Memorandum

To: ISO Board of Governors

From: Eric Hildebrandt, Director, Market Monitoring

Date: September 11, 2014

Re: **Market monitoring report**

This memorandum does not require Board action.

EXECUTIVE SUMMARY

This memo provides comments on Management's proposal on commitment cost enhancements. The Department of Market Monitoring (DMM) is very supportive of Management's proposal. Changes proposed by Management effectively target issues that can cause problems during days with extreme spikes in the price of gas and can be easily implemented prior to this coming winter. These changes provide additional ability for participants to bid in their start-up and minimum load costs within a bounded framework. This will limit the ability of participants to exercise market power and will allow participants to better manage natural gas price risk.

Management's proposal retaining the registered cost option for use-limited resources, while requiring all other gas units to use the proxy cost option, while raising the proxy cost option's bid cap to 125 percent of calculated costs, requires no significant system changes and therefore can be easily implemented for the winter of 2014-2015. DMM supports this approach as a reasonable and effective way of ensuring use-limited resources can submit bids that reflect any opportunity costs associated with utilizing of their limited number of start-ups or run hours. The ISO plans to eliminate this exemption once development is completed on an approach for directly estimating potential opportunity costs associated with such use-limits and incorporating them directly into start-up or minimum load bids.

DMM strongly encourages Management to continue the development of a methodology for estimating any opportunity costs associated with environmental or regulatory limits on the number of start-ups or run hours of specific resources. In addition to enhancing bidding limits for use-limited resources, this will allow rules to be modified to require use-limited resources providing resource adequacy capacity to provide market bids in all hours.

The MSC opinion discusses an alternative approach for addressing the lack of an effective opportunity cost model approach for use-limited resources. DMM believes that Management's approach is preferable from the perspective that it can be easily implemented prior to this coming winter, more effectively limits the potential abuse of local market power, and will avoid the potential for additional resources to seek use-limited status which do not have use-limits which involve significant opportunity costs associated with the number of start-ups or run hours they incur.

COMMITMENT COST ENHANCEMENT PROPOSAL

Background

The ISO's rules for limiting start-up and minimum load bids are designed to allow these bids to closely reflect the actual costs of each unit to encourage market efficiency and ensure that generator's recover their full costs when committed to operate by the market software. These bid limits are also important because they limit the potential for excessively high bid cost recovery payments that may occur if units are committed to operate by the market software due to local market power or other software issues and constraints. These bidding limits have played an important role in deterring and limiting potential gaming of bid cost recovery rules, which are designed to ensure that generators recover their full costs when committed to operate.

Since the start of the ISO's nodal market in 2009, rules for limiting start-up and minimum load bids have been modified and refined several times to help achieve and balance these different objectives. During these stakeholder processes, the administrative complexity of different options for the ISO and participants played a key role in designing commitment cost rules. With these changes and refinements, the ISO's commitment cost rules have worked effectively under most market conditions since 2009.

One scenario where commitment cost rules proved problematic involves a sudden and significant increase in the price of gas in the daily spot market relative to the prices the prior day or forward gas contracts for that month. As explained in Management's memo, this was a particular challenge during a few days of sudden and sharp increases in natural gas prices this past winter for two reasons.

- First, in calculating start-up and minimum load bids for the day-ahead market for units under the proxy cost option, the ISO used natural gas price indices that were not reflective of the most current natural gas price trading for the next operating day.

- Second, even if a more up-to-date gas price was used, many units had chosen to have fixed start-up and minimum load bids under the registered cost option, which is based on a monthly natural gas price for forward contracts traded prior to the sharp spikes in daily spot market gas prices.

Management Proposal

Management's proposal addresses both of these issues through a series of relatively minor tariff and operational modifications. A detailed description and discussion of these modifications is provided in Management's memo and the Market Surveillance Committee (MSC) opinion on this issue.

First, in the event of a sharp increase in daily spot market gas prices, Management proposes to delay the day-ahead market and update the natural gas price to reflect more current trading information. This approach is effectively the manual approach for updating day-ahead natural gas prices approved in the temporary tariff waiver in March 2014 with a few modifications.[1] DMM supported this change during the tariff waiver process and continues to support this change as part of Management's proposal. This modification effectively addresses one of the main causes of the problems occurring last winter by allowing start-up and minimum load bids in the day-ahead market for units under the proxy cost option to be based on much more up to date gas prices.

Management also proposes to require all units without any use-limits to use the proxy cost option, under which caps for start-up and minimum load bids will be calculated based on these updated gas prices. This is a significant change as the majority of natural gas resources this past winter were on the registered cost option, under which bids are capped based on a monthly natural gas price for forward contracts traded prior to the sharp spikes in daily spot market gas prices. With the bulk of gas resources under the proxy cost option, commitment decisions made by the ISO software will more efficiently schedule resources based on daily gas conditions and prices.

To ensure that commitment cost bids reflect additional costs that may not be captured by the proxy cost option, Management also proposes to increase the bid cap for proxy costs from 100 percent to 125 percent of estimated costs. While the daily gas index is very reflective of gas prices, there can be a range of prices that participants pay as opposed to just the average. Moreover, resources may have to purchase gas prices in the real-time gas market (known as *intra-day* or same day market) that may differ from day-ahead gas prices.

As noted by some stakeholders, Management's proposal does allow some potential for local market power by allowing start-up and minimum load bids for resources without use limits up to 125 percent of costs under the proxy cost option of the tariff. However, many of these resources currently submit start-up and minimum load bids up to 150 percent of estimated costs under the registered cost option of the current tariff. These registered cost bids are typically higher than what bids can be under the proposed new 125 percent cap. Thus, DMM believes that this change balances the concerns of covering costs and limiting local market power and supports Management's proposal.

[1] See the following filings for further information: California Independent System Operator Corporation, "Tariff Revision and Request for Expedited Treatment," March 18, 2011: http://www.caiso.com/2b45/2b45d10069e0.pdf and "Tariff Revision and Request for Waiver of Sixty Day Notice Requirements," June 22, 2011: http://www.caiso.com/Documents/2011-06-22_Amendment_ModBCRrules_EDEnergySettRules_ER11-3856-000.pdf. Also see "Order approving stipulation and consent agreement" in FERC Docket Nos. IN11-8-000 and IN13-5-000, July 30, 2013: http://www.ferc.gov/CalendarFiles/20130730080931-IN11-8-000.pdf.

Finally, Management's proposal allows use-limited resources to retain the registered cost option with a cap of 150 percent until a process for estimating opportunity costs is developed. This higher 150 percent cap allows use-limited resources to submit higher start-up and minimum load bids as a way of rationing the limited start-ups or run hours they may have due to physical or regulatory limits so that they only start-up and operate in higher priced hours when they are needed most.

In the event of a sudden and significant increase in gas prices, these use-limited resources will be allowed to submit start-up and minimum loads up to 125 percent of costs under the proxy cost option to ensure that these bids reflect actual commitment costs in the event of the type of high gas prices that occurred last winter.

Originally, this initiative included developing unit specific opportunity costs for use-limited resources. With this approach, the registered cost option would have been eliminated for all resources including use-limited resources, since these resources could include an explicit opportunity cost adder in their bids under the proxy cost option. However, this component of the initiative was removed because the timeframe needed to develop the opportunity cost model would have prevented implementation of the overall initiative in time for the winter of 2014-2015.

Management's proposal was therefore modified to allow use-limited resources to continue to bid under the registered cost until development of an approach for determining unit specific opportunity costs for use-limited resources can be completed. DMM continues to strongly encourage and participate in the development of a methodology for estimating opportunity costs for use-limited resources. This will enable the elimination of the registered cost option and the development of modified rules requiring many use-limited resources to provide market bids in all hours.

OTHER ISSUES

Alternative Approach for Use-limited Resources

The MSC opinion discusses an alternative approach for addressing the lack of an effective opportunity cost model approach for use-limited resources. The MSC's suggested approach appears to be to eliminate the registered cost option for use-limited resources but to allow these resources to bid up to 150 percent of proxy costs.

This approach appears to be similar to Management's initial proposal for use-limited resources in that it eliminates the registered cost option but allows bids for these resources to exceed the new 125 percent limit on proxy costs in order to cover potential opportunity costs. However, instead of having a methodology to calculate each units actual opportunity costs (if any), the MSC proposal would allow all use-limited resources to bid an extra 25 percent of proxy costs in order to cover potential opportunity costs.

Although the MSC's suggested approach has some potential advantages, DMM favors Management's proposal to simply allow use-limited resources to continue to use the registered cost option this winter until a methodology for developing explicit estimates of opportunity costs for specific resources is completed.

First, DMM believes that the registered cost option proposed by Management will provide more protection against the exercise of market power then the approach suggested by the MSC. It is unclear whether many use-limited units have significant use limits or opportunity costs that would warrant allowing higher start-up and minimum load bids beyond the 125 percent level that will be allowed under the proxy cost option. As noted in DMM's annual reports, many resources do not presently bid at the 150 percent cap of registered costs. This is likely an indication that these units do not require bids of 150 percent of operating costs to cover their opportunity costs and that registered cost bids must stay fixed for 30 days. If a market participant bids a resource too high, they may not be scheduled.

However, in the event that use-limited resources were allowed to bid at 150 percent of proxy costs, the potential for exercising market power would increase as participants would have the flexibility to modify their costs on a daily basis. To the extent that a resource was exceptionally dispatched or committed due to a capacity constraint in the market software, exercising market power would be more difficult under the registered cost option versus the proxy cost option with a cap of 150 percent of operating costs.

Second, DMM is concerned that there may be a significant number of resources not currently identified as use-limited which may seek use-limited status if use-limited resources are allowed to bid up to 150 percent of proxy costs. Multiple participants have indicated to DMM that they do not currently have use-limited status but may apply for this status in the near future if it afforded significant advantages in terms of being able to submit higher start-up or minimum load bids. DMM also notes that many resources not currently classified as use-limited enter daily start limitations in the ISO software as a way of limiting the usage or cycling of units, suggesting they may have use-limits for which they could seek use-limited status.

DMM believes that because bids under the registered cost option proposed by Management are fixed for at least one month (except in cases of severe price spikes), this will deter additional resources from seeking use-limited status rather than opting for the proxy cost option with the new 125 percent cap. In addition to having a greater potential for exercising market power if allowed to bid at 150 percent of proxy costs, use-limited gas-fired capacity is exempt from the all hours must-offer requirement that otherwise applies to gas units used to meet resource adequacy requirements.

Finally, the MSC proposal appears to involve additional software system changes that would need to be addressed, possibly delaying implementation of the commitment cost enhancements beyond the winter of 2014-2015. Given the interest from stakeholders in having commitment cost changes in place for this winter, and given that the ISO is looking to have opportunity cost modeling in place for next fall, this option may not be feasible or necessary.

In sum, DMM believes that Management's approach is preferable from the perspective that it can be easily implemented prior to this coming winter, limits the potential abuse of local market power, and will avoid the potential for additional resources, which do not have use-limits which involve significant opportunity costs associated with the number of start-ups or run hours they incur, to seek use-limited status.

Longer Term Refinements for Mitigation of Commitment Costs

Another potential longer term refinement noted by the MSC is to allow higher start-up and minimum load bidding limits for resources and only apply tighter limits when resources are found to have some kind of market power. This approach has been discussed in prior ISO stakeholder processes in which it was referred to as *dynamic mitigation* of start-up and minimum load costs. Although this general approach is used by several ISOs, DMM believes the complexity of the ISO market software and various new constraints and features under development would make this approach relatively complex to implement at this time.

One major challenge of this approach is that special software rules or routines would be required to accurately identify the specific constraints that might cause each unit to be committed and then assess the competiveness of supply available to meet these constraints. This assessment would need to be made prior to each day-ahead and real-time market run in which units could get committed so that start-up and minimum loads bids could be mitigated prior to the actual market run. Additional rules and safeguards would be needed to ensure that each unit's individual operating characteristics could not be utilized to get units with uncompetively high bids committed or to remain on-line.

Unless carefully designed, DMM believes this may significantly increase the risks of excessively high bid cost recovery payments due to strategic bidding or software modeling limitations. Due to the complexity of implementing an approach with the necessary safeguards, DMM believes this should not be a high priority relative to other market initiatives and enhancements that would be competing for the same resources.

CONCLUSION

DMM believes that the changes proposed by Management effectively target the issues that can cause problems during days with extreme spikes in the price of gas and can be easily implemented prior to this coming winter. These changes provide additional ability for participants to bid in their start-up and minimum load costs within a bounded framework. This will limit the ability of participants to exercise market power and will allow participants to better manage natural gas price risk. DMM strongly encourages Management to continue the development of a methodology for estimating opportunity costs for use-limited resources as it will more accurately reflect commitment costs and it will enable use-limited resources to provide market bids in all hours.