



California ISO
Your Link to Power

Issue Paper

**Modifying the
DEC Bidding Activity Rule
on
Day-Ahead Schedules**

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Modifying the DEC Bidding Activity Rule on Day Ahead Schedules

Prepared for Discussion at MSC/Stakeholder Meeting on February 8, 2008

1 Introduction

This paper initiates a stakeholder process to discuss a specific change in the process for submitting Energy Bids in the CAISO markets. This potential modification would **NOT** impact MRTU start-up, so the bidding process that is currently defined in the MRTU tariff, documented in *Business Practice Manuals for Market Instruments and Market Operations* and thoroughly explained in various MRTU "Bid-to-Bill" training classes presented to market participants throughout 2007 will, most likely, remain in effect when MRTU "Goes Live."

This stakeholder discussion looks ahead at part of the package of enhancements known as "Market Release 1A."¹ The purpose of this short stakeholder process is to design conceptual improvements to the Real Time market through a modest change to a rule on Decremental (or "DEC") energy bids. Currently this rule prohibits a Scheduling Coordinator from submitting Energy Bids in the HASP or Real Time Markets that are lower than any cleared Bid price submitted by that Scheduling Coordinator in the Day-Ahead Market. This rule does not apply to A/S or RUC Bids that cleared the Day Ahead Market or Bids that did not clear the Day Ahead Market.

This bidding rule was put in place early in the MRTU policy process to prevent a version of what is referred to as the "DEC" game in the CAISO's current market design, whereby generators strategically bid Energy in the Day Ahead Market and then reap benefits in subsequent markets in situations where transmission derates require Real Time decremental re-dispatch.

While the creation of the Full Network Model and the Day Ahead Market process mitigate the threat of this "DEC game," the currently established rule prevents similar gaming opportunities in those infrequent situations where a transmission outage occurs after the Day Ahead Market but before the Real Time Market closes.

¹ "Market Release 1A" includes *Convergence Bidding, Scarcity Pricing, Seasonal Competitive Path Assessment, Dispatchable Demand Response, Constrained Output Generation Pricing and the DEC Bidding Rule*. See relevant posted documents at: <http://www.aiso.com/1c6a/1c6ae12a2caa0.pdf> and <http://www.aiso.com/1c7a/1c7a72d55870.pdf>. The CAISO is targeting all elements of the "Market Release 1A" package to be implemented within one year after MRTU "Go Live."

In its 2005 report "*Comments on the California ISO MRTU LMP Market Design*," the consulting firm LECG pointed out unintended consequences that could result from this particular rule. LECG warned the rule discourages Scheduling Coordinators from submitting DEC bids, and a dearth of DEC bids in the Real Time Market could require the CAISO to resort to uneconomic adjustments of schedules in Real-Time.² Thus, to the extent there are insufficient DEC bids in the Real Time Market, the CAISO would be adjusting resources that were scheduled in the Day Ahead Market uneconomically by paying entities a default Real Time offer price of \$30/MWh.

The CAISO recognized that some change to this DEC Bidding Rule would be beneficial for market efficiencies, but did not believe such change was absolutely necessary for MRTU Release 1. There are no significant operational problems due to this rule potentially leading to insufficient DEC bids in Real Time because the Real Time optimization will automatically determine an optimal dispatch, even if non-economic adjustments are necessary. Thus, this market enhancement was deferred beyond the MRTU startup, identified on the CAISO's *Market Initiatives Roadmap*³ and recently prioritized as a component for Market Release 1A.

Besides LECG's concerns, there are other reasons for relaxing this DEC Bidding Rule. A DEC market with ample moderate DEC bids could be even more important when convergence bidding is implemented because generating units are more likely to be decremented in Real Time to account for virtual load that clears in the Day Ahead Market and then is subsequently liquidated in the Real Time Market. Moreover, the introduction of convergence bidding could render this rule ineffective because market participants could submit virtual bids along with Self-Schedules in the Day Ahead Market to preserve their option to submit DEC bids in the Real Time Market. Finally, modifying this rule could give added flexibility for generation to re-bid in response to changing conditions for its resources.

This paper briefly offers two approaches to address these concerns: 1) permitting a limited time for DEC re-bidding in the Real Time Market; or 2) abolishing the rule and permitting DEC re-bids throughout the Real Time market. The CAISO seeks additional ideas and discussion from stakeholders as well as guidance from the Market Surveillance Committee. In the near future, the CAISO will follow-up this Issue Paper with a Straw Proposal for further public review and comment.

² Day-Ahead schedules are assigned a level "x" priority to minimize the possibility they may be economically selected in Real Time. This lower bound "penalty price" is (-\$30)/MWh. Thus, uneconomic adjustments are dispatched according to the priorities established in Section 34.10.2 of the MRTU Tariff and settled at this (-\$30)/MWh price.

³ The most recent update (Sept. 14, 2007) of the *Market Initiative Roadmap* is posted at: <http://www.caiso.com/1c59/1c59a6a2232a0.pdf>

2 Background: *Why was this Bidding Rule established?*

The origin of this activity rule dates back to the CAISO's original Comprehensive Market Redesign Proposal⁴. Among other things, the market redesign focused on concerns about previously-practiced "DEC" games in which entities would offer schedules that were acceptable in the forward market but infeasible in Real Time, so that the entity submitting these schedules, knowing that they would be decreased in Real Time due to their infeasibility, could predictably profit by these actions.

The creation of the Full Network Model and other features of the market redesign should largely mitigate "DEC" gaming because all known transmission constraints throughout the CAISO grid will be modeled up through Real Time, so that schedules cleared by the IFM should be feasible in Real Time and entities should not expect or be able to predict before the Day Ahead Market that their schedules will be decremented in Real Time.

In developing the conceptual design for the market redesign, however, the CAISO and stakeholders recognized the limited possibility for DEC gaming if a new transmission constraint occurred soon after the close of the Day Ahead Market, when market participants could react quickly and submit DEC bids in the Real Time Market with near-certainty that their cleared Day Ahead schedule would be decremented.

For example, suppose a line derate occurred at 6:00 p.m. the day before the Operating Day and required a unit's final Day Ahead Schedule to be reduced by 100 MW for every hour of the day. The Scheduling Coordinator for that resource could then submit -\$30 DEC bids in the Real Time Market and earn \$3,000 per hour. While this scenario would not be a common occurrence, the possibility for this version of the DEC game was deemed significant enough to warrant preventive action.

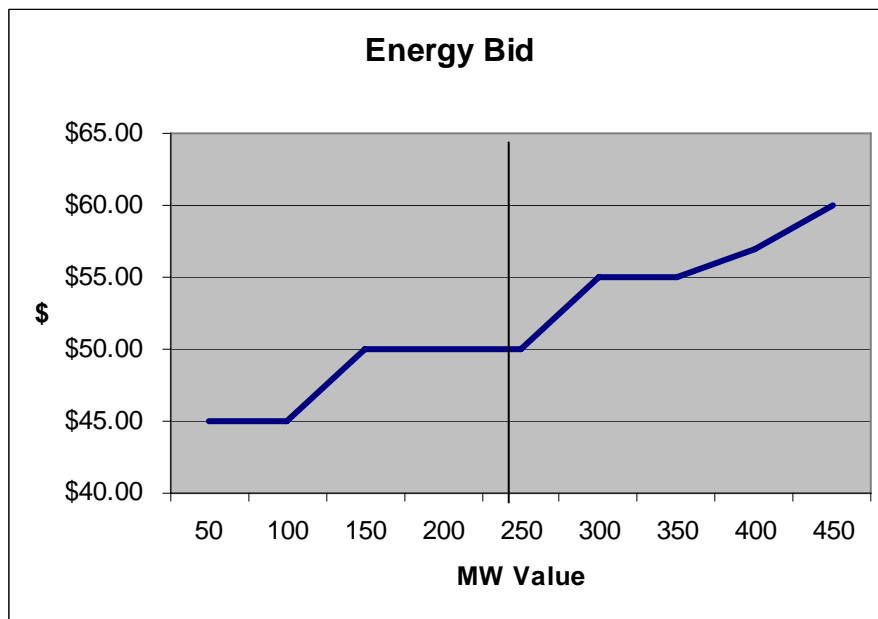
Thus the CAISO's July 2003 *Amendment to the Conceptual Market Redesign* included an activity rule prohibiting resources that cleared economically in the Day Ahead IFM from submitting DEC Energy Bids to a subsequent market at lower prices than the prices at which they were scheduled in the Day Ahead IFM. In its filing to FERC, the CAISO pointed out that this rule would prevent Day Ahead scheduled resources from playing the DEC game in situations where a facility outage or derate on the system caused their final Day Ahead Schedule to be infeasible and required the CAISO to DEC that schedule in the Real Time Market. Another rationale for this rule was that bid prices that are accepted in one market time frame are essentially contractual commitments and cannot be lowered in a subsequent market time frame.

⁴ Filed by the CAISO as Amendment 44 of the CAISO Tariff within FERC Docket No. ER02-1656.

FERC's October 28, 2003 Order⁵ accepted the CAISO's proposed bidding rules. This rule has been incorporated in Section 30.5.1 (b) of the MRTU Tariff⁶ in the following language:

(b) Bid prices submitted by Scheduling Coordinator for Energy accepted and cleared in the IFM and scheduled in the Day-Ahead Schedule cannot be decreased. Bid prices for Energy submitted but not scheduled in the Day-Ahead Schedule may be increased or decreased in the HASP. Incremental Bid prices for Energy associated with Day-Ahead AS or RUC Awards in Bids submitted to the HASP may be revised.

To summarize, this rule was established to avoid the possibility that decremental Bids might be abused (such as the DEC game resulting from changes in transmission constraints after the close of the Day Ahead Market.) For example, in the graph below a Bid to supply 250 MWs of energy at \$50/MWh was cleared in the Day Ahead Market, as indicated by the vertical line in the center of the graph. The Scheduling Coordinator here would not be able submit a decremental Bid lower than \$50 (to the left of the vertical line) to back that resource off in the Real Time Market.



⁵ Further Order on the California Comprehensive Market Redesign Proposal issued October 28, 2003 in Docket No. ER02-1656-003.

⁶ Originally filed February 9, 2006, and re-posted on December 21, 2007 as the Fourth Replacement Version at: <http://www.caiso.com/1cbb/1cbbb55ce5e0.html>

3 Problem Statement: *Should this Bidding Rule be modified?*

The CAISO suggests at least three reasons for modifying this Bidding Rule:

- 1) **Potential Bid Insufficiency:** Relaxing the prohibition on DEC bids below those Bids that cleared in the Day Ahead Market would increase the likelihood for a sufficient amount of DEC Bids, thereby enhancing the efficiency of the Real Time Market.
- 2) **Consistency with Convergence Bidding:** If some allowance for DEC bids were permitted, virtual bids (when introduced in the CAISO markets) may counteract any DEC gaming activity by one market participant. Moreover, convergence bidding could render the current Bidding Rule ineffective anyway.
- 3) **Increased Flexibility for Market Participants:** A revised rule would provide market participants with more flexibility to re-bid, or to protect their cleared Day Ahead Schedule.

3.1 Potential Bid Insufficiency

LECG in its 2005 report "*Comments on the California ISO MRTU LMP Market Design*" (Issue #8) found this activity rule that precluded reduction in DEC bids to be problematic because:

1. The "default" of ignoring the Day Ahead energy bid curve in the Hour Ahead/Real Time Markets would tend to create shortages of DEC bids when they are most needed, causing the -\$30 bid floor to be hit more often than it would if the Day Ahead energy bid curves were retained for re-dispatch in Real Time.
2. The activity rule ignores valid economic reasons why a Scheduling Coordinator would want to lower its DEC price below its highest accepted bid price in the Day Ahead. Under these circumstances, the Scheduling Coordinator would tend to submit no DEC bids at all, limiting the efficiency of the Hour Ahead/Real Time dispatch and potentially exacerbating any DEC bid shortage for the CAISO.

LECG pointed out if there are insufficient DEC Bids the CAISO must resort to uneconomic adjustments in Real-Time, which would lead (in accordance to the established dispatch priorities) to decrements to Self-Schedules and then Day-Ahead Schedules at the "penalty price" cost of \$-30/MWh. The result, LECG says, is an implicit Real Time offer price of \$-30/MWh for resources scheduled in the Day-Ahead Market.

To summarize, if a market participant wants to offer decremental MWs up to the amount of their Self-Schedule, they would simply not submit Bids in the Real Time Market. As a result, a large portion of the available DEC bids could be at \$-30/MWh. In circumstances when DEC Bids are needed, a lack of DEC Bids in a more "moderate" range can cause large costs as the CAISO pays market participants not to produce.

3.2 Consistency with Convergence Bidding

A sufficient DEC market will also be important when Convergence Bidding is implemented and physical units may need to be decremented in Real-Time to account for virtual load that was cleared in the Day-Ahead Market and then is liquidated in the Real-Time Market.

Convergence bidding could allow a virtual Demand Bid at a generator's node that would raise the amount of generation that could be produced at that node. Thus a Scheduling Coordinator could self-schedule an Energy Bid along with a high-price virtual Demand Bid, which would likely be cleared in the Day Ahead Market. Then, that Scheduling Coordinator could offer a DEC Bid with a negative price that would likely clear in the Real Time Market because that virtual Demand Bid disappears. In this way the Scheduling Coordinator would assuredly get paid to DEC or not produce energy.

Thus, the introduction of virtual bidding would make this DEC bidding rule ineffective. Instead of submitting a Bid to supply energy, a market participant could submit a supply Self-Schedule plus a virtual Demand Bid that would result in a likely cleared DEC Bid in Real Time for that market participant.

3.3 Increased Flexibility for Market Participants

This bidding activity rule says that the portion of the Energy Bid curve selected in the Day Ahead Market cannot be reduced for sale back to the CAISO in the subsequent markets. (However, bidders can lower their Energy Bid prices for awarded A/S and RUC capacity to increase the likelihood of Real Time dispatch.)

Suppliers have a fair amount of flexibility even with this activity rule in place. For example, in the Day Ahead Market suppliers may submit different bids for different hours of the day. Any capacity that has been bid but not cleared by the IFM can be re-bid into the CAISO's markets. Suppliers also are allowed to reduce their Energy Bid prices for capacity that has already been accepted, if they wish to increase the likelihood of the associated resources being dispatched by the CAISO.

However, market participants may desire even greater flexibility to adjust their resources in light of changing plant conditions after the close of the Day Ahead market, or to alter the mix of MWs they offer for sale in the Real Time markets. For example, the Scheduling Coordinator who offered 250MW that cleared the Day Ahead Market at \$50 may, for its own business or maintenance reasons, seek to re-bid only 100MW of energy at \$45 as well as 150MW for A/S in the Real Time market. The current DEC Bidding Rule prevents such flexibility.

4 Initial Options: *How might this Bidding Activity rule be modified?*

As a starting point of discussion, the CAISO offers the following brief ideas for modifying this Bidding Rule:

- Implement a re-bid period shortly after the Day-Ahead Market (possibly between 1:00 p.m. and 3:00 p.m.) to allow Scheduling Coordinators to submit Real Time Bids that may be above or below prices accepted in the Day Ahead Market. This would allow prices associated with energy that is scheduled in the Day Ahead IFM to be reduced only within the first two hours after the final Day Ahead Schedules are published. The CAISO would publish market outcomes at 1:00 p.m. daily for the next Operating Day, so such changes would be accepted by the CAISO up to 3:00 p.m. Such a Bid would then be fixed and be carried through to the Real Time clearing process. This option would allow Market Participants to offer Energy into the Real Time Market after seeing Day Ahead Market results, but before knowing all but the most immediate transmission derates affecting the following day's Real Time Market.
- Allow supply re-bids all the way through the close of the Real Time market at T-75. This could allow the possibility for a DEC game incentive, but gaming opportunities would be minimized by the possibility of virtual bids that could counteract any DEC game bidding strategy.

5 Conclusion

Decremental Bids in any market are important to reduce the overall cost of operation by providing for efficient economic dispatch of the grid. The CAISO would expect that market participants would be looking for more cost effective ways to meet their obligations and would find it beneficial to submit decremental Bids.

With the introduction of convergence bidding, the CAISO needs to modify or relax the currently-established activity rule that prohibits DEC Bids in the Real Time Market that are lower than the portion of the Day Ahead Bid that cleared the IFM. While the CAISO generally protects market participants' schedules, so they don't have to re-bid their cleared Day Ahead schedules into the Real Time market, a modified activity rule could allow additional bids to override the cleared Day Ahead Schedule if a market participant chose to submit another Bid.

The CAISO could allow re-bidding – either for a limited time period in the Real Time market, or to allow DEC re-bids throughout the Real Time market -- so that market participants who have cleared Day Ahead Bids, but may be willing in the Real Time

Market to buy it back and get paid, or re-sell that capacity for reserves instead of energy, may do so.

The overall goal here for this policy initiative is to develop, with stakeholder input, a way to relax the DEC activity rule to achieve the market efficiencies from a liquid market for Real Time decremental Bids, but without creating an unreasonable risk or incentive for DEC games.

6 Proposed Process for Developing this Proposal

The CAISO welcomes any initial comments or suggestions on this Issue Paper at the MSC/Stakeholder meeting on Friday, February 8, 2008. A draft agenda with a call-in number is posted at: <http://www.caiso.com/1f5c/1f5ce85845900.pdf>.

Stakeholders may email written comments on this initial paper or the MSC discussion to DWithrow@caiso.com by February 15, 2008.

The following table highlights key dates for developing and resolving this issue. The CAISO will notify stakeholders of additional updates or any changes to this proposed schedule via Market Notices.

February 1, 2008	Issue paper posted
February 8	MSC/Stakeholder meeting
February 15	Initial stakeholder comments due (email to: DWithrow@caiso.com)
February 20	Straw Proposal posted
February 27	Stakeholder conference call
March 5	Stakeholder comments due (email to: DWithrow@caiso.com)
March 12	Final Proposal posted
March 14 (tentative)	MSC Opinion posted
March 26-27, 2008	Presentation (Decision) to CAISO Board of Governors

The CAISO is targeting conceptual policy resolution for this issue by mid-March, 2008, and a recommendation to the CAISO Board of Governors along with some other Release 1A elements at the end of March. Assuming Board approval, the CAISO would then would file proposed tariff language with FERC later this year and prepare to implement the necessary software adjustments, in conjunction with convergence bidding and other Market Release 1A features.