

Conceptual Design for Convergence Bidding

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Market Surveillance Committee Meeting/
Stakeholder Meeting**

June 6, 2007

Agenda - Convergence Bidding

“Additionally, we direct the CAISO to file tariff language for our review for the implementation of convergence bidding within 12 months after the effective date of MRTU Release 1.” -- 9/21/2006 FERC Order on MRTU

- **Summary of Work to Date**

- Review of where we left off with CB Design

- **Next Steps**

- Proposed schedule to continue stakeholder process

- **Cost Allocation**

- Proposed options for Cost Allocation

- **Credit**

- Comparison of Credit Requirements for virtual bidding used by other ISOs.

Summary of Work to Date

- **Working White Paper on Design Criteria for Convergence Bidding**
 - Originated in July - Last Revision October 25th, 2006
 - Latest Issue Paper (includes Updated Proposal for Cost Allocation) posted 5/31/07 at:
<http://www.caiso.com/1bef/1bef42c69d80.pdf>

- **Restarting the Stakeholder Process now to complete the Convergence Bidding design**
 - Process started in June 2006
 - Series of meeting and conference calls conducted where the CB design framework has been discussed
 - Last meeting held in November 2006



Summary of Design Elements Previously Reviewed in Stakeholder Process

- **Explicit Virtual Bidding**
 - Virtual bids will be flagged to distinguish them from physical bids
- **Initial Convergence Bidding at LAP level**
 - Both virtual supply and virtual demand bid at LAP level upon initiation of convergence bidding
 - Consider move toward more granular virtual bidding as soon as possible
- **Distribution Factors**
 - Same for virtual and physical bids in the relevant market
- **Key Market Monitoring Capabilities**
 - Ability re-run market and settlement outcomes (with and without virtual bids)

Design Elements To Be Determined

- **Over the next three months the CAISO will focus on the following design elements in order to complete CB design:**

- **Settlement of Virtual Transactions**
 - Review of key cost allocation and unit commitment charges (continuing previous stakeholder discussions)
 - Straw Proposal on Cost Allocation for virtual bidding (Future date)

- **Credit Collateral Requirements**
 - Review options and key issues with stakeholders for the CAISO credit requirements for virtual bidding (Future date)
 - Straw Proposal on CAISO credit requirements for virtual bidding (Future date)

Design Elements To Be Determined (Cont'd)

- **Other Convergence Bidding Design Features**
 - Restrictions on position limits
 - Allowing price taker virtual bid
 - How to handle virtual bids in Pre-IFM run

- **Implementation Analysis**
 - Functional assessment of impacted systems
 - Review of virtual bidding process
 - Review implementation requirements

Proposed Schedule

- **June 13** **Initial Stakeholder Written Comments due on May 31 Issues Paper to:**
ConvergenceBidding@caiso.com

- **June 21** **CAISO posts next White Paper**
- **June 28** **(Tentative) Stakeholder Engagement**
(meeting or conference call)

- **July 6** **Stakeholder written comments due to:**
ConvergenceBidding@caiso.com

- **July 19** **Posting of Straw Proposal**
- **July 26** **(Tentative) Stakeholder meeting**

- **August 3** **Stakeholder written comments due to:**
ConvergenceBidding@caiso.com

Proposed Schedule (Cont'd)

- **Mid August** **Posting of CAISO final White Paper with Convergence Bidding design**
- **Mid August** **Stakeholder conference call to review final White Paper**
- **Sept 6 – 7** **CAISO Board Meeting**

Review of Settlement Charges: Potential Impact on Virtual Bidding

- **Attachment:**
 - List of settlement charge codes by category
 - Brief explanation of each charge code
 - Initial CAISO assessment of applicability to virtual bidding

- **Issues Paper reviews conceptual idea for allocating costs related to IFM and RUC unit commitment for virtual transactions**

General Concepts for IFM/RUC Cost Allocation

- **Virtual demand increases unit commitment in the IFM and decreases commitment in RUC.**
- **Virtual supply decreases unit commitment in the IFM and increases commitment in RUC.**
- **So it generally follows ...that virtual demand should be charged IFM uplift costs and virtual supply should be charged RUC uplift costs.**

Proposal for IFM Cost Allocation

IFM Unit Commitment cost allocation

- Allocate Tier 1 IFM Unit Commitment uplift costs to net virtual demand along with actual physical demand
- No allocation of Tier 2 costs to virtual bids
- Rationale- virtual demand along with physical demand will have an impact on more units committed in the Day-Ahead IFM.

Proposal for RUC Cost Allocation

RUC Unit Commitment cost allocation

- Allocate Tier 1 RUC to net virtual supply along with under scheduled demand
- No allocation of Tier 2 costs to virtual bids
- Rationale- Load not scheduled Day-Ahead and virtual supply result in more RUC procurement

Proposal for Cost Allocation (Cont'd)

Real-Time BCR Uplift

- Under current single tier - allocate to measured demand only
- If CAISO eventually moves to a two tier allocation for Real-Time Uplift -
 - Tier 1 costs allocated based on net negative deviations including virtual supply and under scheduled load
 - Tier 2 costs allocated to measured demand
- Rationale – under scheduled load along with virtual supply will impact additional resources committed in Real-Time

Proposal for Cost Allocation (Cont'd)

Ancillary Services Cost Allocation

- **No cost allocation to virtual bids for Tier 1 or Tier 2 A/S costs**
- **Rationale - Procurement of A/S is based on CAISO Demand forecast and is not impacted by virtual bids. Therefore Tier 1 costs should not be allocated to virtual bids.**
- **There may be some cost impact due to virtual supply to tier 2 costs which results from CAISO Forecast error but impact should be minor. CAISO suggests that exempting virtual supply from Tier 2 A/S costs may be warranted for simplicity.**

Proposal for Cost Allocation (Cont'd)

- **Additional Uplifts**
 - Marginal Loss Surplus
 - Real-Time Imbalance Uplift
 - Congestion Off-Set
- **Continue to allocate to Measured Demand**
- **Rationale – Virtual bids occur in buy/sell pairs and are closed out with an automatic countervailing trade in real-time. Since transactions in effect net out, virtual bids should not receive additional credits for losses or congestion**

Proposal for Cost Allocation (Cont'd)

Grid Management Charge (GMC)

- **Initial options for future consideration**
 - Option 1: assess a processing or transaction fee for each supply or demand bid submitted
 - Option 2 (a): assess GMC only on cleared virtual transactions on a per bid basis,
 - Option 2 (b): assess GMC only on cleared virtual transactions based on the volume of the accepted supply or demand bids(volumetric basis)
 - Option 3: Hybrid of option 1 and 2. Each bid would be assessed GMC. If a virtual bid is cleared GMC would be assessed on the volumes of the bid or offer. PJM follows this methodology.

Credit Policy for Virtual Bidding

- **Posted attachment lists features of credit policies for virtual bidding in other ISOs:**
<http://www.caiso.com/1bef/1befe56c72c30.pdf>
- **Foundation for comparison as CAISO develops its own mechanisms to deal with credit requirements for virtual bidding.**
- **Open issues related to credit policy to be fully identified in June 21 White Paper.**