Convergence Bidding –
The Midwest ISO Experience

Introduction by David Withrow
Lead Market and Product Economist

California ISO
Your Link to Power

Convergence Bidding Stakeholder Meeting
July 23, 2008
Purpose and Agenda

Review and discuss MISO’s policy and experience with virtual bidding within their markets.
- Particular focus today on MISO’s “Revenue Sufficiency Guarantee” (RSG) – uplift charged to virtual bids.

Set the stage for further stakeholder review of CB features
- Cost allocation
- Nodal vs zonal to be resolved approximately five months after MRTU start-up.

Next Convergence Bidding stakeholder meeting:
- September 11th (tentative)
Context: The CAISO’s Current Proposal for Cost Allocation on Virtual Bids

Allocate IFM Tier 1 Uplift to virtual demand only in the case where virtual demand plus physical demand exceeds the CAISO Forecast.

Allocate RUC Tier 1 Uplift to virtual supply based on the quantity of physical supply that was displaced by virtual supply in the DAM resulting in the need for the CAISO to procure additional supply in RUC.

SCs obligation based on the pro-rata share of the total obligation as determined by the total (gross) cleared virtual demand or the total (gross) cleared virtual supply bids.
Markets and Performance “MAP” Program Briefing

Janet Morris, Manager, Program Office

California ISO
Your Link to Power

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### Policy and Requirements Scope

<table>
<thead>
<tr>
<th>High Level Prioritization of Market Enhancements</th>
<th>Executive Summary</th>
<th>FERC Mandated?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Convergence Bidding</td>
<td>Submitting “virtual” Bids that are not backed by physical resources in the Day Ahead Market with the understanding that they will be reversed and thereby liquidated in Real Time. The Bidder is settled at the price difference between DA and RT prices.</td>
<td>Yes</td>
</tr>
<tr>
<td>Dispatchable Demand Response</td>
<td>Functionality added in MAP will allow Demand-side Resources (Participating Loads) to participate fully in CAISO markets and offer the full range of products and services that supply-side resources offer, including the ability to set the market clearing price through bids offered at an individual node or a custom aggregation of nodes. The MAP Demand Response program will be consistent with orders and policies promulgated by FERC and consistent with CPUC direction.</td>
<td>No</td>
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<td>Scarcity Pricing</td>
<td>A mechanism for allowing ancillary services prices to rise directly to pre-determined values (scarcity prices) in times of supply shortage. Scarcity prices are set to provide sufficient incentives for additional supply and for Demand Response when they are needed.</td>
<td>Yes</td>
</tr>
<tr>
<td>Competitive Path Assessment Seasonally</td>
<td>The CAISO will begin assessing the competitiveness of transmission paths seasonally, rather than annually.</td>
<td>Yes</td>
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<tr>
<td>Dec Rebid Rule</td>
<td>Assessing possibility and impacts of implementing a more effective approach for increasing the liquidity and competitiveness of DEC bids in Real Time.</td>
<td>No</td>
</tr>
<tr>
<td>COG Pricing</td>
<td>No further action required.</td>
<td>No</td>
</tr>
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Program Timelines and MAP Policy Milestones

MAP Program high-level schedule has not yet been fully validated
Implementation Timeline Status

Second Quarter 2008

- Continue stakeholder review of conceptual market design for MAP functional areas (ongoing)
- Identify CAISO business impacts to business processes, systems and BPMs (complete)
- Complete CAISO business and system requirement specification (in final review)
- Complete CAISO project planning, schedule and budget (in final review)
- Start external communication/awareness of implementation plan (ongoing)
- Approval of implementation phase by CAISO executive management (approval of design phase)
Implementation Timeline Status

Third Quarter 2008

- Approval of policy by CAISO Board of Governors (Note: Convergence Bidding will be presented for approval after MRTU Go-Live) – planned for September meeting
- Contract with CAISO vendors as needed – in progress
- Start design and build of CAISO system changes – on track
- Publish preliminary business interface changes externally – on track
- Start drafting MAP tariff and BPM changes (internally) – dependent on MRTU