

# Memorandum

To: ISO Board of Governors  
From: Eric Hildebrandt, Manager, Market Analysis & Mitigation  
Keith Casey, Director, Market Monitoring  
Date: January 18, 2008  
Re: Decision on Bid Mitigation for Exceptional Dispatches under MRTU

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

Management is seeking Board approval of an MRTU tariff modification to mitigate market bids of units receiving Exceptional Dispatches in cases when locational or real-time market power may exist.

Under MRTU, the CAISO has authority to issue Exceptional Dispatches to address system or local reliability issues that cannot be resolved through the CAISO market software, and, therefore, have to be resolved through manual dispatch by the market operator. Such manual dispatches are referred to in the MRTU tariff as "Exceptional Dispatches". Exceptional Dispatches may be used to commit units and if necessary, to provide any additional real-time energy for meeting reliability requirements or unit operating constraints that are not met through the CAISO market software.<sup>1</sup> Under the current MRTU tariff, Exceptional Dispatches for energy (above minimum operating levels) are paid the higher of (a) the market bid price submitted by the generator, or (b) the Locational Marginal Price (LMP) for the generating node.

In some cases, units receiving Exceptional Dispatches to meet special reliability or unit operating constraints that cannot be resolved through the CAISO market software may be able to exercise market power by bidding up to the \$500 bid cap initially in effect under MRTU. The CAISO expects and will seek to ensure that the frequency and duration of Exceptional Dispatches will be very limited under MRTU, but there is a risk that Exceptional Dispatches may be more prevalent during the first few months of MRTU market operation. However, even if Exceptional Dispatches are relatively infrequent, the potential cost could be significant if generators receiving such dispatches are able to exercise local or temporary market power in the real-time market by submitting extremely high-priced energy bids. Consequently, the Department of Market Monitoring (DMM) believes that it would be prudent to consider implementation of a tariff provision to limit the potential for the exercise of market power by units receiving Exceptional Dispatches.

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<sup>1</sup> Exceptional Dispatches for real-time energy will be equivalent to what are currently referred to as out-of-sequence (OOS) and out-of-market (OOM) dispatches under today's market. Additional details and examples of Exceptional Dispatches are provided in the Background section of this memo.

The proposed mitigation rule would only apply to Exceptional Dispatches for energy to meet reliability requirements related to (1) non-competitive transmission constraints, (2) ensuring that some units operate at minimum dispatchable levels to protect against contingencies not directly incorporated or sufficiently met by the MRTU software, or (3) other special unit-specific operating or environmental constraints not incorporated in the MRTU model. A more detailed discussion of these specific types of Exceptional Dispatches is provided below. As part of the settlement process for Exceptional Dispatches issued under these conditions, the proposed mitigation rule would essentially replace the unit's market energy bid with the unit's Default Energy Bid (DEB) that is used in automated market power mitigation procedures incorporated in the MRTU software. Thus, units receiving manual Exceptional Dispatches for real-time energy under such conditions would be paid the higher of:

- The unit's Default Energy Bid (DEB), or
- The LMP at their location.

The mitigation rule would not apply to Exceptional Dispatches for system-wide energy requirements or to relief of congestion on competitive transmission constraints.

## MOTION,

*Moved, that the ISO Board of Governors authorize Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to provide for mitigation of prices paid for Exceptional Dispatches for energy as described in the memorandum dated January 18, 2008.*

## BACKGROUND

The MRTU software is designed to ensure that all of the grid's reliability requirements are met through the final market schedules and unit commitments produced by the Day Ahead Market (Integrated Forward Market (IFM) and Residual Unit Commitment (RUC)), and Real Time Market (RTM) software. The Full Network Model (FNM) incorporated in the MRTU market software is designed to account for all significant transmission limitations and other reliability constraints that must be met to maintain grid reliability. The MRTU software also includes a variety of enhancements in how unit-specific operating constraints are modeled to ensure that unit schedules and dispatches produced by the MRTU software are feasible and meet reliability needs.

The MRTU market software also includes automated Local Market Power Mitigation (LMPM) procedures to address the potential of suppliers exercising market power in congested (constrained) areas of the grid. An important element of the LMPM procedures is to designate all the transmission paths that comprise the Full Network Model as "competitive" or "non-competitive". These designations are made annually based on prior studies performed and periodically updated by the Department of Market Monitoring. Under the MRTU market optimization, to the extent that specific units are needed to resolve congestion on non-competitive transmission constraints, LMPM provisions are automatically applied to mitigate local market power. Under these automated LMPM provisions, generating resources dispatched to meet transmission constraints deemed to be uncompetitive may have their market energy bids replaced or capped by Default Energy Bids (DEBs) that are designed to reflect the unit's marginal operating costs.<sup>2</sup>

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<sup>2</sup> Generating units may select from three options for determining DEBs: (1) a cost-based option, (2) an LMP option based on LMPs during which the unit was dispatched during the previous 90 days, and (3) a negotiated option. Non-RA units that have their bids frequently mitigated are eligible for a \$24/MWh adder to the cost-based option.

In some cases, however, schedules produced by the MRTU market may not be sufficient to meet certain reliability requirements associated with temporary system changes, more complex grid reliability requirements, or unit operating constraints that are not directly incorporated in the MRTU software. For example:

- Exceptional Dispatches may be triggered as a result of a forced transmission outage. Under this scenario, the expectation is that within a short period, the CAISO will update the Full Network Model used in the market to reflect this new situation, which would allow a return to reliance on market mechanisms for addressing this constraint.
- However, some reliability constraints, such as voltage stability constraints, environmental restrictions, and certain contingency requirements may be too complex to completely capture in the current MRTU software. One specific example of this involves ensuring sufficient unloaded generation capacity is available to address the loss of a major transmission line into Southern California. If the results of the Day Ahead Market show that there is insufficient unloaded generation capacity in that region to address the loss of a major transmission path, an operator may need to commit additional generation units in Southern California through Exceptional Dispatch. In addition, because the unloaded generation capacity would need to respond relatively quickly in the event of a contingency (e.g., within 20 to 30 minutes), operators may also need to issue an Exceptional Dispatch just prior to the real-time energy market to “ramp” a generating unit up from its minimum operating level to a higher operating level – at which the unit could then be capable of providing additional output much quicker – should it be required.<sup>3</sup>

Consequently, under MRTU, the CAISO has authority to issue Exceptional Dispatches to address a system or local reliability issue that cannot be resolved through the CAISO market software. As described above, Exceptional Dispatches may be used to commit units prior to the real-time market to operate at minimum operating levels, and, if necessary, to provide any additional real-time energy to meet reliability requirements or unit operating constraints that are not met through the CAISO market software. Thus, Exceptional Dispatches under MRTU are equivalent to what are currently referred to as out-of-sequence (OOS) and out-of-market (OOM) dispatches under today’s market.<sup>4</sup>

Under the current MRTU tariff, if a unit is started up or required to continue to operate at minimum load (i.e., minimum operating level) through an Exceptional Dispatch, it will be guaranteed to be paid its Start-up and Minimum Load Bids through the standard Bid Cost Recovery process applied for all units committed through the MRTU markets. However, if a unit receives an Exceptional Dispatch for any additional incremental energy (above minimum load), this will be settled outside of the market clearing function, and is not eligible to set or affect market LMPs. Under the current MRTU tariff, Exceptional Dispatches for real-time energy will be paid the higher of

- The market bid price submitted by the generator, or
- The LMP for the unit’s generating node.

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<sup>3</sup> It is important to note that reliability requirements not fully captured in the MRTU market software may nonetheless still be met (either partially or completely) through the market dispatch and therefore would mitigate the need for Exceptional Dispatches. For example, the unloaded capacity requirements in Southern California (discussed above) may be largely met through the market optimization in meeting the various transmission and other reliability constraints that are incorporated in the market software for that region.

<sup>4</sup> The MRTU tariff gives the CAISO the authority to issue Exceptional Dispatches to resources that have not bid into the CAISO markets (such as non-RA units that are not subject to a must-offer requirement), or to arrange for purchases of energy from entities outside the control area through Exceptional Dispatches. However, the tariff requires that the CAISO utilize all available bids that can meet the reliability need prior to issuing Exceptional Dispatches for resources that have not submitted bids into the CAISO markets.

In cases where a unit receives an Exceptional Dispatch for energy to meet localized reliability requirements or special unit operating constraints that are not met through the CAISO market software, a unit may be able to exercise market power by bidding up to the \$500 bid cap initially in effect under MRTU. The CAISO expects and will seek to ensure that the frequency and duration of Exceptional Dispatches will be very limited under MRTU but there is a risk that Exceptional Dispatches may be more prevalent during the first few months of MRTU market operation. However, even if Exceptional Dispatches are relatively infrequent, the potential cost could be significant if generators receiving such dispatches are able to exercise local or temporary market power by submitting extremely high energy bids. Consequently, DMM believes that it would be prudent to consider implementation of a tariff provision to limit the potential exercise of market power by units receiving Exceptional Dispatches.

## PROPOSED MODIFICATIONS

The basic mitigation rule being proposed for Exceptional Dispatches is designed to mirror the automated market power mitigation provisions already incorporated in the MRTU software as closely as possible. Specifically, under conditions when locational market power is likely to exist, Exceptional Dispatches would not be paid based on the generator's market bid price, and would instead be paid the higher of

- The unit's Default Energy Bid (DEB), or
- The LMP for the unit's generating node.

In order to focus mitigation on situations when the exercise of local or temporary market power in the real-time market is likely, this mitigation rule would only apply to Exceptional Dispatches for energy needed for:

- Reliability requirements related to non-competitive transmission constraints;
- Ramping units up from minimum operating levels to minimum dispatchable levels in order to protect against contingencies not directly incorporated or sufficiently met by the MRTU software; and
- Other special unit-specific operating or environmental constraints not incorporated in the MRTU model.

As with the automated market power mitigation provisions incorporated in the MRTU software, the mitigation rule would not apply to Exceptional Dispatches for energy needed for:

- System-wide energy requirements; and
- Relief of congestion on competitive transmission constraints.

## CRITERIA USED TO SELECT PROPOSED OPTION

The proposed mitigation rule was developed based on a variety of considerations:

- **Consistency with Existing Automated Market Power Mitigation Provisions.** Ideally, all reliability and unit operating constraints could be perfectly incorporated in the MRTU model, so that the automated LMPM provisions would effectively mitigate market power. However, due to the complexity of some reliability and unit operating constraints and temporary changes in conditions that may not be incorporated in the MRTU network model, some Exceptional Dispatches for real-time energy are likely to be necessary. As previously noted, the mitigation rule being proposed for Exceptional Dispatches is designed to mirror the automated market power mitigation provisions incorporated in the MRTU software as closely as possible. With this approach, each unit's Default Energy Bid (DEB) is used in place of the unit's market bid in settlement of Exceptional Dispatches under conditions where local temporary real-time market power is likely to exist.

- **Equitable Payment for Generation Owners.** Under the proposed approach, generating resources receiving Exceptional Dispatches are provided assurance of full revenue recovery through the same Bid Cost Recovery mechanism applied for units committed through MRTU software. The DEBs used in place of market bids for settling Exceptional Dispatches are designed to be equal to each unit's actual marginal cost of operation, including potential opportunity costs. In addition, to the extent that LMPs exceed a unit's actual marginal cost (or DEB), generation owners are eligible to earn these revenues.
- **Implementation Issues.** The categories of Exceptional Dispatches that would be subject to mitigation were developed based on input from CAISO Operations staff concerning the potential reasons that Exceptional Dispatches may be issued under MRTU and their ability to identify and log the reason for Exceptional Dispatches into various categories. Some generation owners suggested that the CAISO develop a methodology or screen to determine if market power exists on a case by case basis, so that mitigation could be applied only if market power was determined to exist. However, the CAISO believes that developing and implementing this highly dynamic, case-by-case approach is not feasible at this time as it would require the development of sophisticated tools and methods that would likely need to be integrated with the MRTU software. Moreover, given the limited scope of this mitigation rule, it is not clear that the incremental benefit of such a dynamic market power evaluation approach would exceed the cost and effort of developing it.
- **Transparency.** The proposed approach – combined with reporting requirements for Exceptional Dispatches that have already been established by FERC – will provide a high degree of transparency to stakeholders and FERC on the reasons for Exceptional Dispatches and the portion of Exceptional Dispatches that are subject to mitigation.

## STAKEHOLDER PROCESS AND FEEDBACK

DMM issued a white paper on November 30, 2007 discussing a proposed approach for mitigating potential market power under the Exceptional Dispatch provisions of the current MRTU tariff.<sup>5</sup> Written comments from stakeholders on this initial white paper were received on December 12, 2007. In response to these comments, DMM issued a paper with additional discussion and information on this issue on January 3, 2008.<sup>6</sup> DMM then discussed issues related to the proposed mitigation rule and other stakeholder questions at a teleconference on January 7, 2008. Based on these stakeholder discussions and comments – along with further consultation with CAISO Operations personnel and Management – DMM developed a more specific revised proposal. Under this revised proposal, the criteria for determining which Exceptional Dispatches are subject to mitigation was narrowed and more specifically defined.

The CAISO's final proposal is supported by major Load Serving Entities, but is opposed by entities representing numerous generation owners – primarily on the grounds that the CAISO has not adequately justified the need for this mitigation and that the proposal does not provide a sufficient market power test criteria for triggering the bid mitigation. Generator owners also expressed concern that applying this bid mitigation provision to units not under Resource Adequacy (RA) contracts would diminish the incentive for CAISO and LSEs to procure RA and Interim Capacity Procurement Mechanism (ICPM) capacity to meet grid reliability needs.

As noted above, the CAISO believes that the potential market power issues from Exceptional Dispatches are significant enough to warrant some type of mitigation and that the current proposal provides reasonable and consistent criteria for

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<sup>5</sup> The DMM whitepaper can be found at <http://www.aiso.com/1c89/1c89d76950e00.html>.

<sup>6</sup> Initial stakeholder comments along with the response to these comments can be found at <http://www.aiso.com/1c89/1c89d76950e00.html>.

triggering the mitigation. As further noted above, while a more sophisticated dynamic approach to assessing the presence of market power under Exceptional Dispatches may provide a more precise criteria for mitigation, such an approach is not possible for day-one MRTU implementation. Moreover, the incremental benefits of such an approach may not be worth the additional cost and complexity given the expected limited application of this mitigation.

With regard to the concern that the application of this mitigation to non-RA units would diminish incentives for the CAISO and LSEs to procure RA/ICPM capacity from these units, the CAISO is concerned that if non-RA/ICPM units are not subject to the same Exceptional Dispatch price mitigation provisions as RA/ICPM units, this would create incentive for suppliers having market power under Exceptional Dispatch to withhold from the RA program, demand a higher price for local RA contracts due to local market power, and/or refuse ICPM designation. A detailed summary of stakeholder comments on various aspects of the CAISO's proposal and the CAISO's response is included in the matrix provided in Attachment A.

## CONCLUSION

CAISO Management requests authority to file necessary tariff language to establish mitigation of Exceptional Dispatches under MRTU as described in this memorandum.