do?

Market Simulation
• Sign up to participate in the market simulation by June 14, 2024
• Are there other scenarios that you would like to see? Let us know!

Production
• Schedulers – if a resource is in an advisory shut-down period that minimum load cost may not be eligible for bid cost recovery
• Settlements staff – If minimum load costs are not being considered for bid cost recovery, check to see if the interval was an advisory shut-down period

Submit questions and disputes through CIDI as necessary
Milestones

6/12 Training

6/25 Market simulation

7/10

Before 8/1 Go-live
Functional Environment Options for CIDI Cases

- Inquiries are not directly related to Market Simulation issues & when there is no environment impact
  - Ex. Business Requirements Specifications (BRS) comments, implementation questions, feedback, etc.
  - Contact: release@caiso.com

- Inquires that are related to the MAP-Stage Environments (non-production)
  - Ex. Connectivity, unanticipated simulation results, etc.
  - Contact: MarketSim@caiso.com
Tell us how we did

Takes 3-5 minutes to complete

Helps us improve future training

Link: https://www.surveymonkey.com/r/caisocoursesurvey

Name: Cynthia Hinman
Training: Advisory Shut-Down Bid Cost Recovery Training
Thank you for your participation!

For clarification on anything presented in this training, send an email to: CustomerReadiness@caiso.com

For any other questions or stakeholder specific questions or concerns, please submit a CIDI ticket.
Reference Links

Tariff Section 11.17.2.1:

PRR 1571 for the Advisory Shutdown Flag (Settlements):
https://bpmcm.caiso.com/Pages/ViewPRR.aspx?PRRID=1571&IsDlg=0

PRR 1574 for Advisory Shut-down Report (Market Instruments):
https://bpmcm.caiso.com/Pages/ViewPRR.aspx?PRRID=1574&IsDlg=0

BPM for Market Instruments, Section 10.1, CMRI reports:
https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Market%20Instruments

Updated CMRI Technical Specification: