

Credit/Collateral and Cost Allocation Issues Related to Convergence Bidding

Introduction

The CAISO is reserving agenda time during the “Market Initiatives” stakeholder meeting on November 29th for continued public discussion on the design features for convergence bidding. This discussion will focus on two elements:

- 1) credit/collateral for virtual bids
- 2) cost allocation issues related to virtual bidding

The following excerpts from the “*August 14, 2006 Revised Working White Paper on Design Criteria for Convergence Bidding*” (located at <http://www.caiso.com/1853/1853b42961fc0.pdf>) are taken from the sections pertaining to the credit and cost allocation elements.

New text that has been added to these excerpts -- including a Straw Proposal for each element as a starting point for further discussion -- is written in bolded type.

1 Credit and Collateral

Regarding credit and collateral issues the ISO intends to be guided by the opinions expressed by FERC concerning credit and collateral issues as they pertain to virtual bidding.

At least two observations can be made from FERC’s previous guidance on these issues:

- **First, there is no standard FERC policy for collateral requirements upon virtual bidding participants within ISO markets; instead, FERC has generally allowed each RTO or ISO to adopt different credit limits based on their perception of risk.¹**

¹ See “Order on Compliance Filings” issued July 27, 2006, regarding PJM’s six-month reports on credit policies on virtual traders at: <http://www.ferc.gov/eventcalendar/Files/20060727170528-ER03-1101-009.pdf>

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- **Second**, it appears that when virtual trading first began in the eastern ISOs it was common to constrain it with credit requirements.

NYISO as well as PJM initiated virtual bidding with special collateral requirements for virtual bidders – and then relaxed those requirements after a period of time.

The justification, accepted by FERC, was that each ISO needed to proceed with some caution until they had sufficient experience with virtual transactions. As this concern proved unfounded the ISOs have moved to more conventional credit requirements under FERC orders.

The CAISO can either follow the same path that the eastern ISOs followed, namely to constrain and then liberalize under FERC orders, or simply jump straight to the end point which appears to be a one or two day collateral requirement. Another compromise position would be to constrain the initial release, but document a fairly rapid liberalization at predefined dates thereafter.

1.1 Collateral Requirements

To engage in virtual trades **it is assumed that** participants **will** have to post collateral as they do for other aspects of the CAISO markets. **The issue here focuses on what special creditworthiness concerns might be raised by virtual bidding and how to address those concerns without creating unreasonable barriers to entry.**

Generally, it appears that NYISO and PJM maintain more stringent collateral requirements than the other ISOs, and these requirements have been relaxed over time.²

PJM generally requires members to maintain credit equal to the highest two consecutive months of historical activity for general obligations. In addition, member obligations may not exceed 85% of the credit established with PJM at any given time.

PJM screens submitted virtual bids as follows:³

² FERC has previously ruled on the credit and collateral policies of the NYISO (Docket No.ER05-941-000, see Issuance of July 1st 2005) as well as separate rulings at PJM (see PJM, 104 FERC ¶ 61,309 at P 23-24 where FERC rejects a proposed four-day collateral requirement); and the Midwest ISO, (see MISO 108 FERC ¶ 61,163 at P 447-48 where FERC rejects a proposed six-day collateral requirement).

³ **Overview of PJM Credit Policy and Credit Requirements**, March 18, 2005 at: <http://www.pjm.com/documents/downloads/agreements/pjm-credit-overview.pdf>

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All submitted day-ahead bids are multiplied by a reference price (defined below). All cleared day-ahead bids for the prior three days also are multiplied by the same reference price. If the resulting dollar value exceeds a participant's credit available for virtual bidding, then the bids are rejected.

"Credit available for virtual bidding" is a member's total credit established by PJM, less any special set-asides (e.g. FTR auction), less any current obligations to PJM (e.g. unpaid prior month plus unbilled current month), less 15 percent of the member's credit requirement for normal market activity (see explanation of working credit limit under "Short-term credit requirement"), plus any unbilled profits to date in the current month.

For NYISO. the specific collateral calculation also focuses on the losses that could result from the price deviation between the Day-Ahead and Real-Time markets.

The collateral required by the NYISO is derived by according to the following formula:

**Collateral = the MWHs daily trading limit
X the exposure period (in days)
X the percentile value of the price difference between DAM and RT over the last 90 days.**

The key variables, used initially to constrain VB, that have been liberalized over time are:

- **Length of the exposure period. NYISO originally sought 14 days as the exposure period. FERC reduced that to 7 days, and then 4 days. Currently 2 days is the exposure period.**
- **The price difference percentile value (or reference price.) This is the percentage of the highest price difference over a certain time period. NYISO remains at 97% of the highest price DA to RT price difference over the last three months. (MISO has moved to 50% by FERC order.)**
- **Locational nature of price differences. The main issue here is whether these price differences should be calculated within zones or across zones. New York's formula is across its 11 zones, so that the highest price differences throughout their entire system is used in the calculation, and not just the highest price difference within a zone.**

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1.1.1 Discussion

- SCE suggests that collateral for virtual bidding must be sufficient to protect the market from potential payment defaults and should be commensurate with position limits allowed for virtual bidding.
- WPTF generally supports a collateral mechanism consistent with those in place at other ISOs.
- EPIC generally requests that credit requirements be kept to a reasonable level, similar to the requirements at MISO, because many virtual marketers are small entities without vast resources. EPIC further notes that credit requirements in other ISOs have eased as virtual markets have matured, although NYISO's collateral requirements "are onerous, unnecessary and continue to suppress the virtual market in New York."

1.1.2 Options for Consideration

The CAISO offers the following options for collateral requirements:

- Option 1: Constrain virtual bidding participation based on credit posting (virtual bid quantity times proxy clearing price)
- Option 2: Revise SC credit requirements based on the introduction of virtual bidding in the CAISO markets.
- Option 3: Constrain virtual bidding participation initially, and then move to a more conventional credit policy.

1.1.3 CAISO Recommendation

The CAISO proposes Option 3 as the preferred general approach, following a similar path forged by the eastern ISOs. The CAISO welcomes discussion around the proper balance for calculating the appropriate detailed collateral requirement that may be relaxed as experience is gained with virtual bidding.

More specifically, the CAISO suggests the initial trading limit be based upon the available credit of the market participant, similar to PJM's method for screening virtual bids against the participant's overall obligations.

The exposure of virtual bids should be limited by the amount of Available Credit that each Market Participant maintains. Available Credit = Financial Security + Unsecured Credit Limit - Estimated Aggregate Liability (EAL). The EAL of each Market Participant should incorporate the exposure to

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virtual bids along with charges/credits associated with all other market transactions. EAL is currently calculated weekly.

Thus in addition to a maximum position limit applied to every firm, there would be a potentially lower position limit for firms who post more modest collateral.

1.2 Proxy Clearing Price for Collateral Calculation

To calculate the collateral requirements the CAISO, like other ISOs, would have to multiply the quantity virtually bid by a proposed proxy clearing price. **Among other ISOs, this “reference price” is generally based upon some percentile of the highest difference between the day-ahead and real-time prices.**

- **PJM’s credit policy states:⁴**

Reference prices for virtual bids are calculated separately for each location on the PJM grid. The year is divided into six two-month periods (January-February, March-April, May-June, July-August, September-October and November-December). For each period, the absolute value difference between the cleared day-ahead price and the actual real-time price for each hour in each day during that period in the previous year is calculated. (There will be 1,488 such hourly values for each location in July-August.) Those values are then ranked, and the 97th percentile value (e.g. the 44th highest for July-August) is chosen as the reference for that location. Reference prices are applied to the bid locations with which they are associated, so bids at different locations will be multiplied by different reference prices.

- NYISO remains at 97% of the highest price DA to RT price difference over the last three months.

1.2.1 Discussion

- WPTF supports using the 50th percentile as the proxy clearing price for the collateral calculation.

1.2.2 Options for Consideration

⁴ **Overview of PJM Credit Policy and Credit Requirements**, March 18, 2005 at: <http://www.pjm.com/documents/downloads/agreements/pjm-credit-overview.pdf>

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The CAISO offers the following initial options for the computation of collateral:

- **Option 1: Reference clearing price based on some percentile (97%? 50%? other?) of the highest actual price during the previous 90 days (or a different period?)**
- **Option 2: Reference price based upon the maximum observed price difference between DA and RT over the previous 90 days.**
- **Option 3: Reference price based on the maximum possible price – i.e. the price cap (\$500 upon MRTU start-up).**

The CAISO continues to study this issue within the context of overall credit policy.

The CAISO suggests that the reference period for credit calculations of virtual bids should be based on a similar period in the past. So, for example, if a 90-day period is used to estimate the credit requirement, it should be based on the same 90 day period in a previous year rather than the latest 90 days because in the latter case, the seasonal variations are not captured. Alternatively, the reference period could encompass the entire previous year, which would clearly reflect seasonal variations in prices.

Other variables could be adjusted to make the CAISO's proposed collateral requirement tougher, similar or more liberal compared to other ISOs' proxy clearing price.

2 Cost Allocation

The issue of cost allocation can hardly be over-emphasized. This issue has recently come to the fore due to a recent FERC MISO decision (see Docket No.ER04-691-065, "Order Requiring Refunds, And Conditionally Accepting In Part, And Rejecting In Part Tariff Sheets" Issued April 25, 2006).

Briefly, in this case the MISO tariff assessed the Revenue Sufficiency Guarantee (RSG, similar in concept to Bid Cost Recovery for Energy and A/S bids under MRTU) to the sum of real-time load for the day, the resource uninstructed deviation quantities, and all virtual supply offers. The MISO did not implement the third part of this cost allocation (to virtual supply) and its Business Practices Manuals and tariff training materials both stated that virtual supply offers would not be included in the RSG charge calculation. Thus the MISO tariff and the BPM/training materials

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contradicted one another, and it appears that the MISO believed that the BPM formulation was the appropriate policy regarding uplift, and the failure to correct the tariff was an oversight of some sort.

Using the filed rate doctrine as the basis for its argument FERC ordered the MISO (paras 26-30) to recalculate the RSG charges and issue refunds where necessary. Turning to the prospective treatment of RSG allocation FERC instructed the MISO to make sure that virtual supply is allocated an appropriate share of the RSG payments (paras 48-49) as the virtual supply can cause RAC (Reliability Assessment Commitment – similar to Residual Unit Commitment under MRTU) costs.

Clearly FERC is of the opinion that RUC-type costs should be assessed to virtual supply.

2.1 Unit Commitment Costs from the IFM and RUC

There is also a fair level of complexity in the allocation of the uplift charges at both the NYISO and at PJM.

PJM appears to allocate uplift from the DAM solution to DAM demand (actual and virtual) and real-time uplift is allocated to any entity causing an uninstructed deviation from the DA solution (which implies that virtual demand and supply share in this cost allocation).

It should be pointed out that virtual demand increases unit commitment in the IFM and decreases commitment in RUC, whereas virtual supply (negative load) does just the opposite -- it decreases unit commitment in the IFM and increases commitment in RUC. Under a principle of cost causation, this suggests that virtual demand should pay a share of the IFM commitment costs similar to physical demand, whereas virtual supply should pay a share of the RUC commitment costs comparable to the allocation to metered load that was not scheduled in the DA IFM. Such a design would conform to the principles of cost causation as well as the FERC MISO decision mentioned above.

2.1.1 Discussion

- PG&E urges the CAISO to assess whether virtual bidding's potential for increasing the use of RUC may create inappropriate cost shifts. PG&E also comments that the virtual bidding design should include provisions that prevent dispatch of use-limited resources, which must be budgeted across a season.
- SCE urges that virtual bids be treated as closely as possible to physical bids with respect to cost allocation. Specifically, virtual and physical

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transactions should be included in all the processes related to LAP price averaging, incorporating the hourly costs of HASP and any RT adders/subtractors, and ex-post corrections to distribution factors made after the CAISO receives meter data. SCE also urges that certain virtual bids pay a portion of RUC costs and start-up/minimum load costs.

- Williams Power Company comments that virtual bids should be allocated IFM commitment costs only if those virtual bids increase IFM commitment beyond what would have been committed in the IFM if demand had been accurately bid into the IFM. Williams states that virtual bids could be counteracting the distorting effects of under-scheduling, and that allocating commitment costs only to physical demand creates the maximum incentive for physical demand to schedule accurately.
- WPTF agrees that uplifts necessary to facilitate transactions would be appropriately applied to virtual bids since virtual bids create an impact on the ISO's systems and processes. However, WPTF comments that uplifts that are the result of physical delivery such as no-pay allocations should not be allocated to virtual bids.
- EPIC disagrees with the statement that "FERC is of the opinion that RUC – type costs should be assessed to virtual supply" because EPIC believes that FERC's April 25, 2006 order is unclear. EPIC further notes that RSG - type charges continue to be defined and adjusted in the eastern ISOs.

2.1.2 Options for Consideration

The CAISO offers the following options for IFM and RUC Unit Commitment cost allocation:

- Option 1: Exempt virtual bids from unit commitment cost allocations
- Option 2:
 - Include DA virtual demand bids (along with actual demand) as billing determinants for DA Unit Commitment uplift cost allocation.
 - Include DA virtual supply bids (along with under scheduled demand) as billing determinants for RUC cost allocation.

2.1.3 CAISO Recommendation

The CAISO focuses on Option 2 as a Straw Proposal -- whereby virtual and actual Day Ahead bids would be allocated uplift for the unit commitments

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within the IFM, and the DA virtual supply bids would be allocated a portion of RUC costs.

The rationale for this treatment is based less on “cost causation” and more on the notion that virtual and physical bids should be treated symmetrically. Such equal treatment appears to be a simpler and more realistic operating philosophy compared to the more complicated “causation” notion by which the CAISO conceivably might have to track each virtual bid to determine its precise impact upon certain costs.

2.2 Ancillary Service Cost Allocation

In the eastern ISOs the reserve cost allocation differs between the PJM and NYISO model. PJM allocates DAM reserve costs to all demand, both actual and virtual, whereas the NYISO allocates reserves costs to actual withdrawals. Neither makes mention of regulation costs. Although there is some choice over how AS costs are allocated the CAISO believes that the MRTU procurement methodology again gives a good indication as to how AS costs might be allocated.

Under the MRTU design the procurement of Ancillary Services will be based on the CAISO forecast of CAISO demand, not on the IFM result. Thus virtual demand will not cause incremental procurement of AS and virtual supply will not create a real AS obligation.

This might suggest that AS costs should be allocated to physical loads as occurs at the NYISO. However, it should be pointed out that under MRTU A/S costs are allocated in two Tiers. Tier 1 is allocated based on Obligation net of self provision. There are also Tier 2 (neutrality) cost allocations under MRTU which result from discrepancies between CAISO procurement and SC Obligations. Whether or not virtual bids should be allocated part of the A/S neutrality cost must be discussed.

2.2.1 Discussion

- SCE suggests that virtual bids can impact A/S costs, and it is appropriate to charge virtual supply tier 2 A/S costs. SCE further suggests that virtual supply should be charged RT A/S costs to the extent these costs are not captured in the tier 2 charge. SCE agrees that day-ahead tier 1 A/S costs should not be charged to virtual suppliers.

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2.2.2 Options for Consideration

The CAISO offers the following options for Ancillary Service cost allocation:

- Option 1: Exempt virtual bidding from A/S cost allocation
- Option 2: Exempt virtual bidding from Tier 1 A/S cost allocation (based on User Rate), but not from A/S neutrality cost allocation (including both virtual supply and virtual demand.)

2.2.3 CAISO Recommendation

As a Straw Proposal the CAISO favors Option 2 whereby virtual bidding would be exempt from Tier 1 A/S cost allocation, but both virtual supply and virtual demand would be included in the Tier 2 cost allocation for neutrality.

The CAISO notes that A/S is generally priced as a separate product from energy, whereas RUC/UC are in effect uplift charges on a certain type of energy purchase. Thus it makes sense to exempt virtual energy from A/S costs that can be explicitly acquired separately by physical load. However, to the extent Tier 2 costs are a form of uplift, then it makes sense to include this with the energy (VB or physical) purchases.