

## **Comments on Revised Draft Final Proposal for Commitment Cost and Default Energy Bid Enhancements**

### **Department of Market Monitoring**

February 28, 2018

The Department of Market Monitoring (DMM) submits the following comments on the ISO's Revised Draft Final Proposal for Commitment Cost and Default Energy Bid (CC DEB) enhancements.<sup>1</sup> The ISO's revised proposal includes numerous improvements and clarifications. However, DMM believes further changes and details are needed before the proposal should be presented for approval by the ISO Board or FERC. DMM's concerns with the final proposal are provided below.

#### **I. Overview**

##### ***Bid Caps Used in Mitigation***

The ISO continues to propose a very static approach for determining bid caps for commitment costs and default energy bids (DEBs) used for mitigating market power and potential gaming/manipulation of bid cost recovery (BCR) payments. Under the ISO's proposal, bid caps used in mitigation of gas-fired units will continue to be based primarily on prices in the next day gas market that occurs the day prior to each operating day. This very static approach is contrary to the key objective the ISO set for this initiative – i.e. to make bids used in real-time mitigation more reflective of actual marginal costs.

The static approach for setting bid caps used in mitigation proposed by the ISO will not significantly increase market efficiency or reliability, but does weaken protections against market power and gaming. The ISO's proposal will also create the need for significant additional *ex post* cost justification and review by participants and the ISO, without providing any significant benefits in terms of market efficiency or reliability. DMM continues to recommend the ISO adopt a more dynamic approach which would allow real-time bid caps to be adjusted based on gas market trade data available at the start of each operating day.

##### ***Dynamic Mitigation of Commitment Cost Bids***

The ISO's proposal will establish a new process for dynamic mitigation of commitment cost bids. Suppliers will be able to submit market bids for start-up and minimum load costs in excess of the current cap of 125 percent of estimated costs. The ISO proposes to allow market based commitment bids of up to at least 250 percent initially, and to increase the cap to at least 330

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<sup>1</sup> *Commitment Cost and Default Energy Bid Enhancements (CCDEBE) Revised Draft Final Proposal*, January 31, 2018: <http://www.caiso.com/Documents/RevisedDraftFinalProposal-CommitmentCosts-DefaultEnergyBidEnhancements.pdf>.

percent 18 months later.<sup>2</sup> These market bids for start-up and minimum load costs will be used unless the resources are determined to have potential market power through an automated test built into the ISO software.

While the ISO's newest proposal addresses many of the flaws identified in prior proposals, the proposal still has several significant flaws and implementation uncertainties/risks.

- Under the revised final proposal, units that are not committed will often not be subject to mitigation of commitment costs – even if the resource owner has been determined to have market power. This means the dynamic mitigation will fail to mitigate economic withholding (e.g. bidding lower cost units at a higher price, so that a higher cost unit must be dispatched).<sup>3</sup>
- The proposal does not ensure mitigation will be triggered when units are committed or de-committed due to intertemporal software constraints.<sup>4</sup>
- And the proposal fails to ensure mitigation for exceptional dispatches and commitments/de-commitments that occur as a result of various other forms of manual intervention in the market dispatch by grid operators.<sup>5</sup>

In addition to these market design flaws, DMM notes that relatively complicated software changes, such as the ISO's dynamic mitigation proposal, are subject to significant implementation errors and unexpected performance issues.<sup>6</sup> Thus, the complexity of dynamic mitigation of commitment costs warrants a more cautious approach to raising the commitment cost bid caps.

The current 125 percent cap was implemented in the wake of manipulation of the ISO market software by JP Morgan in 2011 and 2012. This cap has served as a key mitigation measure to protect against similar manipulative strategies, local market power in unit commitment, and

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<sup>2</sup> 200 percent of reference levels (which include a 25 percent adder) = 250 percent. 300 percent of reference levels (which include a 10 percent adder) = 330 percent. The actual caps could be significantly higher if the supplier has a reference level adjustment.

<sup>3</sup> Revised Draft Final Proposal, p. 71.

<sup>4</sup> *Phase 2 of Comments on the Commitment Costs and Default Energy Bid Enhancements – Issue Paper*, Department of Market Monitoring, December 12, 2016, p. 6: [http://www.caiso.com/Documents/AdditionalDMMComments\\_CcommitmentCosts\\_DefaultEnergyBidEnhancementsIssuePaper.pdf](http://www.caiso.com/Documents/AdditionalDMMComments_CcommitmentCosts_DefaultEnergyBidEnhancementsIssuePaper.pdf).

<sup>5</sup> *Comments on the Commitment Costs and Default Energy Bid Enhancements – Issue Paper*, Department of Market Monitoring, November 29, 2016, p. 5: <http://www.caiso.com/Documents/DMMComments-CommitmentCostsandDefaultEnergyBidEnhancementsIssuePaper.pdf>.

<sup>6</sup> Recent examples of such errors and unintended performance issues include the flexible ramping product implemented in 2016 and the new dynamic energy bid mitigation implemented in the real-time market in 2016 and 2017.

software gaps and bugs affecting BCR payments. Raising the headroom above costs from 125 percent to 250 percent increases the potential profit margin from such market behavior by 600 percent (from 25 percent to 150 percent of cost).<sup>7</sup>

In sum, DMM does not support the ISO's final proposal for dynamic mitigation. The remaining flaws in the proposal should be addressed, and the commitment cost bid caps should be raised on a more gradual basis only after the effectiveness of dynamic mitigation is confirmed based on actual operational experience.

## II. Bid Caps Used in Mitigation

### ***Reasonableness Thresholds***

Currently, bid caps for start-up and minimum load commitment costs include a 25 percent *headroom scalar* above estimated costs. Default energy bids (DEBs) used when energy price mitigation is triggered include a 10 percent headroom scalar that is applied above marginal costs.

The ISO proposal will increase the headroom above the current 25 percent and 10 percent scalars already applied to cost-based bids. Under the ISO proposal, participants will be allowed to increase bids for gas-fired units used in mitigation above current bid cap levels up to a *reasonableness threshold* set by the ISO. The ISO indicates this reasonableness threshold will be set to allow bids to be increased above the current caps by an amount that reflects a gas price that is 10 percent higher than the next-day gas price index currently used in calculating bid caps. The ISO refers to this increase in the gas price used in calculating bid caps as a *fuel volatility scalar*. On Mondays (or the first trade day after a holiday) the ISO will set this fuel volatility scalar to 25 percent.

These fuel volatility scalars will be static values incorporated in the ISO tariff. Because these new fuel volatility scalars are static, this will make bid caps used in mitigation too high most days (i.e. when the scalars exceed the actual variation in gas prices), while making bid caps too low on the few days each year when gas prices in the same day market jump significantly above next-day gas market prices. This very static approach is contrary to the key objective the ISO set for this initiative – i.e. to make bids used in real-time mitigation more reflective of actual marginal costs.

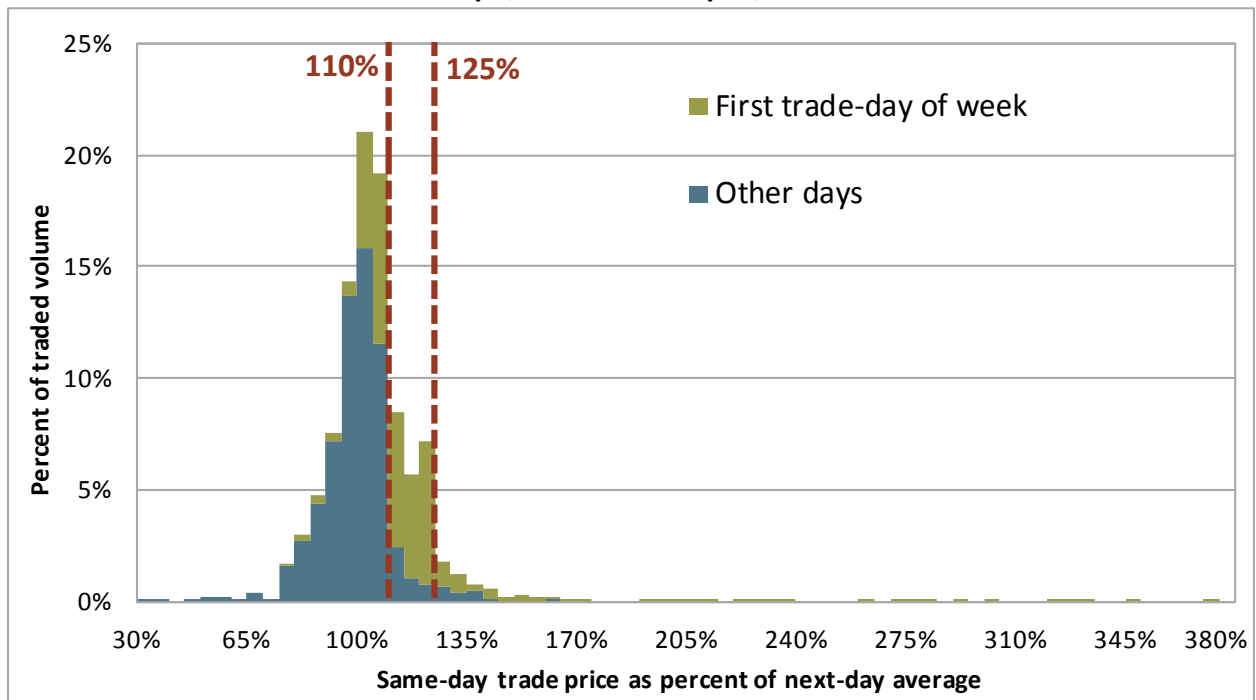
Figures 1 and 2 show the distribution of all same day gas trades reported on the Intercontinental Exchange (ICE) compared to the next day ICE index price currently used by the ISO for bid caps used in real-time market mitigation. The date range for the analysis begins in July 2016 when modified gas balancing rules were implemented due to the outage of the Aliso Canyon storage facility.

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<sup>7</sup> 125 percent of cost = 25 percent margin. 250 percent of cost = 150 percent margin. 150 percent/25 percent = 600 percent increase in profit margin.

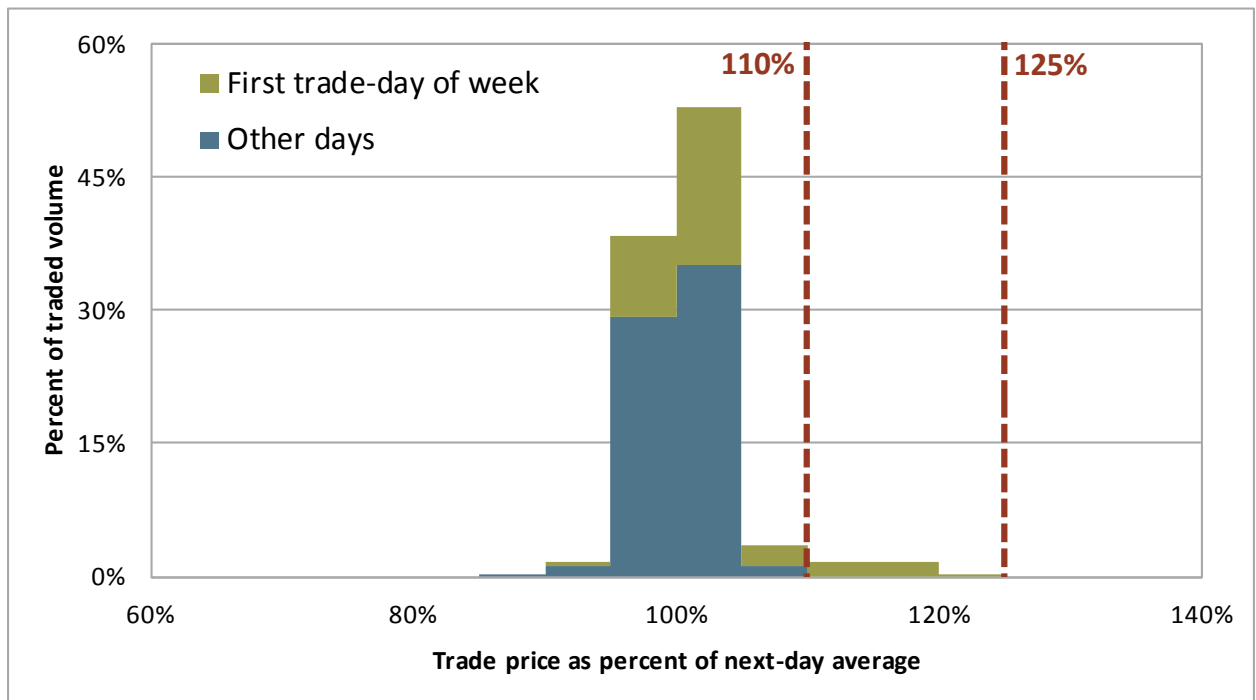
**Figure 1. Price of all same-day gas trades reported on ICE compared to next-day gas index price currently used by ISO for bid caps used in real-time market mitigation (SCE Citygate)**

July 6, 2016 – February 22, 2018



**Figure 2. Price of all same-day gas trades reported on ICE compared to next-day ICE price currently used by ISO for bid caps used in real-time market mitigation (PGE Citygate)**

July 6, 2016 – February 22, 2018



As shown in Figure 1, at the SCE Citygate hub:

- About 91 percent of the gas volume reported in the ICE same day market (excluding the first trade day of the week) was purchased at a price within 10 percent of the gas price index currently used by ISO for bid caps used in real-time market mitigation.
- About 96 percent of gas purchased on ICE in the same day market was at a price within 25 percent of the next day gas price index used by the ISO.
- During the first trade day of each week (when next day prices used by the ISO are from the end of the prior week), about 40 percent of gas purchased on ICE in the same day market was at a price within the 10 percent of the next day gas price index used by the ISO. About 88 percent was within 25 percent of the next day gas price index used by the ISO.

As shown in Figure 2, at the PGE Citygate hub:

- All of the gas volume reported in the ICE same day market (excluding the first trade day of the week) was purchased at a price within 10 percent of the gas price index currently used by ISO.
- During the first trade day of each week, about 90 percent of gas purchased on ICE in the same day market was at a price within 10 percent of the next day gas price index used by the ISO, and all of the gas purchased was within 25 percent of the next day gas price index used by the ISO.

Since 2015, DMM has been recommending that the ISO utilize same day gas market information that is available each morning to update gas prices used in calculating bid caps and/or setting the new reasonableness thresholds used in mitigation. DMM's proposed procedure would essentially eliminate the occurrence of same day trades in excess of the 10 percent of gas prices that would be used for real-time market mitigation.

DMM's proposal for adjusting real-time bid caps based on gas market trade data available at the start of each operating day is discussed in a separate section of these comments (see section on ***DMM Proposal for Updating Gas Prices Used in Real-time Mitigation***). A similar procedure has now been used by the ISO to update gas prices used for the day-ahead market for almost two years, which has essentially eliminated the occurrence of next day trades in excess of the 10 percent of gas price index used by the ISO for day-ahead market mitigation (see section on ***Updating Gas Prices Used in Day-Ahead Market Mitigation***).

### ***Resource Specific Feedback Loop***

The ISO's proposal also indicates the ISO will be able to set different reasonableness thresholds for each individual resource based on a *resource specific feedback loop*. Based on the brief description in the ISO's proposal, DMM is concerned that – depending on how this provision is implemented – this feedback loop could either provide little value or could represent a major loophole that may undermine all the ISO's other mitigation provisions.

The ISO's August 2017 Draft Final Proposal describes the feedback loop as follows:

As a final step – the CAISO will incorporate a term capturing a feedback loop from the ex post verification processes. If CAISO successfully verifies supplier ex post and through that process learns that the supplier bears burden of risk of higher costs relative to the thresholds that can be determined based on delta between ICE same-day, intra-day, Monday-only deals and the published indices, CAISO will include an error term that will allow CAISO to tune a fuel-region level threshold to each resource by biasing the threshold.<sup>8</sup>

In DMM's comments on the ISO's prior proposal, we requested that the ISO provide more details about this feedback loop and to indicate if “a basic formula will be used to determine the exact level of the adjustment.”<sup>9</sup>

However, the revised proposal includes even less detail about this feedback loop. The *resource-specific feedback loop* term is defined as “a percent multiplier on the reference level that would allow tuning based on observed actual costs verified through the ex post review process.”<sup>10</sup> The only explanation of how this multiplier will be set is as follows:

The resource specific feedback loop inputs will be based on systematic positive differences between a resource's actual fuel or fuel-equivalent costs exceeding the gas price indices or fuel equivalent costs used by the CAISO.<sup>11</sup>

Thus, impact of this feature hinges on how the term “systematic positive differences” is interpreted or applied in practice. DMM requests further clarification of this potentially important feature. For example, would the terms be set to capture the upper end of any costs incurred (e.g. with a relatively low probability) or would they be based on the *expected value* (e.g. mean or median) of the range of costs incurred in excess of the fuel cost used by the ISO?

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<sup>8</sup> *Commitment Cost and Default Energy Bid Enhancements (CCDEBE) Draft Final Proposal*, August 23, 2017, p. 97: [http://www.caiso.com/Documents/DraftFinalProposal\\_CcommitmentCosts\\_DefaultEnergyBidEnhancements.pdf](http://www.caiso.com/Documents/DraftFinalProposal_CcommitmentCosts_DefaultEnergyBidEnhancements.pdf).

<sup>9</sup> *Comments on Draft Final Proposal for Commitment Cost and Default Energy Bid Enhancements*, Department of Market Monitoring, September 12, 2017, p. 9, question 9: [http://www.caiso.com/Documents/DMMComments\\_CcommitmentCosts\\_DefaultEnergyBidEnhancementsDraftFinalProposal.pdf](http://www.caiso.com/Documents/DMMComments_CcommitmentCosts_DefaultEnergyBidEnhancementsDraftFinalProposal.pdf).

<sup>10</sup> Revised Draft Final Proposal, p. 40.

<sup>11</sup> Revised Draft Final Proposal, p. 40.

DMM also questions the need for this new resource specific feedback loop, given the negotiated option of the ISO tariff. Currently, suppliers can already request a customized default energy bid under the negotiated option of the ISO tariff which reflects any additional costs they can demonstrate are routinely incurred. The revised proposal extends the negotiated option in the ISO tariff to include commitment cost reference levels. With this new negotiated option, “suppliers would be able to seek consideration of tailoring its reference level to reflect more complex cases than a generic reference level formula could.”<sup>12</sup> Thus, it seems any systematic cost differences identified in this resource specific feedback loop would be incorporated in the negotiated option for commitment cost and default energy bids.

The negotiated option of the ISO tariff includes provisions for resolving any disagreements between the ISO and suppliers, and requires that negotiated bid formulas or methodologies be filed confidentially at FERC. Under an agreement with ISO management, DMM understands that DMM will continue to be responsible for developing all bids under the negotiated option (e.g. energy, opportunity cost and the new commitment cost option), subject to oversight by the ISO’s Market Quality and Renewable Integration group.

While the resource specific feedback loop appears to provide a way of customizing the reasonableness threshold for individual resources or groups of resources, the approach proposed by the ISO for setting these resource specific values is also very static and backward looking – and therefore suffers from the same limitations as the more general *fuel volatility scalar* being proposed. Again, DMM recommends the ISO proposal be modified so that resource specific adjustments to bid caps could be applied dynamically only at the start of operating days when justified by actual observed gas market prices and conditions.

### ***Resource Specific Thresholds for EIM Resources***

Having the ability to adjust the reasonableness threshold up to an appropriate level for a specific resource or group of resources the morning of an operating day is especially important for energy imbalance market (EIM) participants. Based on DMM’s experience developing default energy bids under the negotiated option, this kind of flexibility is needed to address gas issues faced by EIM entities such as APS. DMM’s ability to include same day gas conditions into negotiated is currently limited by the fact that the ISO software does not allow adjustments to these bids after about 9 p.m. the day prior to each operating day.

Unlike resources in the ISO’s California footprint, some EIM participants may need to procure gas from hubs that are not as liquid and for which ICE gas market data may not be available. The ISO should establish a way for these participants to request a special adjustment to the reasonableness threshold on days when gas supplies are limited and only available at prices higher than the static 10 percent/25 percent reasonableness threshold proposed by the ISO.

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<sup>12</sup> Revised Draft Final Proposal, p. 35.

However, the ISO proposal does not seem to be designed to allow reasonableness thresholds to be adjusted at the start of an operating day based on actual gas market or system conditions.

***Incorporating Gas Supply Limitations and Penalties in Bids Used in Mitigation***

DMM has repeatedly asked the ISO to clarify this issue and provide a specific example of how a supplier’s estimate of any risk of any gas limitations and pipeline imbalance charges should be treated.<sup>13</sup>

The revised proposal indicates that gas imbalance charges or penalties would not be factored into negotiated commitment cost or energy bid caps *ex ante*.<sup>14</sup> The proposal also indicates that the “California ISO will not support cost recovery for non-compliance charges incurred in response to a market dispatch because it has no method of identifying authorized or unauthorized gas. California ISO maintains its policy that suppliers need to seek recovery from the gas company for these charges where the gas company may choose to waive the charges.”<sup>15</sup>

However, the proposal indicates that it is acceptable – if not encouraged – for suppliers to increase the commitment cost reference levels and default energy bids to reflect scarcity of fuel supply and the full cost of potential gas imbalance penalties. As stated in the proposal:

... when conditions warrant, the ISO finds it appropriate for suppliers’ valuation of fuel price to change to reflect fuel availability. Under these conditions the California ISO would prefer the supplier be able to request an adjustment to its reference levels or reflect the risk in their bids so the ISO dispatch can consider the scarcity in finding the optimal solution. The appropriate tool for reflecting the fuel insufficiency condition is through leveraging the California ISOs proposed *ex ante* reference level adjustments.<sup>16</sup>

The ISO’s revised proposal specifically indicates that when gas flow orders with imbalance penalties are in effect, the ISO will consider it reasonable for suppliers to include the full gas imbalance penalty in their requested adjustment to commitment cost reference levels and default energy bid caps.<sup>17</sup> The proposal goes on to indicate that acceptable documentation for supporting an *ex ante* reference level adjustment request can be submitted for “risk margin and

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<sup>13</sup> *Comments on Commitment Cost and Default Energy Bid Enhancements Straw Proposal*, Department of Market Monitoring, July 21, 2017, p. 6:  
[http://www.caiso.com/Documents/DMMComments\\_CommitmentCosts\\_DefaultEnergyBidEnhancementsStrawProposal.pdf](http://www.caiso.com/Documents/DMMComments_CommitmentCosts_DefaultEnergyBidEnhancementsStrawProposal.pdf).

<sup>14</sup> One of the general principles for negotiated bids identified by the ISO is that negotiated bids must “exclude risk margin(s) for risks of undermining gas pipeline instructions or for cash-risk.” Revised Draft Final Proposal, p.36.

<sup>15</sup> Revised Draft Final Proposal, p.43.

<sup>16</sup> Revised Draft Final Proposal, p.37.

<sup>17</sup> Revised Draft Final Proposal, p.38.



scarcity value needed to support reliability on upstream fuel systems ... when gas system capacity level are insufficient to deliver fuel supply to avoid violating pipeline instructions”.<sup>18</sup>

DMM objects to the ISO’s proposal to apparently allow suppliers to simply “bake in” the full cost of potential gas penalties into cost-based bids used in mitigation. Suppliers have freedom to include such items in market bids, but should not be allowed to increase bids used in mitigation beyond levels consistent with prevailing gas market prices. Any limitations on gas supply or “scarcity” of gas supply available in the market are reflected in the gas market prices at which suppliers may procure gas and the electricity market prices they receive.

If gas supply is not available, suppliers should declare units unavailable due to supply limitations. In practice, when severe supply limitations or actual scarcity exists, resources may have gas supply curtailed and the ISO has indicated it will use gas nomograms to ration available supplies in the most efficient manner. If resources are dispatched and subject to mitigation under such conditions, it is because these resources are needed for reliability. There is no need to rely on suppliers with market power to raise the mitigated bids for these resources in order for the ISO to effectively manage reliability.

DMM requests that ISO explain the logic of allowing *gas risk adders* reflecting potential gas penalties into reference bid adjustment requests, but not into negotiated bids or actual costs recovered. Under the ISO’s revised proposal, it appears that bids will be allowed to automatically increase by about 10 percent (the default reasonableness threshold for most units on most days) whenever an OFO is in effect. Is the intent of this to allow reference levels to increase by about 10 percent when OFOs occur as a method to allow resources in gas constrained areas to increase their bids to move them up in the supply stack (i.e. similar to the Aliso gas price adders)? If so, a much better way to do this is to simply allow the ISO to dynamically increase the threshold to reflect actual same day gas market prices, as proposed by DMM. On days when gas conditions are constrained, this approach would allow reasonableness thresholds higher than the static 10 percent/25 percent levels proposed by the ISO when needed and appropriate.

### ***Updating Gas Prices Used in Day-Ahead Market Mitigation***

The ISO is proposing to request permanent authority to eliminate the current one-day lag in gas prices used in the day-ahead market mitigation by updating gas prices used in the day-ahead market based on an average of next day gas trades reported on ICE between 8 a.m. and 9 a.m. prior to running the ISO’s day-ahead market each day. This measure reflects a recommendation previously made by DMM in September 2015. The ISO began updating gas prices used in the day-ahead using this approach in July 2016, as part of measures implemented as part of its response to the Aliso Canyon gas storage outage.

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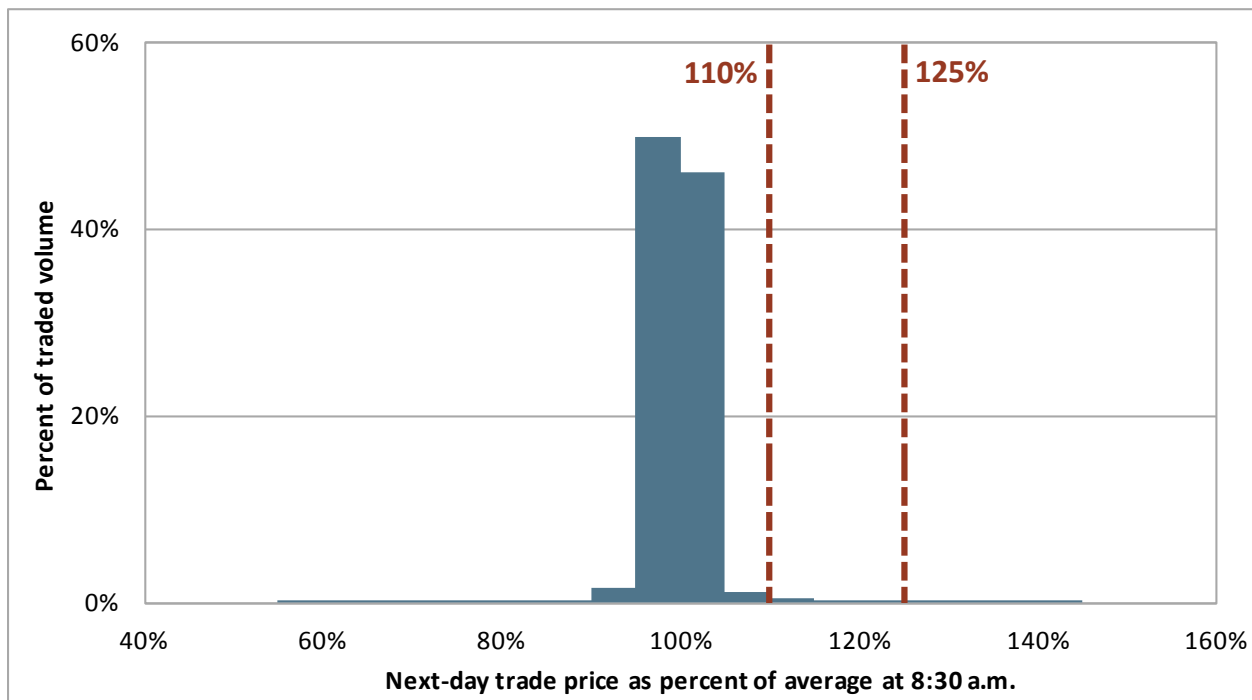
<sup>18</sup> Revised Draft Final Proposal, p.38.

The ISO has contended that this process is “very manual and extremely exposed to risk of manual failure, which may not make it a long-term feasible solution.”<sup>19</sup> However, DMM staff has observed this process first-hand, and believes it to be quite simple, straightforward and largely automated. The CAISO has successfully implemented the process for over 20 months without any significant problems. If any problems occur, the CAISO can simply use the next day gas price index from the prior gas flow day (which would be used in the absence of the updated process).

Analysis by DMM shows that by eliminating the one day lag that existed previously, the gas price index used in the day-ahead market is highly indicative of the price of gas in the next day market corresponding to each operating day. Results of this analysis for the SCE Citygate gas hub are shown in Figure 3.

**Figure 3. Price of all next-day gas trades reported on ICE compared to ICE next-day gas index currently used by ISO for bid caps used in day-ahead market mitigation (SCE Citygate)**

July 6, 2016 – February 22, 2018



Since November 2016, DMM has been recommending that a similar procedure be used by the ISO to update gas prices used in setting bid caps or reasonableness thresholds for the real-time market (see section on **Updating Gas Prices Used in Day-Ahead Market Mitigation**).

<sup>19</sup> Draft Final Proposal, p. 42.

### ***Application of Reasonableness Threshold to Day-Ahead Market***

The ISO proposal appears to indicate the *fuel volatility scalar* will be applied to the day-ahead market, as well as the real time market. The ISO provides no justification for this, given that the ISO's proposal includes making the updating of gas prices used in the day-ahead market based on next day gas market data from ICE each morning permanent. As shown in Figure 3, this enhancement has made the gas price index used in the day-ahead market a highly correlated indicator of the price of gas in the next day market corresponding to each operating day. It is unclear why an additional fuel volatility adder would be routinely needed in the day-ahead market.

### ***Current Headroom Scalars and Gas Prices***

The ISO's revised draft final proposal contends that the 25 percent and 10 percent headroom scalars already incorporated into commitment cost and default energy bid caps were intended to cover "incidental costs" not covered in the ISO's estimate of total commitment and energy costs, and that "these incidental costs are not intended to account for fuel price volatility".<sup>20</sup> Thus, the ISO argues that an additional fuel cost volatility scalar is needed on top of the existing 25 percent and 10 percent "headroom scalars".

This appears to be the first initiative in which the ISO has made this claim about the headroom currently incorporated in bid caps. In an October 2014 filing to FERC, the ISO argued that the 125 percent adder is sufficient to cover gas volatility *plus* any other inaccuracies in the ISO's estimate of each resources operating costs.<sup>21</sup> As summarized in a follow-up filing by the ISO:

As explained in the October 1 tariff filing and in this response, the CAISO concluded that a 125-percent proxy cost bid cap is reasonable based on two factors: (a) data showing that that both day-over-day and intra-day gas prices in California have experienced some volatility, but that increases of 25 percent or more have been much rarer than price increases below 25 percent; and (b) the fact that the proxy cost formula cannot reflect individual resources' actual operating costs with perfect precision.<sup>22</sup>

In the ISO's November 2014 response to a deficiency letter from FERC in relating to that filing, the ISO specifically noted that:

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<sup>20</sup> Revised Draft Final Proposal, p. 33.

<sup>21</sup> Tariff Amendment to Modify Start-Up and Minimum Load Cost Recovery Mechanisms, ER15-15-001, October 1, 2014:  
[http://www.caiso.com/Documents/Oct1\\_2014\\_TariffAmendment\\_CommitmentCostEnhancements\\_ER15-15.pdf](http://www.caiso.com/Documents/Oct1_2014_TariffAmendment_CommitmentCostEnhancements_ER15-15.pdf).

<sup>22</sup> ISO Response to November 6, 2014 Letter Regarding CAISO Tariff Amendment, November 24, 2014. p.4-5.  
[http://www.caiso.com/Documents/Nov25\\_2014\\_DeficiencyResponse\\_CommitmentCosts\\_ER15-15.pdf](http://www.caiso.com/Documents/Nov25_2014_DeficiencyResponse_CommitmentCosts_ER15-15.pdf) Order Accepting Proposed Tariff Revisions and Directing Informational Filing, Docket Nos. ER15-15-000 ER15-15-001, December 30, 2014.

*The most significant cost category not included in the CAISO's proxy cost formula consists of gas-related costs other than commodity and transportation costs. These include costs associated with intra-day gas purchases, hedging costs, and other risk premiums. [emphasis added]*<sup>23</sup>

DMM's own experience and recollection is also that the headroom was in fact intended to cover fuel costs, and only secondarily to cover any other costs not included in bid caps. These headroom scalars are already applied to all components of cost-based bids – including fuel, which typically comprises the largest portion of these cost-based bids. Since the scalars are already applied to all costs – including fuel – there is no need for an additional fuel cost volatility scalar.

Moreover, since the start of the ISO's nodal market in 2009, the ISO has repeatedly modified the commitment cost bid caps to explicitly include all non-fuel items in cost based bids that could be identified by participants. Cost based bid caps have been modified over the year to include grid management charges (GMC), GHG emissions and major maintenance adders (MMAs). Generators can get special negotiated values for variable O&M and default energy bids. Under the ISO's CCE3 proposal, generators will be eligible for opportunity cost adders calculated by the ISO or can propose their own opportunity cost adders under a Negotiated Option.<sup>24</sup>

The revised proposal also extends the negotiated option in the ISO tariff (which currently exists for default energy bids) to commitment cost reference levels.<sup>25</sup> With this new negotiated option, "suppliers would be able to seek consideration of tailoring its reference level to reflect more complex cases than a generic reference level formula could."<sup>26</sup> However, neither the ISO nor participants have identified any other costs that need to be covered by the headroom already in the ISO's commitment cost bid caps. As noted in the revised proposal:

As part of this initiative's stakeholder process, the Department of Market Monitoring sought clarification on the process and to identify what cost components would be eligible for negotiation. The California ISO clarifies that at a minimum, the negotiation would include the cost components included in the California ISO's existing proxy commitment cost estimates. If a supplier believes additional components to its calculations are appropriate, the supplier would have to justify including these additional components as part of the negotiation.<sup>27</sup>

Thus, given all the enhancements the ISO has already made to ensure that all cost components are included in default energy bids and commitment costs, there is no basis for the ISO's position that the 25 percent and 10 percent "headroom scalars" are needed to cover other

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<sup>23</sup> Ibid, p.10.

<sup>24</sup> Revised Draft Final Proposal, pp. 34-35.

<sup>25</sup> Revised Draft Final Proposal, p. 35.

<sup>26</sup> Revised Draft Final Proposal, p. 35.

<sup>27</sup> Revised Draft Final Proposal, p. 36.

unspecified “incidental costs” not covered in the ISO’s estimate of total commitment and energy costs.

### ***Gaming of Reasonableness Threshold***

The ISO’s revised proposal indicates that the default values for the reasonableness threshold (25 percent on Mondays, 10 percent other days) will be in the ISO tariff. However, the proposal also states that in order to deter market power and manipulative behavior “the California ISO will not provide these values to suppliers.”<sup>28</sup> The ISO should clarify these apparent inconsistencies.

### ***DMM Proposal for Updating Gas Prices Used in Real-time Mitigation***

Since September 2015, DMM has been recommending that the ISO utilize gas trade information that is available each morning for day-of trades to update gas prices used in calculating bid caps or “reference levels” used in the real-time market.<sup>29</sup> DMM’s recommendation to utilize this available gas market information is consistent with how most – or all – other ISOs in the U.S. assess and approve cost-based reference bids used in real time market power mitigation.

Using same day gas transaction information will allow the ISO markets to reflect high gas prices when appropriate while also preventing suppliers from artificially driving real-time electricity market prices higher when same day gas costs have not truly increased relative to next day gas price indices. This updating should significantly decrease (or essentially eliminate) the need for fuel price adjustment requests in the real-time market. This updating would also avoid most or all of the need for ex post cost recovery requests by participants and review of such cost recovery requests by the ISO.

However, the ISO does not appear to have ever given serious consideration to this recommendation. Despite strong stakeholder support for DMM’s recommendation in the Aliso Canyon initiatives, the ISO did not pursue this option despite significant stakeholder support.<sup>30</sup> In the CCEDBE initiative, the ISO’s first straw proposal issued in June 2017 indicated that the ISO would not further consider DMM’s recommendations concerning gas prices “because of significant regulatory concerns; lack of sufficient oversight to mitigate risk of artificial prices if implemented, and cannot be implemented by fall 2017 so would replace the long-term market solution planned implementation in fall 2018.”<sup>31</sup>

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<sup>28</sup> Revised Draft Final Proposal, p.8.

<sup>29</sup> *Report on natural gas price volatility*, Department of Market Monitoring, September 21, 2015, p.2.  
[http://www.caiso.com/Documents/DMMReport-gas\\_price\\_analysis\\_september2015.pdf](http://www.caiso.com/Documents/DMMReport-gas_price_analysis_september2015.pdf)

<sup>30</sup> The ISO’s June 2017 CCEDBE straw proposal also contended that in the Aliso Canyon initiative “there was consensus that a CAISO calculated real-time gas price index was not supported ...” (p.14) However, a review of stakeholder comments will show that many (if not most) stakeholders have long supported the idea of using observed same day fuel trades to update real-time market reference levels.

<sup>31</sup> *Commitment Cost and Default Energy Bid Enhancements Straw Proposal*, California ISO, June 30, 2017, p. 13:  
[http://www.caiso.com/Documents/StrawProposal\\_CommitmentCosts\\_DefaultEnergyBidEnhancements.pdf](http://www.caiso.com/Documents/StrawProposal_CommitmentCosts_DefaultEnergyBidEnhancements.pdf).

DMM's July 2017 comments on the straw proposal approach noted that DMM's recommendation regarding use of updated gas price information could and should be incorporated into the pre-verification approach proposed by the ISO as the basis for determining the reasonableness threshold:

In earlier comments on this initiative, DMM proposed a method that could be adapted to calculate the reasonableness threshold. We recommend that the ISO explicitly adopt this framework. DMM recommends that the ISO update default energy bids and bid caps applied to commitment costs in both the day-ahead and real-time markets based on gas price data that are available at about 8:30 a.m. each morning, rather than calculating caps based on gas prices available the night prior to each operating day. Analysis by DMM shows that these modifications would almost always be sufficient to cover gas costs procured at prevailing market prices.<sup>32</sup>

DMM's August 2017 comments on the ISO's proposal further explained that:

DMM's earlier proposals for updating gas prices based on same-day trading information could be incorporated easily into a definition of a reasonableness threshold that would incorporate updated gas market information when appropriate. DMM can supplement the ICE gas market data it routinely monitors and analyses with any additional gas market data provided by participants as envisioned under the ISO's proposal.<sup>33</sup>

DMM still believes that the best way to set the reasonableness threshold would involve using information from current gas transactions to determine whether the price was going up or not, and to get some idea of how much prices are increasing when it does happen. Using this information will allow the ISO markets to reflect high gas prices when appropriate while also preventing suppliers from driving prices higher when gas costs are not truly increasing.

### ***Feasibility of DMM Proposal***

The system changes that the ISO will need to support the process it is proposing for adjustment of energy and commitment costs used in mitigation will also work to support DMM's simpler, more robust adjustment proposal. The ISO intends to allow resource schedulers to submit requests for adjustment up until the close of the bid submission period for the real-time

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In stakeholder meetings during the CC DEB initiative the ISO explained that in order to allow same day fuel market conditions to be used to update real-time market reference levels the ISO believed it would have to meet the FERC requirements for publishing an index. However, DMM understands that other ISOs use same-day trades to assess and verify real-time market reference levels. Therefore, the ISO should be able to overcome any regulatory hurdles that the ISO perceives are interfering with its ability to implement this important market design reform.

<sup>32</sup> DMM Comments from July 21, 2017, p. 5.

<sup>33</sup> *Comments on Commitment Costs and Default Energy Bids Enhancements Revised Straw Proposal*, Department of Market Monitoring, August 16, 2017, p.2:  
[http://www.caiso.com/Documents/DMMComments\\_CcommitmentCosts\\_DefaultEnergyBidEnhancementsRevisedStrawProposal.pdf](http://www.caiso.com/Documents/DMMComments_CcommitmentCosts_DefaultEnergyBidEnhancementsRevisedStrawProposal.pdf).

market.<sup>34</sup> According to a process flow posted by the ISO in August of 2017, this includes the ability to submit adjustment requests for real time until 75 minutes before the trade hour.<sup>35</sup> To process these requests in real time, the ISO systems would need to be changed to recalculate DEBs and commitment cost reference levels each hour. These same changes should allow the ISO to update reference level calculations according to a new gas price determined by the ISO based on same day gas price information, as DMM has proposed.

With respect to the feasibility of the ISO determining the value at which to set the reasonableness thresholds based on ICE same-day gas trade prices and other gas market information, the ISO has successfully implemented a very similar process for over 20 months without any significant problems. If any problems occur, the CAISO can simply use a default value (e.g. the value that would be used in the absence of the updated process).

The ISO has expressed concern about the “regulatory uncertainties” of whether FERC would approve use of same day ICE trading information in setting real time gas price thresholds. However, FERC has approved use of ICE next day trade prices to set day-ahead bid caps for almost 20 months, and the ISO is now seeking permanent authority to continue to use of these ICE trade prices in the day-ahead market (see section on ***Updating Gas Prices Used in Day-Ahead Market Mitigation***). Thus, the ISO should not continue to cite “regulatory uncertainty” as a reason for not pursuing this market design enhancement.

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<sup>34</sup> Commitment Cost Default Energy Bids Enhancements (CCDEBE) business Rules, California ISO, January 2018, p. 11: <http://www.caiso.com/Documents/BusinessRules-CommitmentCosts-DefaultEnergyBidEnhancements.pdf>.

<sup>35</sup> Process Flow Commitment Costs Default Energy Bid Enhancements, California ISO, August 2017, [http://www.caiso.com/Documents/ProcessFlow-CommitmentCosts\\_DefaultEnergyBidEnhancements.pdf](http://www.caiso.com/Documents/ProcessFlow-CommitmentCosts_DefaultEnergyBidEnhancements.pdf).

### III. Dynamic Mitigation of Commitment Cost Bids

#### **Background**

The ISO's proposal will establish a new process for dynamic mitigation of commitment cost bids. Suppliers will be able to submit market bids for start-up and minimum load costs in excess of the current cap of 125 percent of estimated costs. The ISO proposes to allow market based commitment cost bids of up to at least 250 percent initially, and to increase the cap to at least 330 percent 18 months later.<sup>36</sup> These market bids for start-up and minimum load costs will be used unless the resources are determined to have potential market power through an automated test built into the ISO software.

DMM does not support raising the caps to 200 percent of reference levels (250 percent of estimated costs). Due to the gaps in the ISO's proposed commitment cost mitigation methodology described below, DMM recommends that the ISO exercise much more caution and raise these caps above 125 percent of estimated costs more gradually.

The current 125 percent cap allows for some bidding above estimated cost so that participants can express some operational preferences over their units. The current 125 percent cap is designed to reflect the fact that current systems for market power mitigation are incapable of detecting or mitigating the type of market power that can be exercised with commitment cost bids. As DMM described in previous comments:

Choosing the right level for a new cap involves judgements about the effectiveness of a dynamic mitigation system for market power in commitment costs. The cap on commitment cost bids should only be raised if there is significant confidence that most instances of commitment cost market power can be detected. The level to which the ISO raises the commitment cost cap should be a function of how effective the dynamic commitment cost mitigation system is expected to be in detecting commitment cost market power.<sup>37</sup>

The large increases in market based commitment cost bid caps being proposed by the ISO will significantly change the incentives for resources to attempt to profit from commitment cost market power. With the current commitment cost bid cap set at 125 percent of estimated commitment costs, resources can earn a 25 percent return on estimated commitment costs. This cap has proven to be a relatively effective deterrent against suppliers exploiting the kinds of intertemporal commitment cost market power strategies described above.

The ISO is proposing to increase this cap to 200 percent of *reference levels*. Because reference levels will be set at 125 percent of estimated costs for the first 18 months, the cap is actually being increased to 250 percent of *estimated costs*. This constitutes an increase of 600 percent

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<sup>36</sup> 200 percent of reference levels (which include a 25 percent adder) = 250 percent. 300 percent of reference levels (which include a 10 percent adder) = 330 percent. The actual caps would be significantly higher if the supplier has a reference level adjustment.

<sup>37</sup> DMM Comments from December 12, 2016, p. 7.



in the profit margins that a resource will be able to receive from implementing a strategy to exercise commitment cost market power.

DMM’s experience with the ISO’s energy market power mitigation indicates that commitment cost market power mitigation is likely to frequently fail to detect the local market power that it is designed to detect.<sup>38</sup> This fact alone justifies the ISO being very cautious in raising the cap above the current 125 percent. However, the commitment cost mitigation is not even designed to detect and mitigate other significant ways in which commitment cost market power can be exercised. The ISO’s proposal for commitment cost mitigation leaves significant gaps in the detection of commitment cost market power, as described in the following sections.

### ***Lack of Mitigation for Uncommitted Units***

ISO proposals prior to the revised proposal indicated that the ISO intended to mitigate the commitment cost bids of uncommitted resources.<sup>39</sup> In the revised proposal, the ISO has made significant changes to how it proposes to mitigate commitment cost bids. The ISO’s new commitment cost mitigation procedures do not mitigate the commitment costs of uncommitted resources appropriately. In many situations, this will result in the automated mitigation processes failing to mitigate *economic withholding* by a supplier who has a portfolio of resources with local market power (e.g. bidding lower cost units at a higher price, so that a unit with a higher commitment and/or energy cost unit must be dispatched).

The ISO’s proposal specifies criteria that would result in a resource’s commitment costs being mitigated due to the resource’s relationship with a non-binding constraint.<sup>40</sup> DMM worked with the ISO to develop this criteria and supports it as an effective addition to the set of criteria that could result in the mitigation of commitment costs of resources that have been committed by the market software or operators.

However, the ISO’s proposal is not sufficient for mitigating commitment cost market power that an entity with a portfolio of resources could exercise due to the entity’s portfolio of resources being pivotal in alleviating congestion on a non-binding constraint. The ISO is only proposing to mitigate *committed* resources that are effective against a non-binding constraint. As a result, a supplier whose portfolio of resources has market power due to a particular constraint could

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<sup>38</sup> For example, see *Local Market Power Mitigation Enhancements 2015 Draft Final Proposal*, Department of Market Monitoring, January 12, 2016, pp. 8-10:

[http://www.caiso.com/Documents/DraftFinalProposal\\_LocalMarketPowerMitigationEnhancements2015.pdf](http://www.caiso.com/Documents/DraftFinalProposal_LocalMarketPowerMitigationEnhancements2015.pdf).

<sup>39</sup> For example, the August 2017 Draft Final Proposal (p.109) states: “Every unit with  $NEC_i > 0$  will be mitigated – a zero tolerant criterion where  $NEC_i$  is calculated as follows:

$$NEC_i = \sum_{i=1}^n SF_{t,i} * -1$$

<sup>40</sup> Revised Draft Final Proposal, p. 71.

economically withhold its lower cost resources in order to get the software to commit a higher cost resource.

By bidding its lower cost resources at the 250 percent market based commitment cost cap and its highest cost resource at a slightly lower bid, the supplier could ensure that those low cost resources are not committed, and therefore not mitigated, while its most expensive resource gets committed with mitigated commitment cost bids at 125 percent of estimated costs. The supplier would have an incentive to execute this form of economic withholding in order to receive the 25 percent profit margin on the largest cost basis possible.

The importance of accounting for portfolio effects in commitment cost mitigation was discussed by DMM at the September 8, 2017 meeting of the Market Surveillance Committee. In general, portfolio effects have been an important aspect of mitigation for market power in organized electricity markets across the country. DMM does not support a mitigation process that does not appropriately mitigate for market power that can be exercised through a supplier's portfolio of resources.

DMM recommends that, as part of the commitment cost mitigation procedure, the ISO identify affiliate groups whose resources are effective against non-competitive constraints and who control at least one committed resource that would be mitigated according to the ISO's new commitment cost mitigation criteria. All uncommitted resources within that affiliate group that are effective against the non-competitive constraint in question should be subject to commitment cost mitigation. This should prevent participants from withholding more efficient resources from the market.

### ***Potential Gaming/Manipulation of Inter-temporal Constraints***

DMM has also recommended in previous comments that the ISO spend more time considering how bidding flexibility and intertemporal constraints can allow suppliers to inflate bid cost recovery payments, and that the incentives for suppliers to exploit this kind of market power "would be greatly increased by allowing commitment cost bids significantly higher than the current 125 percent caps".<sup>41</sup> Significant gaps in the mitigation of commitment cost market power that can be exercised through resource specific intertemporal constraints still exist.

One simple example involves the ability of suppliers to change a resource's energy bids between advisory hours and the current real-time market hour. The STUC optimization time horizon is 4.5 hours. At T-75 when bids are due for a particular real-time market hour, a supplier can submit different energy bids for the upcoming hour than it submits for the subsequent three hours. However, in making the decision of whether or not to keep a resource

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<sup>41</sup> DMM Comments from September 12, 2017, p. 2.  
See also DMM Comments from December 12, 2016, p. 6.

with limited starts or minimum up or down times committed, the STUC optimization will consider the resource's energy bids for all four hours of the STUC time horizon.

Therefore, if at T-75 a resource submits bids of \$1,000/MWh for all energy above  $p_{min}$  up to its  $p_{max}$  for the upcoming hour and bids of -\$150/MWh for its energy above  $p_{min}$  for the subsequent three hours considered by the upcoming STUC run, the -\$150/MWh energy in future hours will make the resource appear inexpensive to keep committed. This will be true even if the supplier has submitted very high market-based minimum load cost bids all four hours. When the next set of real-time energy bids are due at T-75 before the second hour, the supplier can change its energy bids for that hour to \$1,000/MWh while submitting energy bids of -\$150/MWh for the subsequent three hours considered by the upcoming STUC run.

Through this strategy, the resource is likely to remain committed and dispatched at its minimum operating level, enabling it to collect bid cost recovery payments that guarantee the resource will be compensated at the minimum load cost bids used by the market optimization.

Under the ISO's proposal, a supplier executing this strategy would be paid 200 percent of minimum load cost reference levels (250 percent of estimated costs) for the first 18 months of the policy's effective date and 300 percent of reference levels (330 percent of estimated costs) thereafter for operating at its minimum output level. The only mitigation for this form of intertemporal market power would be if the resource's commitment costs were sometimes coincidentally mitigated due to the resource being effective against a transmission constraint deemed non-competitive by the ISO's proposed commitment cost constraint test.

The above strategy is simply one example of how intertemporal constraints can be combined with bidding flexibility to allow a resource to exercise commitment cost market power that the ISO's proposed commitment cost constraint tests are not designed to detect or mitigate.

Another scenario is described in the section on ***Pmin Rerates and Bid Caps***. There are very likely other scenarios that could be exploited in order for resources to receive unjust and unreasonable bid cost recovery compensation based on high market based commitment cost bids. Until the ISO is comfortable that it can detect and mitigate market power based on intertemporal constraints, the ISO should not raise the market based commitment cost bid caps significantly above the current 125 percent of estimated costs.

### ***Exceptional Dispatches and Other Manual Interventions by Grid Operators***

Caution in raising the cap on commitment cost bids is also justified by gaps in the ISO proposal to mitigate commitments (including cancelled decommitments or other actions affecting commitments) initiated by ISO operators. As DMM explained in previous comments, "any type of commitment impacted by operator actions (such as exceptional dispatches or special 'scripts' run to affect market dispatches) must be logged and trigger mitigation".<sup>42</sup> DMM appreciates

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<sup>42</sup> DMM Comments from November 29, 2016, p. 5.

the ISO's change in the revised proposal to include mitigation of commitment costs of resources that are committed under Exceptional Dispatch for one of the four reasons currently listed in the tariff for mitigating Exceptional Dispatch energy. However, this proposal leaves significant gaps in the ISO's ability to mitigate market power exercised through operator initiated commitments.

First, even if operators log an Exceptional Dispatch commitment as being for a competitive reason and operators have several generators to choose from when issuing an Exceptional Dispatch, DMM's experience is that they often have very limited ability to compare costs and select the least costly option. Generators do not need to know with certainty that they will be committed through Exceptional Dispatch in order to raise bid prices and exercise market power when they are Exceptionally Dispatched. Therefore, DMM expects generators to often have the ability to exercise market power when they receive an Exceptional Dispatch commitment that operators log as being for a reason deemed as competitive in the tariff.

In addition, as previously noted by DMM, "commitment cost mitigation should be triggered by other forms of operator intervention in the market dispatch, such as special scripts that are run by market operators to effect unit commitment, blocked dispatch instructions,"<sup>43</sup> and commitment overrides. The ISO's proposal to mitigate Exceptional Dispatch commitment costs does not contemplate mitigating commitment costs for these other types of manual commitment decisions made by operators. DMM continues to recommend that all of these types of manual commitments be deemed non-competitive by default, and result in commitment cost mitigation, until mechanisms can be developed for appropriately deeming specific manual commitments as competitive.

### ***Pmin Rerates and Bid Caps***

In the revised proposal, the ISO introduced a new policy concerning minimum load costs for resources that have submitted a *pmin rerate* (i.e. change in minimum operating level). The current policy, implemented as part of the ISO's Bidding Rules Enhancements initiative, uses the unit's default energy bid (DEB) to account for the costs of the output between the resource's master file pmin and the rerated pmin. This policy was designed to ensure that "the market can use the actual cost of commitment when solving for the most efficient commitment solution possible while ensuring market participants will recover the incremental costs associated with the rerated pmin energy through ISO market revenue and bid cost recovery settlement."<sup>44</sup>

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<sup>43</sup> DMM Comments from September 12, 2017, p. 14.

<sup>44</sup> *Draft Final Proposal Bidding Rules Enhancements correct inefficient accounting of Minimum Load Costs after Pmin Re-rate*, California ISO, January 2016, p.8:  
[http://www.caiso.com/Documents/DraftFinalProposal\\_BiddingRulesEnhancements\\_MinimumLoadCosts.pdf](http://www.caiso.com/Documents/DraftFinalProposal_BiddingRulesEnhancements_MinimumLoadCosts.pdf).

The revised proposal indicates the ISO's intent to scale the DEB costs included in rerated minimum load costs by the ratio of the minimum load cost bid to the minimum load reference level.<sup>45</sup> If the minimum load cost is bid in at 175% of the reference level, the rerated minimum load portion above master file minimum load will be included in the optimization at 175% of DEB cost.

The current policy of using the DEB values for pmin rerates avoids allowing the rerates to be used to manipulate BCR. The DEB values were chosen as the correct policy in the Bidding Rules Enhancements initiative because they allow cost recovery and efficient dispatch while avoiding gaming opportunities.

If the ISO uses a value other than the DEB for incorporating the costs of pmin rerates, this can create BCR gaming opportunities. This is particularly true for resources that have a minimum run time. For example, a resource may be committed to provide a high amount of energy in one hour, and then be dispatched to pmin for another hour or two to satisfy its minimum run time.

Suppose it is economic to commit the resource with energy bids near cost, and a minimum load cost bid at 175% of reference levels. In the hours in which the resource is dispatched at pmin, it may be able to use a pmin rerate to increase its BCR. The resource may be able to rerate its pmin to a higher level, and force dispatch and cost recovery of the DEB costs scaled by 175% for the entire range of the rerate. At that time, the market software will not decommit the resource. No rule seems to exist in the revised proposal to prevent this form of BCR manipulation. Capping cost recovery at DEB for pmin rerates would mitigate this form of intertemporal market power.

The design included in the revised draft final proposal allows suppliers to use pmin rerates to inflate bid cost recovery based on their market based commitment cost bids. This issue is exacerbated by the ISO's proposal to increase the market based commitment cost cap from 125% to 250% of estimated costs. Therefore, DMM recommends that the ISO maintain the current policy of using unscaled DEBs as the basis for rerated minimum load costs.

### ***Timing of Mitigation for Minimum Load Cost Bids***

Determining when and how to mitigate commitment cost bids is an integral part of designing commitment cost mitigation. The ISO's proposal is not clear on when and for how long the ISO is proposing to mitigate the minimum load cost bids of resources with market power. The ISO states in the revised proposal that the application of minimum load cost mitigation will be to "hour failed and other hours where resource is subject to intertemporal constraints."<sup>46</sup>

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<sup>45</sup> Revised Draft Final Proposal, p.18.

<sup>46</sup> Revised Draft Final Proposal, p.26.

However, the ISO also states “LMPM applies mitigation to minimum load bids by: Day-ahead market: bids mitigated for the hour the resource failed.”<sup>47</sup>

The ISO should clarify which of these applies - just the hour failed, or the hour failed plus additional hours constrained by intertemporal constraints. If the ISO intends to mitigate resources in the additional hours subject to intertemporal constraints, the ISO should clearly delineate all intertemporal constraints that can cause this.

DMM is concerned that only mitigating for the single hour where the resource has market power could avoid mitigating resources that have intertemporal market power. For example, a resource that has market power in one hour but has a minimum run time of several hours should be mitigated for the entirety of its minimum run time. If this is not the case, the resource may be able to inflate its BCR payments.

Consider a scenario in which the market needs some energy for several hours of the day, and can choose from 5 different resources (resources 1 through 5) to obtain this energy, but only needs to have one resource on at any given time. All resources are identical, have a three hour minimum run time, and are bid at cost. In the third hour of this period, a constraint binds that only resource 2 can relieve. The market needs resource 2 for that third hour. If the ISO only mitigates resource 2 for the hour in which it is needed (the third hour), resource 2 can inflate its BCR payments.

Resource 2 could submit minimum load cost bids above its true minimum load cost and remain committed due to the minimum run time. To choose another resource to satisfy the system needs in the first or second hour, the optimization will have to pay the startup cost of the other resource. Resource 2, then, can inflate its minimum load cost bid by an amount just under the common startup cost and still be chosen for the first or second hour. In order to effectively combat market power, the market run which commits the resource needs to mitigate the minimum load cost bids of the resource from startup through the minimum run time.

If a resource is only mitigated for the hour in which it fails the market power test, it may be able to bid well above cost and still be committed due to the combination of local market power in one hour and its minimum run time. Minimum load cost bids should be mitigated at least for the minimum run time of the resource when the resource is constrained on by its minimum run time.

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<sup>47</sup> Revised Draft Final Proposal, p.72.

***Reference Levels for Supply Resources Currently Exempt from Market Power Mitigation***

The ISO proposes to allow all supply resources to submit market based bids for “each component of the supply resources’ bid subject to mitigation and allow suppliers greater flexibility to negotiate or adjust reference levels for each supply bid component.”<sup>48</sup> The ISO clarifies that this statement applies to supply resources that are currently exempt from market power mitigation such as Participating Load, Reliability Demand Response Resources, Proxy Demand Resources, and Non-Generating Resources. The ISO has not defined the criteria that will be used to determine reference levels for these types of resources that are currently exempt from market power mitigation.

If reference levels are not defined for these types of resources, there will be no way under the ISO’s proposal to define market based commitment cost bid caps for them. Therefore, DMM notes that the ISO will need to develop criteria for determining reference levels for these types of resources before they can submit market based bids for commitment costs.

***Automatic Increase in Commitment Cost Bid Caps***

The ISO is also proposing to automatically increase the cap to 300 percent of reference levels, or 330 percent of estimated costs, after 18 months. This would allow suppliers to receive more than 9 times the profit margin they would currently receive from strategies to profit from uplift payments from commitment costs under the 125 percent cap. The large increases in the profitability of operating at minimum load may incentivize suppliers to develop and implement strategies that result in resources operating at minimum load rather than fully participating in the ISO energy markets and providing the kind of flexibility that will be increasingly required as the ISO works to incorporate growing quantities of intermittent renewable resources.

Due to the gaps in the ISO’s proposed commitment cost mitigation methodology described above, DMM does not support raising the market based commitment cost bid caps to 200 percent of reference levels. Similarly, DMM does not support automatically increasing the caps to 300 percent of reference levels after 18 months. DMM recommends that the ISO take a much more cautious approach in raising these caps.

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<sup>48</sup> Revised Draft Final Proposal, p. 36.

#### **IV. Cost Review and Verification**

##### ***Requirements for Support of Ex Ante Reference Level Adjustments***

The revised proposal clarifies that a supplier’s request for an ex ante reference level adjustment must be based on cost expectations “based on actual current information”.<sup>49</sup> Moreover, the ISO proposes to audit ex ante reference level adjustment requests and penalize suppliers that cannot provide appropriate supporting documentation that would allow the ISO to verify that the adjustment requests are based on expected costs. Penalties include suspending the supplier’s ability to submit reference level adjustment requests for 60 to 180 days and referring the behavior to FERC.

The set of measures summarized above is likely to deter many suppliers from systematically using the volatility scalars to increase their energy and commitment cost reference levels above costs based on the current observed fuel (or fuel equivalent) market prices and conditions. However, the description of acceptable supporting documentation in the revised proposal still contains some ambiguities and gaps that could be interpreted by an ISO auditor in ways that could allow suppliers intent on exercising market power through the volatility scalars to do so without facing the defined consequences.

For example, the revised proposal does not specify that fuel price quotes must come from unaffiliated entities. Affiliated entities may have the incentive to provide a supplier with artificially high fuel price quotes that could allow a supplier to exercise market power through the volatility scalar. Quotes from affiliated entities should therefore not be considered appropriate supporting documentation.

There may also be some ambiguity in how the ISO defines “actual current information” that must be used as supporting documentation. In the context of the list of appropriate supporting documentation that the ISO provides, DMM interprets “actual current information” to mean information that verifies that prevailing fuel (or fuel equivalent) market prices exceed the estimates used in ISO reference levels. DMM asks that the ISO further clarify that this interpretation is correct, and that suppliers cannot use historical information to support reference level adjustment requests (e.g. “intra-day gas prices were 20 percent higher than the next-day index last Tuesday, so I expect intra-day gas prices to be 20 percent higher than the next-day index this Tuesday as well”).

##### ***Ex Post Cost Recovery of Incurred Costs***

The ISO proposes that all ex post review of requested reference level adjustments be based on actual incurred costs. These reference level adjustments would apply to resources that have been determined to have market power. Allowing resources with market power to recover any incurred costs presents several behavioral issues that can lead to market inefficiency.

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<sup>49</sup> Revised Draft Final Proposal, p. 37.



In previous comments during this initiative, DMM explained how it is inappropriate to give guaranteed recovery of actual costs to market participants that have market power.<sup>50</sup> Moreover, the ISO's vaguely defined resource specific feedback loop will provide suppliers with market power the opportunity to incur artificially high fuel costs that would increase reasonableness thresholds and subsequently increase reference levels used to set energy prices.

The ISO proposes to only approve the recovery of these costs if the fuel had to be procured immediately due to constrained fuel supply conditions. DMM appreciates that this provision will help to mitigate the extent to which the ex post recovery of incurred costs can lead to inefficient fuel procurement and inappropriately inflated reference levels. However, the ISO's proposal still seems to allow market participants to recover any incurred cost under these conditions, regardless of whether or not the incurred costs deviated significantly from observed fuel market prices and conditions. Depending on the details of how the feedback loop is implemented, this proposal could therefore allow entities with market power to manipulate their future reference levels through intentionally high priced fuel procurement during days when gas companies require daily balancing.

To prevent these inefficiencies, DMM recommends that the ISO clarify that actually incurring a fuel cost is not a sufficient condition for having an ex post recovery approved by the ISO. Instead, the actually incurred fuel cost should have to align with observed prevailing fuel market prices and conditions in order to qualify for ex post recovery and consideration in any feedback loop.

### ***Ex Post Recovery of Fuel Costs Incurred After Electricity Market Dispatch***

In the revised proposal, the ISO also proposes to not approve ex post recovery of fuel costs incurred before "the market that produced relevant award".<sup>51</sup> DMM recommends that ISO reconsider this element of the ex post cost recovery policy.

The ISO is appropriately proposing to only approve ex post recovery of costs on days where gas companies require daily balancing. However, on such a day, load forecasts may be higher in real-time than in the day-ahead market. Electricity market participants may therefore anticipate that generation will be dispatched up in real-time relative to day-ahead awards and seek to purchase gas prior to receiving an incremental real-time dispatch.

If entities can only receive ex post recovery of fuel costs incurred after the market that produced the relevant award, the entities will have a strong incentive to wait to purchase the gas until after they have received the electricity market dispatch. This could exacerbate the tight fuel conditions on the days that the ISO is allowing ex post recovery of costs.

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<sup>50</sup> DMM Comments from December 12, 2016, pp. 2-3.

<sup>51</sup> Revised Draft Final Proposal, p. 43.

### ***Administrative Burden and Costs of Ex post Validation Under ISO Proposal***

The ISO will have to invest significant time and resources into the ex post verification process in order for it to be effective at allowing recovery of costs that aligned with prevailing fuel market prices while also preventing recovery of inefficiently incurred costs or intentionally incurred costs that may be intended to manipulate the resource specific feedback loop. As described in Section II above, implementing DMM’s proposal for updating fuel prices used in real-time mitigation should eliminate most or all of the need for legitimate requests for reference level adjustments above the updated reasonableness thresholds. DMM’s proposal would significantly reduce overall implementation costs while greatly improving the efficiency of real-time market dispatch during fuel scarcity events relative to the ISO’s proposal to rely heavily on ex post verification and cost recovery.

### ***Manual Verification of Costs Above \$1,000/MWh***

In its most recent draft, the ISO has for the first time proposed a ‘manual verification process’ to accommodate energy bids where costs are above \$1,000/MWh. The ISO has included very little detail on how this process is meant to work. The proposal states that the consultation will “...follow the requirements for developing reference level adjustment”<sup>52</sup> and that “Per Order 831, the standard for verification will be an ex ante verification on whether the cost-based energy offer is a reasonable reflection of cost expectations.”<sup>53</sup>

DMM requests that the ISO provide more detail on how this process would work, including proposed timelines for a typical request and any standards that can be used to verify costs in real time. The standards to be followed for constructing a reference level adjustment are included in Appendix D of the revised proposal, but exactly how this would feed into a real time request is not clear. Is the ISO proposing that whoever has the authority to perform the manual consultation should be able to receive and review the documentation before the market runs in order to approve a new reference level? Details on this process will be very important to determine how well it can be used, how effective it is, and to what degree the process might be subject to inaccuracies, gaming or manipulation.

DMM is particularly concerned with two possible outcomes. In one scenario, the ISO would essentially not be able to approve anything that was above the reasonableness threshold. For example, if the approval process was along the same lines as an audit process, it is unlikely that a review would be completed within a given trade day.

On the other extreme, if the standards are too low this could result in significant market harm. For example, if any resource that promises they have documentation is allowed to submit energy bids over \$1,000/MWh, then the possibility exists of setting artificially high market

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<sup>52</sup> Revised Draft Final Proposal, p. 40.

<sup>53</sup> Revised Draft Final Proposal, p. 12.

prices. Even if revenue can be disgorged from the offender, this can still result in significant market harm by setting artificially high prices.

The ISO should resolve these details before taking this policy to the Board. Developing this feature alone may be sufficient for compliance with FERC Order 831. Given the amount of development the rest of the proposal still needs, and the tight timeline for compliance with FERC Order 831, the ISO should be prepared to propose policy to comply with FERC Order 831 separately from the rest of this policy.

## V. Potential Corrections in Proposal

### *Changes to Reference Level Calculation in Appendix C*

Appendix C introduces changes to reference commitment cost calculation in equations for proxy cost calculation that are not included in the proposal itself. Although these changes may have been introduced inadvertently and were not discussed in the stakeholder process, DMM recommends clarifying these apparent changes before the proposal is presented to the Board for approval and before implementation work by ISO teams proceeds further.

1. **Non-gas minimum load greenhouse gas cost calculation:** The equation for greenhouse gas cost calculation listed for non-gas resources in the text box on page 50 includes  $HEAT\_AVG\_COST_{Point1}$ . Current practice for greenhouse gas cost calculation for non-gas resources in the ISO has relied on heat rate rather than  $HEAT\_AVG\_COST$  curves. DMM recommends relying on heat rates rather than  $HEAT\_AVG\_COST$  curves, as doing so allows non-greenhouse gas cost related components to be excluded from the calculation.
2. **Inclusion of start opportunity cost in minimum load cost calculation:** The table on page 51 of the draft final proposal lists both calculated opportunity cost for eligible start limitations and negotiated opportunity cost for eligible start limitations as inputs to minimum load cost calculations. The introduction of start-up opportunity costs rather than minimum load opportunity cost to the minimum load cost calculation appears to have been unintentional.
3. **Start-up cost reference level calculation should include start-up fuel cost rather than being defined as a function of itself:** In the second box on page 51, start-up costs are defined as a sum of terms including start-up costs. DMM recommends that start-up costs be defined as a sum of terms including start-up fuel costs rather than start-up costs.
4. **GMC Adder calculation:** The text box on page 51 of the Draft Final Proposal defines GMC as a function of the start-up time of point 2. This formula is inconsistent with the Market Instruments BPM and the CAISO tariff. Current BPM and tariff definitions state that the fastest Start-Up Time Period registered in the Master File will be used in this calculation, regardless of segment. DMM recommends that the ISO revise this equation, if this change to GMC calculation was introduced inadvertently.

***Variable Indexing in Appendix E***

DMM believes that several mistakes have been made in the variable definitions and descriptions in Appendix E. In descriptions in Table 6 several references are made to resource *r*, while the corresponding variables being defined reference resource *i*. For example, the variable  $MAXCAP_i$  is defined as “Maximum operating level of resource *r* where  $P_{max_i}$  is regulation  $P_{max}$  if on regulation otherwise operational  $P_{max}$ . Note – for MSG plants these are plant level maximums and derates.”<sup>54</sup>

DMM is not clear if this is a typo and the descriptions are meant to reference resource *i* or if, as is written in the proposal, the variables serve to relate two different sets of resources, *i* and *r*. The meanings of the defined variables changes significantly depending on the answer.

In DMM’s experience, documents such as Revised Draft Final Proposals can be important reference materials for implementation teams that may not have been involved in designing the proposal. Therefore, it is important that all details like this are properly and clearly specified. DMM requests that the ISO review the tables and definitions in this appendix and correct any errors found.

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<sup>54</sup> Revised Draft Final Proposal, pp. 60-61.