Ancillary Services State of Charge Constraint Market Simulation Training

Cynthia Hinman, Lead Customer Readiness Trainer - Presenter
Monica Mouanetry, Sr. Customer Readiness Trainer – Producer

May 1, 2023

The information contained in these materials is provided for general information only and does not constitute legal or regulatory advice. The ultimate responsibility for complying with the ISO FERC Tariff and other applicable laws, rules or regulations lies with you. In no event shall the ISO or its employees be liable to you or anyone else for any decision made or action taken in reliance on the information in these materials.
Who should attend this training?

- Scheduling Coordinators
- Storage Resources
- Ancillary Services

Market Sim Team
Settlements Team
Housekeeping

Make sure to keep yourself muted unless you have a question

If you have a question, you may either ask over the phone or in the chat

If you want to ask a question, you can virtually “raise your hand” in WebEx
In today’s session we’ll cover:

- Background (10 min)
- Market Simulation Scenarios (15 min)
- Settlements Impact (15 min)
- Wrap Up (5 min)
In today’s session we’ll cover:

- Background (10 min)
- Market Simulation Scenarios (15 min)
- Settlements Impact (15 min)
- Wrap Up (5 min)
The issue: Storage resources were receiving unusually large bid cost recovery payments

- Ancillary Service Award
- High Energy Bid

Real-time Bid Cost Recovery $$$$$
The cause: The Ancillary Service State of Charge Constraint (AS SOCC) led to storage resources being dispatched uneconomically.

Ancillary Service State of Charge Constraint (AS SOCC) Ensures that storage resources scheduled to provide AS have a sufficient state of charge to actually provide the service in real-time for at least 30 minutes.
The solution: Implement a rule limiting BCR when AS SOCC is binding
Q&A
In today’s session we’ll cover:

- **Background** (10 min)
- **Market Simulation Scenarios** (15 min)
- **Settlements Impact** (15 min)
- **Wrap Up** (5 min)
## Market Simulation Scenario

### 4.4.1 Business Requirements

<table>
<thead>
<tr>
<th>ID#</th>
<th>Guidance on Market Participant Impacts</th>
<th>Source System</th>
<th>Sink System</th>
<th>Reason for Potential Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSOC-MSIM001</td>
<td>Storage resource SCs shall submit energy bids and competitive regulation bids (to receive regulation awards) to trigger AS SOC constraint to be binding in RTPD, RTD</td>
<td>SIBR</td>
<td>RTM Settlements CMRI</td>
<td>Confirm AS SOC constraint binds</td>
</tr>
<tr>
<td></td>
<td>Potential scenarios include: Energy bids to bid cap</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Both regulation up and regulation down bids</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Suggested scenario in DA – Modify storage resource bid so its “lower” AS SOC constraint becomes binding

- **HE01 to HE08**
  - Submit energy (EN) bids covering the positive EN range (0 to Pmax) at a bid price of −$150/MWh (No bid on EN negative range)
  - No Ancillary Service (AS) bid
  - Reason: Depletes the SOC

- **HE09 to HE24**
  - Submit EN bids from Pmin/2 to 0 with a bid price of +$1000/MWh (No bid on EN positive range)
  - Bid Reg Up for −Pmin MW at $0/MW.
  - Reason: Help the resource get awarded Reg Up in DA
Suggested scenario in RT – Modify storage resource bid so its “lower” AS SOC constraint becomes binding

• HE01 to HE08
  – Submit energy (EN) bids covering the positive EN range (0 to Pmax) at a bid price of –$150/MWh (No bid on EN negative range)
  – No Ancillary Service (AS) bid
  – Reason: Depletes the SOC

• HE09 to HE24
  – Submit EN bids from Pmin/2 to Pmax with a bid price of – $150/MWh
  – Bid Reg Up for maximum possible amount at $0/MW.
  – Reason: Enables the lower AS SOC constraint to bind
Suggested scenario in DA – Modify storage resource bid so its “upper” AS SOC constraint becomes binding

• HE01 to HE08
  – Submit EN bids covering the negative EN range (Pmin to 0) at a bid price of +$1,000/MWh. (No bid on EN positive range)
  – No AS bid
  – Reason: Charges the SOC

• HE09 to HE24
  – Submit EN bids from 0 to Pmax/2 with a bid price of $150/MWh (No bid on EN negative range)
  – Bid Reg Down for Pmax MW at $0/MW
  – Reason: Helps the resource get awarded Reg Down in DA
Suggested scenario in RT – Modify storage resource bid so its “upper” AS SOC constraint becomes binding

• HE01 to HE08
  – Submit EN bids covering the negative EN range (Pmin to 0) at a bid price of +$1,000/MWh. (No bid on EN positive range)
  – No AS bid
  – Reason: Charges the SOC

• HE09 to HE24
  – Submit EN bids from Pmin to Pmax/2 with a bid price of +$300/MWh
  – Bid Reg Down for maximum possible amount at $0/MW
  – Reason: Enables the upper AS SOC constraint to bind
CMRI screenshot

Type of constraint

RTD or RTUC

Y = HE with constraint
There is a new flag in the RTM Net Amount Pre-calculation. Use the billing determinants to verify the settlement

RTM Net Amount Pre-calculation Version 5.37

3.6.1.2.6 Resource5minutelyRTMASSOCFlag_rmdcif =

If

((Resource5mAncillaryServiceSOCConstraintFlag_rmdcif = 1
Or
Resource15mAncillaryServiceSOCConstraintFlag_rmdhc = 1)
And
RTMNetLESREligibilityAmount_rmdcif > 0)
Then
1
Else
0

Billing Determinants

RSRC_5M_AS_SOC CONST_FLAG
RSRC_15M_AS_SOC CONST_FLAG

If either of these = 1, then constraint is binding
Q&A
In today’s session we’ll cover:

- **Background** (10 min)
- **Market Simulation Scenarios** (15 min)
- **Settlements Impact** (15 min)
- **Wrap Up** (5 min)
Retroactive settlements will begin with trade date 9/20/2022

- Impacts the RTM Net Amount Pre-calculation
- ISO will resettle trade dates using the new AS SOC Constraint flags
- Resettlement will be run on the next available settlement statement meaning:
  - Trade date 9/20/22 resettlement will appear T+11M statement
  - Other resettlements could occur on T+70B statements
- Validation
  - Review new CMRI report against BRS settlements to validate that AS SOC Constraint was triggered
  - Submit disputes on incremental changes, if necessary

Link to BPM Change Management (search for PRR 1491):
BPM CM - Home (caiso.com)
Prospective settlements are scheduled to begin with the 6/1/23 trade date

- The AS SOC Constraint flag will be in place and will be used to calculate the real-time BCR settlement beginning with the T+9B initial statement
- Use CMRI to validate the AS SOCC and submit disputes via CIDI if necessary
Q&A
In today’s session we’ll cover:

- **Background** (10 min)
- **Market Simulation Scenarios** (15 min)
- **Settlements Impact** (15 min)
- **Wrap Up** (5 min)
AS SOCC – Action Items

- Register for market sim as soon as possible
- Attend the Settlements User Group meetings
- Market sim starts on 05/01/23
  - Attend market sim meetings (started 04/27/23)
  - Run market sim scenarios and validate results
  - Submit questions and concerns in CIDI

- Validate retroactive BCR settlements starting beginning with trade date 9/20/22
  - Refer to ISO Payment Calendar for schedule
  - Submit disputes in CIDI, as necessary
- Validate BCR settlements going forward

Link to the CaliforniaISOPaymentsCalendar2023.pdf (caiso.com)
Final Q&A
Still have questions?

www.caiso.com

Thank you for your participation!