

Memorandum

To: Board of Governors
From: Greg Cook, Manager, Tariff & Regulatory Policy Development
Chuck King, Vice President, Market Development & Program Management
Date: October 9, 2007
Re: Briefing on *Future Market Enhancements - Roadmap Update*

This memorandum does not require Board action

EXECUTIVE SUMMARY

The CAISO will have future planned releases of market software modifications to further refine its market design and to include market features that were proposed for inclusion in MRTU Release 1 but were deferred due to implementation limitations.

In August the CAISO initiated a stakeholder process to begin prioritizing and ranking future market enhancements in accordance with the formal ranking process developed with stakeholders last year. *The 5-Year Market Initiatives Roadmap* that is posted on the CAISO website includes a list and description of all proposed future market enhancements both mandated by FERC as well as non-mandated items that have resulted from various stakeholder and CAISO input. The 5-Year Market Initiatives Roadmap (refer to Attachment A) has been updated with new initiatives as well as a status on existing initiatives.

The CAISO has planned its first release of market enhancements following MRTU for no later than 12 months after the MRTU start date. This first release, identified as Market Release 1A will include mostly market enhancements mandated by FERC with the addition of a few non-mandated market enhancements that the CAISO considers non-discretionary, that were identified by LECG in the February 2005 report "*Comments on the California ISO MRTU LMP Market Design*"¹.

After consideration of resource requirements for the development and implementation of FERC mandated market design enhancements, stakeholder input, and the review and prioritization of market enhancements described in the 5-Year Market Initiatives Roadmap, the CAISO proposes to include the following market enhancements to comprise "Market Release 1A" planned to be implemented 12 months after MRTU start-up:

¹ LECG "Comments on the California ISO MRTU LMP Market Design" is located on the CAISO website at <http://www.caiso.com/docs/2005/02/23/200502231634265701.pdf>

- Convergence Bidding (FERC mandated within 12-months after MRTU start-up)
- Scarcity Pricing (FERC mandated within 12-months after MRTU start-up)
- Seasonal Competitive Path Assessment (FERC mandated within 12 months after MRTU start-up)
- Dispatchable Demand Response (FERC mandated no later than 3 years after MRTU start-up)
- Relax DEC Bidding Activity Rule
- Resolve effect on Real-Time prices due to Constrained Output Generation and run time constraints

Stakeholder Engagement and Input

The CAISO presented the *Initial Scoping of Future Market Enhancements* issue paper in the MSC/Stakeholder meeting held on August 25th. The issue paper outlined the formal process developed for prioritizing and ranking market initiatives and identified FERC mandated market initiatives that the CAISO is directed to implement in Market Release 1A and Market Release 2. The CAISO received a number of comments to the issue paper and posted a revised proposal that included proposed Market Release 1A scope which was discussed on a Stakeholder conference call on September 21st. Stakeholder comments were received on September 24th and reviewed and a Straw Proposal was created. Stakeholder comments received on September 24th indicated general support for the CAISO's proposal for Market Release 1A. A Final Proposal for Market Release 1A scope will be completed and shared with Stakeholders once the CAISO completes its implementation analysis on the Release 1A enhancements.

Market Release 1A Scope

The CAISO proposes to include the market enhancements described in the following paragraphs as part of Market Release 1A for implementation no later than 12 months after MRTU start date. This package of market enhancements represents the CAISO's best estimate of what should be included in Market Release 1A at this time considering enhancements likely to provide the most benefit to the market, resource constraints, and the acknowledgement that there may be unforeseen issues that will need resolution after MRTU begins operation.

Convergence Bidding

FERC's 9/12/06 MRTU Order (Paragraphs 430-452) requires the CAISO to implement convergence bidding within 12 months of MRTU Release 1. FERC's 4/20/07 Order (Paragraphs 105-119) specifies that the CAISO must file tariff language for the implementation of convergence bidding no later than 60 days prior to the one year anniversary of MRTU startup.

Scarcity Pricing

FERC's 9/12/06 MRTU Order (Paragraphs 1077 to 1079) directs the CAISO to file tariff language for the implementation of an expanded scarcity pricing methodology within 12 months of the effective date of MRTU Release 1. Furthermore, the Order directs the CAISO to develop a reserve shortage scarcity pricing mechanism that applies administratively-determined graduated prices to various levels of reserve shortage, to be implemented within 12 months after Release 1.

Competitive Path Assessment Seasonally

FERC's 9/12/06 MRTU Order (Paragraph 1031) directs the CAISO to "develop a competitive assessment study that designates a path as either competitive or non-competitive on a seasonal basis with seasonal designations" as well as to "modify the competitive assessments study, as discussed above and to make a compliance filing with the necessary tariff changes to reflect these modifications within 12 months of the effective date of MRTU Release 1".

Dispatchable Demand Response

The CAISO proposes that the implementation of Dispatchable Demand Response, which was previously identified as a FERC mandated Release 2 enhancement be include in Market Release 1A for the reasons listed below:

- Link to Scarcity Pricing

Dispatchable Demand Response has been identified as an important component to ensure the success of Scarcity Pricing which is a FERC mandated Release 1A market enhancement. One of the purposes of Scarcity Pricing is to improve the price responsiveness of demand and to stimulate participation in demand response programs. The CAISO's current participating load model provides limited support for demand resources other than pumps and pump storage hydro units to participate in the CAISO markets. The CAISO software must be enhanced to allow other types of Demand Response resources to participate in the CAISO markets. With sufficient Demand Response resources, the system would rarely face deficiency and the Scarcity Pricing mechanism would possibly never be triggered.

As advised by MSC member Frank Wolak in his presentation at the June 6 MSC/Stakeholder Meeting, "coordinating scarcity pricing mechanism with active participation of final demand in the wholesale market" is a key element in determining how scarcity pricing should work in electric markets.

- Stakeholder Interest

The CAISO is currently leading two working groups comprised of stakeholders that are focused on Demand Response issues. The first working group is focused on Demand Response participation in MRTU Release 1 and a second working group is focused on desired enhancements and design for Demand Response participation in CAISO markets after MRTU Release 1. Stakeholder interest and participation in these working groups at the CAISO has been very high. In addition, a number of stakeholders included Dispatchable Demand Response in their written comments as a market enhancement that should be assigned high priority for implementation by the CAISO.

- FERC Direction

FERC has provided direction to the CAISO in the 9/21/06, 4/20/07, and 6/25/07 MRTU orders to work with market participants to provide additional opportunities for Demand Response in Release 2 and accordingly directed the CAISO to work with market participants to present additional opportunities for Demand Response resources to participate in the CAISO market.

The following two non-mandated market enhancements that the CAISO is proposing to be included in Market Release 1A were identified by LECG in the February 2005 report "Comments on the California ISO MRTU LMP Market Design" as issues in the CAISO's MRTU market design that should be resolved as soon as possible. The CAISO intended to implement these enhancements in Release 1 but was unable to do so due to schedule and budget constraints.

Relax DEC Bidding Activity Rule on Final Day-Ahead Schedules

The bidding activity rules in MRTU Release 1 disallow Decremental energy bids below the Day-Ahead Schedule in the Real-Time market at prices that are lower than what was bid in and accepted in the Day-Ahead market. The activity rules were put in place to prevent the "DEC" game in situations where transmission derates require re-dispatch of generation in the real-time market.

In the February 2005 report, LECG identified problems with these activity rules and determined the activity rules are ineffective due to the priority assigned to Day-Ahead schedules. LECG pointed out that the activity rules are likely to discourage market participants' from submitting DEC bids and therefore, by default, if there are insufficient DEC bids the CAISO must resort to uneconomic adjustments of self-schedules in Real-Time. Since Day-Ahead schedules are assigned a priority of \$-30/MWh this results in an implicit real-time offer price of \$-30/MWh for resources scheduled in the Day-Ahead Market

The CAISO also sees a link between the need for a liquid DEC market and Convergence Bidding in the case where Generating Units must be decremented in Real-Time to account for virtual load that was cleared in the Day-Ahead Market that is subsequently liquidated in the Real-Time

Ramping Limits for the Real-Time Pricing Run with Constrained Output Generation (COG)

LECG pointed out that the CAISO's approach for how the upper dispatch limit of non-COG units is determined in the pricing dispatch is problematic and could result in the calculation of inappropriate high prices. This could occur when uneconomic gas turbines are operating due to run time constraints and the actual output of the non-COG units are backed down to accommodate the output of these uneconomic gas turbines. As pointed out by LECG, the NYISO experienced false price spikes arising from these kinds of situations until the NYISO changed the logic structure in their price calculation step in 2000.

Next Steps

Once implementation analysis on Market Release 1A items is complete the CAISO will develop a final proposal for Market Release 1A and share it with stakeholders as well as the CAISO Board. The Stakeholder process for scoping future market enhancements will be ongoing. Prioritization and ranking activities on non-mandated market enhancements to determine future market releases will begin in 2008.