Memorandum

To: ISO Board of Governors

From: Eric Hildebrandt, Director, Market Monitoring

Date: December 6, 2012

Re: **Market Monitoring Report**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

This memo provides comments by the Department of Market Monitoring on three Management proposals being presented to the Board:

- **Bid cost recovery mitigation measures.** Management is proposing several measures to refine settlement rules concerning payment for bid cost recovery and real-time energy classified as residual imbalance energy. Over the last year, DMM has worked closely with ISO staff and stakeholders to develop and assess options to avoid the potential for abuse or gaming of these settlement rules by deviating from real-time dispatch instructions. DMM believes Management's final proposal effectively mitigates this potential, without being overly complex or diminishing incentives for generators to actively participate in the real-time market. DMM recommends that the ISO monitor the effectiveness of this approach using a more complex metric that was developed as part of this stakeholder process. This metric should be fully automated and incorporated in the ISO's ongoing market quality review process.

- **Mitigation of exceptional dispatches for real-time energy.** The ISO is implementing a new, more dynamic local market power mitigation method in the real-time market in spring 2013. This requires the ISO to also implement a new approach for determining when constraints should be classified as competitive or non-competitive in cases when grid operators issue exceptional dispatches. DMM has worked with the ISO policy group to lead the development of such an approach. DMM believes the approach being proposed to the Board provides a clear, simple and effective means for determining the competitiveness of constraints for which exceptional dispatches are issued. The proposed approach is much more dynamic than the current method since it is based on more recent system conditions. It also strikes a balance between the goal of avoiding

mitigation when a constraint may be competitive and providing a high level of protection against market power being exercised through exceptional dispatches. DMM continues to recommend that the ISO seek to examine ways to reduce the need to issue exceptional dispatches. Reducing the volume of exceptional dispatches reduces the potential for exercising local market power and increases the efficiency of the real-time market.

- **Transmission Constraint Relaxation Parameter Change.** DMM supports Management's proposal to lower the relaxation parameter for transmission constraints from $5,000 to $1,500/MW. Analysis by the ISO shows that this change will not adversely affect reliability, but will produce more economically rational prices in the ISO's real-time market that reflect the bid prices of actual resources that are being re-dispatched to mitigate congestion. This is part of a package of measures that the ISO is implementing to mitigate extremely high, transitory, real-time price spikes that do not reflect actual market conditions. These price spikes can create excessive unwarranted real-time imbalance offset charges. Other changes being pursued by the ISO, such as improved modeling of transmission limits consistently in the day-ahead and hour-ahead markets, will also help to address high real-time imbalance offset charges.

BID COST RECOVERY

Management is proposing several measures to refine rules concerning payments for bid cost recovery and real-time energy classified as residual imbalance energy. A detailed description of these measures is provided in Management's memo on this proposal. These modifications will be implemented in conjunction with other changes scheduled for fall 2013.

These changes include separation of bid cost recovery payments for the day-ahead and real-time markets, so that any net revenues earned in the day-ahead market will no longer be netted off those in the real-time market. As described in Management's memo on this proposal, separation of day-ahead and real-time bid cost recovery payments will provide stronger and more efficient incentives for generators to actively participate in the real-time market by submitting bids to increase or decrease their output at prices reflecting their actual costs. However, this separation could also make it more profitable to game current rules for payment of real-time bid cost recovery and residual energy.

Over the last year, the ISO has undertaken an extensive review of options for modifying current rules to mitigate any inappropriate market behavior that might become more profitable with the separation of day-ahead and real-time bid cost recovery payments. In the course of this process, a series of options were developed, analyzed and discussed with stakeholders. DMM played a very active role in developing and

analyzing options in terms of their effectiveness of mitigating various potential gaming strategies.

Throughout this process, Management sought to develop an approach that balances several different objectives, which include:

- providing efficient incentives to participate in the real-time market by submitting bids to increase or decrease output at a price reflecting actual marginal costs;
- ensuring equitable compensation for actual costs associated with following real-time dispatches;
- effectively mitigating the potential for behavior designed to exploit or manipulate rules for real-time energy payment and bid cost recovery; and
- avoiding overly complex or non-transparent settlement rules that may be difficult for participants to track, and could increase the perceived financial risks of participating more actively in the real-time market.

The first proposal developed to mitigate potential gaming of bid cost recovery and residual energy payments was based on a relatively detailed performance metric that was designed to quantify the degree to which these payments were inflated by a generating unit's deviations from real-time dispatch instructions. This approach was not adopted due to concerns by numerous stakeholders about its complexity and the potential to reduce payments for uninstructed deviations that were not excessive or intentional. However, DMM recommends that the ISO implement this more detailed metric on an ongoing basis as a way of monitoring the effectiveness of the simpler approach being proposed by Management.

A second approach proposed by the ISO was extremely simple and similar to settlement rules for residual energy recently implemented to mitigate excessive payments being incurred under specific bidding and operating strategies of some generating units. However, this approach was not pursued further after DMM identified several significant flaws with this approach as a more comprehensive longer-term solution.[1]

Management's proposal is based on a third approach that strikes a balance between the first two approaches developed and examined in the stakeholder process. The specific details of this approach were modified in response to analysis by DMM that highlighted a potential scenario under which it would still be relatively profitable for a

[1] *Comments on Bid Cost Recovery Mitigation Measures: Revised Draft Final Proposal*, Department of Market Monitoring, October 1, 2012. http://www.caiso.com/Documents/DMM%20Comments-BidCostRecoveryMitigationMeasuresRevisedDraftFinalProposal_01oct2012.pdf

generating unit to routinely deviate from ISO dispatch instructions.[2] These modifications made Management's final proposal simpler and more effective.[3]

As emphasized in Management's memo, this final proposal is designed to effectively mitigate potential abuses of settlement rules for real-time bid cost recovery and residual energy, without being overly complex or diminishing incentives to actively participate in the real-time market. DMM believes the final proposal effectively balances these various objectives. However, as previously noted, DMM recommends that the ISO monitor the effectiveness of this approach on an ongoing basis. The more complex metric developed in the first stage of this stakeholder process represents an effective metric that can be automated and incorporated in the ISO's ongoing market quality review process.

EXCEPTIONAL DISPATCH MITIGATION

Background

Under the ISO's market design, local market power mitigation is triggered in the day-ahead and real-time market software only when congestion occurs on a constraint that is determined to be uncompetitive. When congestion occurs on a constraint deemed to be non-competitive, the bids for all resources that are effective at relieving this constraint are subject to potential bid mitigation.

Until recently, the competitiveness of all constraints in the day-ahead and real-time market software was based on studies done by DMM on a quarterly basis, based on projected system conditions. Starting in 2012, the competiveness of constraints in the day-ahead market is now automatically assessed within the market via the new local market mitigation method implemented in the day-ahead market software in April of this year. These new mitigation procedures determine the competitiveness of a congested constraint based on actual system and market conditions as reflected in the market software. With these new automated procedures, the assessment of the competiveness of constraints is more dynamic and more accurately reflects actual system and market conditions.

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[2] *Comments on Bid Cost Recovery Mitigation Measures: Second Revised Draft Final Proposal,* Department of Market Monitoring, November 14, 2012. http://www.caiso.com/Documents/DMM-Comments-BidCostRecoveryMitigationMeasuresSecondRevisedDraftFinalProposal.pdf

[3] *Comments on Bid Cost Recovery Mitigation Measures: Third Revised Draft Final Proposal,* Department of Market Monitoring, November 26, 2012. http://www.caiso.com/Documents/Bid%20cost%20recovery%20mitigation%20measures%20-%20papers%20and%20proposals

For the real-time energy market, however, the competitiveness of constraints is still based on studies done by DMM, on a quarterly basis, based on projected system conditions. In spring 2013, new local market power mitigation procedures will be fully implemented in the real-time market, so that competitiveness of congested constraints will be automatically determined by the market software based on actual real-time system and market conditions. When these new procedures are implemented in the real-time market, DMM will no longer perform quarterly studies of the competitiveness of constraints based on projected system conditions.

The ISO's new automated local market power procedures assess the competitiveness of constraints only when congestion occurs in the market model on those transmission constraints. However, it is expected that ISO operators will continue to periodically need to issue exceptional dispatches for real-time energy to manage transmission constraints that may not be congested during the same hours as some exceptional dispatches are issued. Consequently, a new method must be implemented to determine the competiveness of constraints in cases where congestion of a transmission constraint does not coincide with the exceptional dispatch made to manage that constraint.

A common characteristic of these circumstances is a discrepancy between the actual flow on a constraint and the flow that is calculated by the ISO market. ISO grid operators may use a combination of manual intervention tools available to them, including exceptional dispatch, to manage the actual flow. Local market power arises when these modeled transmission constraints have a limited set of generation resources available to help manage flow with an even more limited set of suppliers who control those resources.

Management proposal

Management's proposal utilizes results of the new dynamic competitiveness test performed by the market software over the recent historical period to assess whether the constraint being managed by the exceptional dispatch is likely to be competitive. Specifically, a transmission constraint for which an exceptional dispatch is issued will be deemed uncompetitive – making the exceptional dispatch subject to potential mitigation − unless the following two conditions are met:

- **Significant in-market testing:** The constraint was congested and tested for competitiveness by the real-time market software in ten or more hours in the most recent 60 days; and

- **Predominantly competitive:** The constraint was competitive in greater than 75 percent of congested hours in the real-time market.

This new more dynamic approach may result in more constraints being deemed competitive compared to the existing approach. For instance, under this new approach, a constraint may be deemed competitive if congestion occurs in as few as 10 hours during the most recent 60 days. Under the current approach, constraints are eligible to be deemed competitive only if they have been managed for congestion at least 500 hours over the prior year.

However, DMM believes this approach provides reasonable assurance that local market power will not be exercised through exceptional dispatch as the result of a constraint being inappropriately deemed competitive. For example, the new approach is more likely to reflect uncompetitive conditions that can be caused by temporary local transmission and generation de-rates and outages that cannot be incorporated in the current quarterly studies performed by DMM.

Under Management's proposal, the major transmission paths within the ISO system (Path 15 and Path 26) are not subject to this first requirement and may be deemed competitive if the number of congested hours is less than ten during the 60-day period. DMM supports exempting Path 15 and Path 26 from the rule regarding minimum number of congested hours. Under normal conditions these paths are competitive and are not frequently congested. Application of the ten hours of congestion rule could result in mitigation of exceptional dispatch under conditions that we reasonably expect to be competitive. In the event of high load or transmission de-rate, DMM expects to see these paths congested in the market, providing sufficient hours for testing, and mitigation will be applied if they are not predominantly competitive.

The proposal does not alter existing rules regarding which types of exceptional dispatch are subject to mitigation − it only provides a trigger for mitigation of exceptional dispatch made to manage modeled transmission constraints. Mitigation of exceptional dispatch made for other reasons will remain unchanged.

Conclusions

DMM supports the proposed method for identifying local market power in exceptional dispatch. The proposed approach incorporates more recent system and market conditions, and should therefore provide comparable or improved coverage compared to the existing method for identifying structural local market power related to exceptional dispatch. The approach also strikes a balance between the existing more conservative approach for determining the competitiveness of constraints and the need to protect against the potential for the exercise of local market power by units receiving exceptional dispatches.

As noted in the Market Surveillance Committee opinion on this proposal, these new rules will have to be closely monitored for their effectiveness. However, as also noted

by the MSC, many of the potential flaws with this approach are actually caused by the fact that "by its very nature, any exceptional dispatch may endow a form of market power to the units selected," and that this market power may be very difficult to assess based on system and market information.[4] As noted by the MSC, exceptional dispatches are issued largely on the judgment of grid operators in real-time and limited information is available on the reasons why one resource may be exceptionally dispatched rather than any others that might meet the same reliability need. Moreover, as noted by DMM in a recent FERC filing, resources receiving exceptional dispatches can raise their bid prices the hours after receiving an exceptional dispatch.[5]

DMM agrees with this assessment and therefore will continue to monitor exceptional dispatches closely to identify any cases of significant unmitigated market power. If such cases are detected, DMM stands ready to recommend and support expansion of mitigation rules to mitigate such market power. However, DMM recommends that the ISO take steps to avoid this potential by seeking to reduce the need for exceptional dispatches. In addition, improved procedures and logging of the reasons for exceptional dispatch are needed to help identify these specific factors that may give rise to market power by units receiving exceptional dispatches and to capture the information needed to support any expansion of mitigation rules to mitigate such market power.

[4] See MSC *Opinion on Mitigation Measures for Exceptional Dispatch in Real-Time, p.4 at* http://www.caiso.com/Documents/FinalOpinion-ExceptionalDispatchMitigation-Real-Time.pdf

[5] See ISO p. 9 of Transmittal Letter and p. 16 of Attachment D McDonald Testimony (ISO Ex 2) at http://www.caiso.com/Documents/August282012ExceptionalDispatch-ResidualImbalanceEnergyMitigationTariffAmendment-DocketNoER12-2539-000.pdf.