Convergence Bidding

Brian Theaker, Regional Governmental Affairs Manager
Benefits of Convergence Bidding

- Promotes convergence of Day-Ahead and Real-Time prices
  - Why is this important?
    - Market participants are more willing to transact in the Day-Ahead time frame if Real-Time and Day-Ahead market prices are the same
    - Moving business from Real-Time to Day-Ahead increases certainty and improves reliability
      - Poster child experience: the CAISO Summer of 2000
Benefits of Convergence Bidding

- **Explicit** Convergence Bidding clearly separates what is **financial** from what is **physical**
  - It makes economic sense for market participants to try to arbitrage consistent differences between Day-Ahead and Real-Time prices
  - CAISO’s white paper describes *implicit vs. explicit* virtual bidding
    - Demand under-scheduling = LSE’s expected physical load – implicit virtual supply, which shifts demand to RT
    - Implicit arbitrage negatively affects markets and reliability
  - Making arbitrage **explicit** reduces the incentives to engage in implicit arbitrage
Benefits of Convergence Bidding

- Reduces monopsony market power
  - Load can exercise market power to lower DA prices through under-scheduling
    - Until true price-responsive demand is implemented, load not cleared in Day-Ahead will show up in real-time
  - Convergence Bidding allows all market participants to take a real-time position to hedge or arbitrage price differences
    - Believe DA < RT? Bid to buy virtual demand in DA and liquidate in RT
    - Believe DA > RT? Bid to sell virtual supply in DA and liquidate in RT

- Provides a means to convert DA instruments to RT instruments (and vice versa)
  - Facilitates the development of DA bilateral markets
  - CRRs designed to hedge only DA congestion
Benefits of Convergence Bidding

- Reduces risk for market participants
  - Financially hedging risk of generation outage
    - RA resources will be required to offer in DA market
    - Physical hedge = holding generation in reserve
  - Financially hedging demand bid

For more information on how Convergence Bidding can be used to manage risk, please refer to slides 29-40 of PJM's Two Settlement - Virtual Bidding and Transactions presentation, available at [http://www.pjm.com/services/training/downloads/transactions-201-two-settlement.pdf](http://www.pjm.com/services/training/downloads/transactions-201-two-settlement.pdf).
Benefits of Convergence Bidding

- Enhances market liquidity

Sources: (L) – April 2006 Report of the Independent Market Monitor to the MISO Board of Directors and Markets Committee
(R) – PJM Market Update, System Operator Seminar, Spring 2006
Virtual Trading in the Day-Ahead Market

- Liquid virtual supply and demand is an important component of the Midwest ISO markets because it:
  - Facilitates convergence between the day-ahead and real-time markets, which is an important prerequisite for efficient commitment of generation;
  - Mitigates market power in the day-ahead market;
  - Reduces day-ahead price volatility.

- The liquidity of the virtual bids and offers has been very good and relatively stable until the end of April.
  - FERC issued an Order on April 25 requiring the allocation of RSG costs to virtuals.
  - The total and cleared virtual bids and offers declined by roughly 50 percent beginning on April 27.
  - If this reduction is permanent, it will reduce the efficiency of the day-ahead market.
“Virtual [convergence] bidding is an arbitrage mechanism that helps to converge prices in the two markets. Its use has caused market price differentials in New York to decrease by 11 percent over the past four years, yielding price savings for New York electricity customers.”

The Value of Independent Regional Grid Operators, a report by the ISO/RTO Council, November 2005
Who has implemented Convergence Bidding?

When MRTU is implemented, the California ISO’s market will be the ONLY LMP market that does not include Convergence Bidding.

Table 5
Services Provided by ISOs and RTOs

<table>
<thead>
<tr>
<th>Services Provided</th>
<th>ISO-NE</th>
<th>NYISO</th>
<th>PJM</th>
<th>MISO</th>
<th>SPP</th>
<th>ERCOT</th>
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</table>

Source: The Value of Independent Regional Grid Operators, a report by the ISO/RTO Council, November 2005
Safeguards

- The ISOs with Convergence Bidding have implemented measures to prevent its misuse
  - Market monitoring
  - Position limits
  - Prohibitions on using Convergence Bidding to lever another financial position (i.e., taking losses on Convergence Bids to increase payment under a contract to deliver at a given location)
  - Collateral requirements
Why Convergence Bidding and not the 95% requirement?

- The 95% forward scheduling requirement is an administrative command-and-control requirement; it is not a market.
- The 95% scheduling requirement’s effectiveness hinges on forecast accuracy, which cannot be assured or enforced.
- The 95% scheduling requirement promotes a five percent short real-time market instead of a true “balancing” real-time market.
- According to the IOUs, the 95% scheduling requirement exacerbates over-generation problems.
- The 95% scheduling requirement does not provide the hedging and risk mitigation tools that Convergence Bidding provides.
Conclusion

- Convergence Bidding is a key element of a balanced market
  - It helps mitigate monopsony market power through market means instead of command-and-control administrative means
  - It benefits system operators by encouraging participation in the forward markets
  - It promotes reliability by supplanting implicit arbitrage
  - It provides risk mitigation measures for all market participants
  - It provides an important market tool to convert contracts from DA to RT or vice-versa, thus promoting the development of DA contracts

- In directing the CAISO to include it in the MRTU design, FERC noted that market monitors from other ISOs “vigorously support” Convergence Bidding

- Convergence Bidding should be part of the MRTU design