Convergence Bidding Design
- Proposed Credit Policy

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This Proposed Credit Policy Is Designed for Any Level of Convergence Bidding Granularity

Revised proposal reflects internal deliberation and suggestions by stakeholders:

- Credit checking based on dollar value of Virtual Bids
- Dynamic (daily) update of credit information
- Virtual Bids failing credit checks would be rejected following the last in, first out rule
- Calculating estimated Virtual Bid values based on initial Market Clearing Prices (MCPs)
Credit Evaluation Is a Multi-step Process

1. Check Available Credit for VB (SIBR) A1
   - Virtual Bids
   - Available Credit
   - Ref. Prices

2. Clear Markets A2
   - Accepted Virtual Bids
   - MW of Cleared Virtual Bids
   - Ref. Prices
   - Initial MCP

3. Calculate Estimated VB Value A3
   - Initial MCP (DAM & RTM)
   - Estimated VB Value & Cleared MW

4. Adjust Available Credit A4
   - Available Credit
   - Actual VB Value

Final MCP (DAM & RTM)

Invoice payments and additional collaterals

Price Verification

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Virtual Bid Value Is Compared to Available Credit

\[
\left( \sum_{i} \text{Reference Price} \cdot \text{abs}(VBMW_i) \right) \leq \text{Available Credit}
\]

- Reference Price – 95th percentile value of historical price differentials for each season and each LAP
- Absolute value of MW of all Virtual Bids are included except if both virtual demand and supply bids are submitted by the same the SC at the same location for the same hour. The greater MW value will be used then.
- 100% Available Credit can be used
- Available Credit is updated daily
- Rejecting Virtual Bids follows the rule of last in, first out
Estimated Values of Cleared VBs Are Calculated Using Initial MCPs
Estimated Values of Cleared VBs Are Calculated Using Initial MCPs (cont.)
Estimated Values of Cleared VBs of Day \( T \) Are Calculated Using Reference Price

\[
\text{Estimated VB Value} = \sum_i \text{Reference Price} \times \text{abs(Cleared VBMW}_i)\]

- This is after the close of Day-Ahead Market (DAM), but before the close of Real-Time Market (RTM) for VBs put in on Day \( T \)
- Estimated VB Value is calculated using Reference Price and absolute value of VB MWs cleared in DAM
Estimated Values of Cleared VBs of Day $T-1$ are re-calculated using initial MCPs

\[ \text{Estimated VB Value} = \sum_i \Delta MCP_i \times \text{Cleared VBMW}_i \]

\[ \Delta MCP_i = MCP_{DA,i} - MCP_{RT,i} \]

- Estimated Value of VB cleared in Day $T-1$ is re-calculated once initial MCPs are available after the close of RTM on Day $T$
- Initial MCPs are subject to verification and correction
- MCPs are either nodal or LAP-average LMPs
- Estimated Virtual Bid Value could be positive or negative
Available Credit Is Adjusted Daily

1. Check Available Credit for VB (SIBR) (A1)
   - Available Credit
   - Ref. Prices

2. Physical Bids
   - Virtual Bids
   - MW of Cleared Virtual Bids
   - Ref. Prices

3. Clear Markets (A2)
   - Initial MCP (DAM & RTM)

4. Calculate Estimated VB Value (A3)
   - MW of Cleared Virtual Bids
   - Initial MCP

5. Adjust Available Credit (A4)
   - Estimated VB Value & Cleared MW
   - Available Credit

6. Adjusted Available Credit
   - Actual VB Value

7. Price Verification
   - Final MCP (DAM & RTM)

8. Invoice payments and additional collaterals
Available Credit Is Adjusted Daily (cont.)

- A4.1: Calculate Actual VB Value of Day T-n
  - A3: Estimated VB Value & Cleared MW of Day T-n
  - Price Verification: Final MCP (DAM & RTM)

- A1: Adjust Available Credit for Day T+1
  - A3: Estimated VB Value of Day T
  - A3: Updated Estimated VB Value of Day T-1

- Settlement: Actual VB Value of Day T-n
  - Actual VB Value of Day T-n
  - Invoice payments and additional collaterals

- Available Credit for Day T+1
Available Credit Is Adjusted Daily (cont.)

- Estimated Virtual Bid Value of Day $T$ is added to the EAL to adjust Available Credit
- Estimated Virtual Bid Value of Day $T-1$ already in EAL is updated with initial MCPs
- The Estimated Virtual Bid Values of Day $T-n$ will be recalculated, if necessary, once the final MCPs become available
- Available Credit is adjusted with the final Virtual Bid Values
Virtual Bid Payment Default Would Be Treated as SC Default

A payment default from Virtual Bidding will be treated same as other defaults by a SC.

The net creditors in the month of default will be short-paid
QUESTION?

Comments should be submitted to convergencebidding@caiso.com by Nov. 30, 2007