

Comments on the Commitment Costs and Default Energy Bid Enhancements – Issue Paper

Department of Market Monitoring November 29, 2016

I. Overview

The California ISO Department of Market Monitoring (DMM) appreciates this opportunity to comment on the ISO's Commitment Costs and Default Energy Bid Enhancements Issue Paper (Issue Paper).¹ The *Issue Paper* covers a wide range of topics including bid flexibility of natural gas and commitment costs, as well as exceptional dispatch mitigation of decremental dispatches.

Our comments in this paper focus on a subset of the items covered in the *Issue Paper*. Specifically, these comments primarily focus on the items related to natural gas price volatility and the need for further flexibility. We intend to follow-up with additional comments by the comment deadline period. However, the purpose of these earlier comments is to allow participants to consider these points as they develop their own comments to the *Issue Paper*.

II. Principles

DMM's analysis of gas markets has consistently shown that the current bidding headroom in the ISO markets covers most upward gas price variability.² However, we acknowledge that there are a very small number of instances that are not currently covered and that improvements can be made to address the variability of natural gas costs. DMM believes that while the ISO's current approach covers most of the variability in natural gas prices, the ISO could implement a handful of measures that would help address concerns with the accuracy of natural gas price indices used in ISO markets in a limited set of circumstances.

Furthermore, we believe that it is very important to have bid caps for energy and commitment costs that allow generators to recover natural gas costs – while mitigating market power and other potential sources of unjust and unreasonable prices and uplift costs. These can range from gaming of bid cost recovery rules – to software or system issues resulting in inefficient dispatches – to settlement rules that simply have unintended consequences or outcomes.

¹ See *Commitment Costs and Default Energy Bid Enhancements*, November 18, 2016:

http://www.caiso.com/Documents/IssuePaper_CommitmentCost_DefaultEnergyBidEnhancements.pdf.

² See *Report on natural gas price variability at western trading hubs*, Department of Market Monitoring, May 14, 2015: <http://www.caiso.com/Documents/DMMReport-GasPriceAnalysis.pdf>; *Report on natural gas price volatility*, Department of Market Monitoring, September 21, 2015: http://www.caiso.com/Documents/DMMReport-gas_price_analysis_september2015.pdf; and Comments by the Department of Market Monitoring of the California Independent System Operator Corporation regarding Aliso Canyon (Phase 2) under FERC Docket No. ER17-110, October 20, 2016.

The *Issue Paper* highlights the importance of balancing the need for increased flexibility and the need to protect the market from gaming.³ We agree that these are important factors to consider. However, we also believe that there are several other factors to consider including:

- The accuracy of cost estimates and any under or over estimation of these estimates.
- Any potential costs to the market including uplifts that may occur as a result of modifications to the market design.
- The implementation challenges and timeline necessary to make substantial modifications to the software.
- Additional staffing requirements that could come up as a result of the design methodology.

We believe that the combination of all of these principles including the factors identified by the ISO should be considered when developing a new approach. We have considered these factors when developing our comments and potential approaches for moving forward.

³ Issue Paper, pp. 35-37.

III. Phased approach

DMM believes that – while the ISO’s current process allows generators to recover natural gas costs during all but a very few cases – the ISO could take two phased steps that would effectively resolve all the cases in which the current process may not allow generators to recover natural gas costs.

A. First phase (2017)

The first phase would be developed from four relatively simple items that we believe could be implemented by fall 2017. These include:

1. The ISO should make permanent the ability to update natural gas prices in its day-ahead market with gas prices taken by the ISO from a weighted average of trade prices on the InterContinental Exchange, also known as ICE, just prior to the day-ahead market run. The ISO has only asked for and FERC has granted this as a temporary measure to address conditions created by the limitation of the Aliso Canyon facility. However, we believe this should be a permanent market feature going forward.
2. Next day indices used in the day-ahead market can be different from traded values because Mondays – or Tuesday if it is the first trade day of the week – trade as part of a weekend package. DMM believes this source of gas price variability could be addressed by using trading information from ICE for the first trade day of the week. The ISO could incorporate the prices from these trades in the gas price index that the ISO uses for the first trading day of the week rather than just relying on the current index value that is part of the weekend package.
3. The ISO could update real-time gas indices each morning based on observed trades in the same day market natural gas market. This approach would be similar to the approach used to update next-day natural gas prices in the day-ahead market. Specifically, between 8 a.m. and 9 a.m. of each operating day the ISO could use the same day gas traded information on ICE and develop a new index for the real-time market.
4. While the ISO has filed and FERC has approved making make after-the-fact recovery of commitment costs a permanent feature, we believe that the energy component should also be included as a permanent feature in certain circumstances. With regards to both incremental energy and commitment costs, we believe that the ISO should develop more specific guidelines and details of these cost recovery provisions and specifically address issues concerning recovery of gas penalties, imbalance charges, and “cash out” costs.

B. Second Phase (2018)

Special process for updating gas costs

After implementing these four measures, DMM believes a second phase that could be developed would be an enhanced process by which generators can request use of a gas cost in excess of these updated gas indices – plus the 25 percent headroom for commitment costs and the 10 percent headroom for default energy bids already incorporated in ISO market rules. Given the technical implementation challenges that may be required to implement this approach, this would likely be implemented no earlier than the fall of 2018 or beyond. Even so, DMM believes that the need for this additional enhancement should be relatively low with the use of updated gas indices from the first phase and the headroom already incorporated in ISO market rules. We also believe that this approach would be consistent with FERC Order No. 831.

DMM has reviewed rules and processes in other ISOs and RTOs which allow this type of additional bidding flexibility. Based on our review, DMM would prefer a NYISO/MISO/ISO-NE approach, which all require some type of robust pre-verification of the reasonableness of the gas costs submitted by participants. In most cases, this involves some kind of automated pre-verification of gas prices based on an estimate of prevailing gas prices. DMM believes the updated natural gas indices described above would be essential information as a frame of reference for any type of automated or manual pre-validation. Thus, DMM recommends that the ISO place a priority on developing the capability to calculate these types of updated gas indices as an essential first step toward increasing accuracy of natural gas prices used to set bid caps in the day-ahead and real-time markets.

ISO market infrastructure and design staff have suggested that they prefer a SPP style approach that is based on a pre-validation of methodology, but an after-the-fact verification of gas costs. DMM believes this approach is much more problematic, less effective and would require significantly more staff resources on an ongoing basis. With this approach, if there is any issue with the validation of gas costs, the impact of higher gas cost on the market is irreversible. In addition, this approach relies on referrals to FERC on the grounds of false information or manipulation – with potential fines of up to \$1 million per day. The FERC referral process can be very complicated and lengthy – with issues only being resolved several years later. Pending resolution of any such referrals, the participant, ISO and entire market would be subject to the ongoing uncertainty about what bidding might ultimately be deemed acceptable by FERC and what bidding would not.

Dynamic mitigation

DMM is also supportive of the ISO examining how it may develop some form of dynamic mitigation of commitment costs that the ISO might be able to implement as part of this second phase in 2018. However, DMM notes that it believes this may prove to be a challenging issue from a technical perspective, because it can be very difficult to determine when various software constraints actually cause units to be committed or transitioned to another configuration. In addition, once these constraints are identified, a dynamic mitigation process

must determine whether commitment cost bids should be mitigated based on the impact of competitiveness of these constraints. While approaches may be developed to do this, DMM suspects that the ISO will be limited in the degree to which approaches may be implemented in the computational timeframe needed by the market software.

DMM notes that dynamic mitigation of commitment costs must consider flow based transmission limits, as well as the various capacity constraints that are being added to the ISO market software. This includes minimum on-line constraints (MOCs), as well as more complicated constraints being developed or considered (e.g. contingency capacity constraints and potentially more locational procurement of flexible ramping capacity).

DMM also notes that safeguards must be in place for gaps or limitations in the market software that can prevent the full costs associated with commitments because of various unit constraints from being incorporated in real-time commitment decisions. Failure to incorporate these could result in units being “stuck” on in configurations despite extremely high minimum load costs.

Finally, DMM notes that 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.

The remainder of this paper outlines in greater detail our proposal on the first phase of changes that we believe can be implemented by fall 2017 and identifies a series of issues and options with each approach. We present options on how these concerns may be addressed either in the short- or long-term. DMM will provide more detailed comments on issues DMM believes should be examined for potential implementation in the second phase in 2018 in separate comments.

IV. Recommendations for initial phase

As noted above, DMM believes that while the ISO's current approach covers most of the variability in natural gas prices, the ISO could implement a handful of measures that would help address concerns with the accuracy of natural gas price indices used in ISO markets in a limited set of circumstances. The remainder of these comments outlines in greater detail our proposal on the first phase of changes and identifies a series of concerns with each approach. We present options on how these concerns may be addressed either in the short- or long-term.

A. Permanently update natural gas indices used in the day-ahead market

Proposal

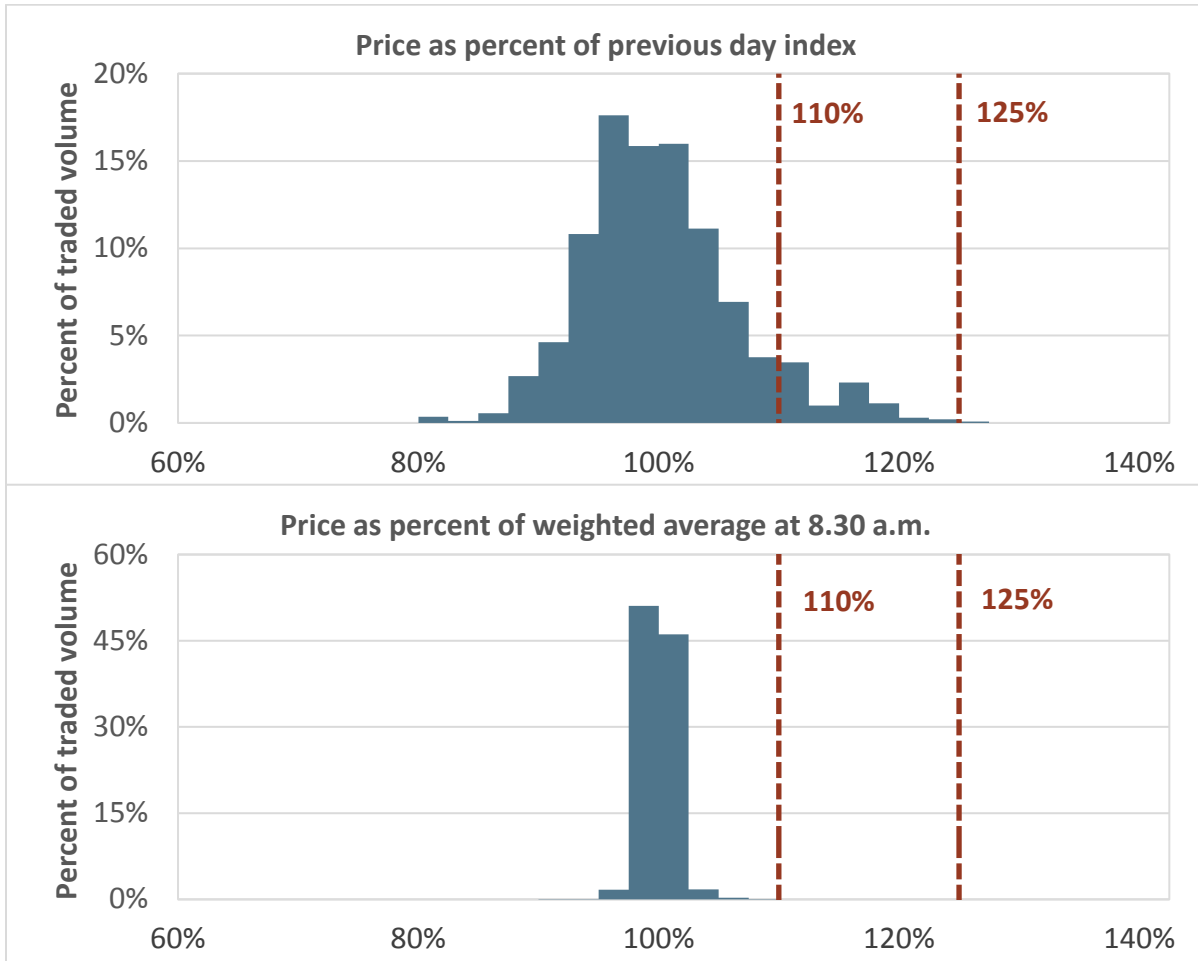
DMM believes that the natural gas price used to calculate caps used in the ISO's day-ahead market should permanently be based on updated gas prices taken by the ISO from a weighted average of trade prices on the InterContinental Exchange, also known as ICE, just prior to the day-ahead market run. This will permanently eliminate the one-day lag in the natural gas prices used in the ISO day-ahead market.

While the ISO has just recently implemented this as a temporary component of the Aliso Canyon mitigation measures, this measure represents a common sense element that should be included in the ISO market permanently.⁴ This modification has universal support among stakeholders and neither the ISO nor stakeholders have provided any reasons why this measure should not be implemented on a permanent basis.

As shown in the bottom chart in Figure 1, this change should ensure that virtually all gas purchased in the next day market is at a price that is within the normal headroom provided under current market rules (10 percent for default energy bids and 25 percent for commitment costs). The top chart shows that next day trades varied significantly relative to the lagged index price. This is supported by analysis by DMM of ICE data going back over several years.

⁴ This feature was implemented on October 22 after the ISO received FERC approval on October 20.

Figure 1 Next day trade prices at SoCal Citygate (June through October)



Concerns

Issue 1: The ICE natural gas trades could be manipulated to influence the ISO natural gas indices.

Issue 2: The ICE natural gas indices are not representative or are systematically different from averages of other index providers.

Options to address concerns

With respect to both issues, the Commodity Futures Trading Commission and the Federal Energy Regulatory Commission both have established monitoring and surveillance programs designed to detect manipulation on exchanges. Both also have strong and effective

enforcement divisions with the ability to impose severe penalties should manipulation occur. Even so, there still arises the possibility that manipulation could occur for a time before it is detected by these agencies and stopped.

Option 1: Take no further action.

Option 2: Develop metrics to monitor for potential anomalies and refer identified issues to FERC. For instance:

- The ISO could compare the weighted average index used to the final index. If the weighted average index were to deviate from historic bounds, the ISO could refer the situation to FERC.
- The ISO could compare the final next day ICE index with other index providers including SNL, Platts and Natural Gas Intelligence. If there were systematic trends or other anomalous observations, these could be referred to FERC.

Option 3: Includes the same items as Option 2 but also gives the ISO the ability to suspend this update if anomalies were identified in metrics.

Recommendations

DMM believes that Option 3 is preferred given that a manipulation could occur over a period of time before any specific enforcement actions are taken, at which point any damage to the market would have been done. We believe that both the CFTC and FERC are highly capable in addressing any issue that may arise, but the ability to suspend use of the update should anomalies be determined would provide immediate relief should a manipulation occur.

B. Update natural gas indices used in the day-ahead market for first trading day

Proposal

Next day gas indices used in the day-ahead market can be different from traded values because Mondays – or Tuesday if it is the first trade day of the week – trade as part of a weekend package. DMM believes this source of gas price variability could be addressed by adjustments to target this specific situation. For example, ICE includes a Monday only gas trading product. Moreover, participants have the ability to create a custom product on ICE that is equivalent to the Monday only next-day trading product. The ISO has the ability to observe trades for these products and could incorporate the prices for these trades in the index that is used for the first trading day of the week rather than just relying on the current index value that is part of the weekend package of Saturday through Monday.

Specifically, the ISO receives an end of day trading report from ICE each weekday at roughly 1:30 p.m. Pacific Time that lists all trades performed on its platform for that day. Therefore, by

the afternoon on Friday, the ISO can review the information in the end of day files leading up to the end of the week for the subsequent first trading day of the week. This trading information can then be used to help shape the natural gas index prices used Sunday morning for the day-ahead market run for Monday – or on Monday for the day-ahead market for Tuesday if Tuesday is the first trading day of the week.

There were five instances that we observed trades for the first day of the week this past summer, using the Monday product or the custom product. For example, for Monday August 15 we observed 36 trades with volumes totaling over 252,000 MMBtus at the SoCal Citygate. This compared to the weekend package which recorded 62 trades with volumes totaling over 351,000 MMBtus per day. The weighted average prices for the August 15 Monday only product was almost 13 percent higher than the index price for the Saturday through Monday weekend package. On this day, we believe that given the volume of transactions, it would have been reasonably appropriate to update the index to better reflect the more targeted trading information for the Monday only product.

Further, the weighted average price for the Monday only product was closer to the Monday same day average compared to the weekend index price. For August 15, the Monday only average was only about 7 percent below the same day Monday average, whereas the weekend index price was about 18 percent below the same day Monday average. Using a weighted average for the Monday or custom trades instead of the weekend index prices for the five days with observed Monday only or custom trading at the SoCal Citygate would have reduced the average price difference compared to the same day average from about 9 percent to about 4 percent on those days.

Concerns

Issue 1: The ICE natural gas trades could be manipulated to influence the ISO's natural gas index.

Issue 2: The number of trades or the traded volume may be low.

Issue 3: The traded prices using the custom or Monday only products are lower than the next day index for the first trading day of the week.

Issue 4: Same day trading for the first day of the week remains systematically different from the updated first trading day of the week index.

Issue 5: Participants are benefiting from higher natural gas index values, but are not actually transacting at higher levels.

Options to address concerns

Option 1: To address issue 1, the ISO could develop metrics that look for outliers and refer to FERC.

Option 2: Includes same items as Option 1 but also gives the ISO the ability to suspend this update if anomalies were identified in the metrics.

Option 3: To address issue 1, issue 2 and issue 5, the ISO could request that participants, which use the additional head room afforded by these index adjustments, submit ex post information to validate that they in fact transacted at prices consistent with the trades observed on ICE that were used to modify the index. Should the ISO determine that no valid information existed, the participant could be temporarily disallowed from using the additional bidding flexibility in their commitment cost and negotiated default energy bids. This approach would be somewhat analogous to how the New York ISO validates use of higher gas values and suspends bidding flexibility for participants that are systematically biasing results in their favor.

Option 4: To address issue 2, determine a level of liquidity that would be acceptable and replace the day-ahead index price with a new price.

Option 5: To address issue 2, if liquidity was too low, ignore the new information.

Option 6: To address issue 2, if liquidity was too low, modify the gas index by blending the information from the weekend package index price with the additional trades. The blending could use a volume weighted approach to mixing the information together or some other approach.

Option 7: To address issue 3, only rerun if data indicate gas prices would be higher.

Option 8: To address issue 3, update prices to reflect price declines in the same day market.

Option 9: To address issue 4, perform statistical analysis to determine the average effect of the difference in next day and same day trades for the first day of the week. Include fixed adder for the first trading day of the week. Update fixed adder once a year.

Recommendations

DMM believes that the ISO should develop metrics to look for outlying results and refer them to FERC. Moreover, we believe that the ISO should also have the ability to suspend this provision if conditions warrant a change in status (Option 2). We also believe that should the

level of liquidity be sufficient enough to warrant an update to the price, the ISO should update the price outright.

With regards to how to address periods of low liquidity or how to deal with periods of price declines, DMM is looking forward to feedback from stakeholders on which options would be most appropriate to address these situations as we can see both pros and cons in either approach.

C. Update natural gas indices used in the real-time market

Proposal

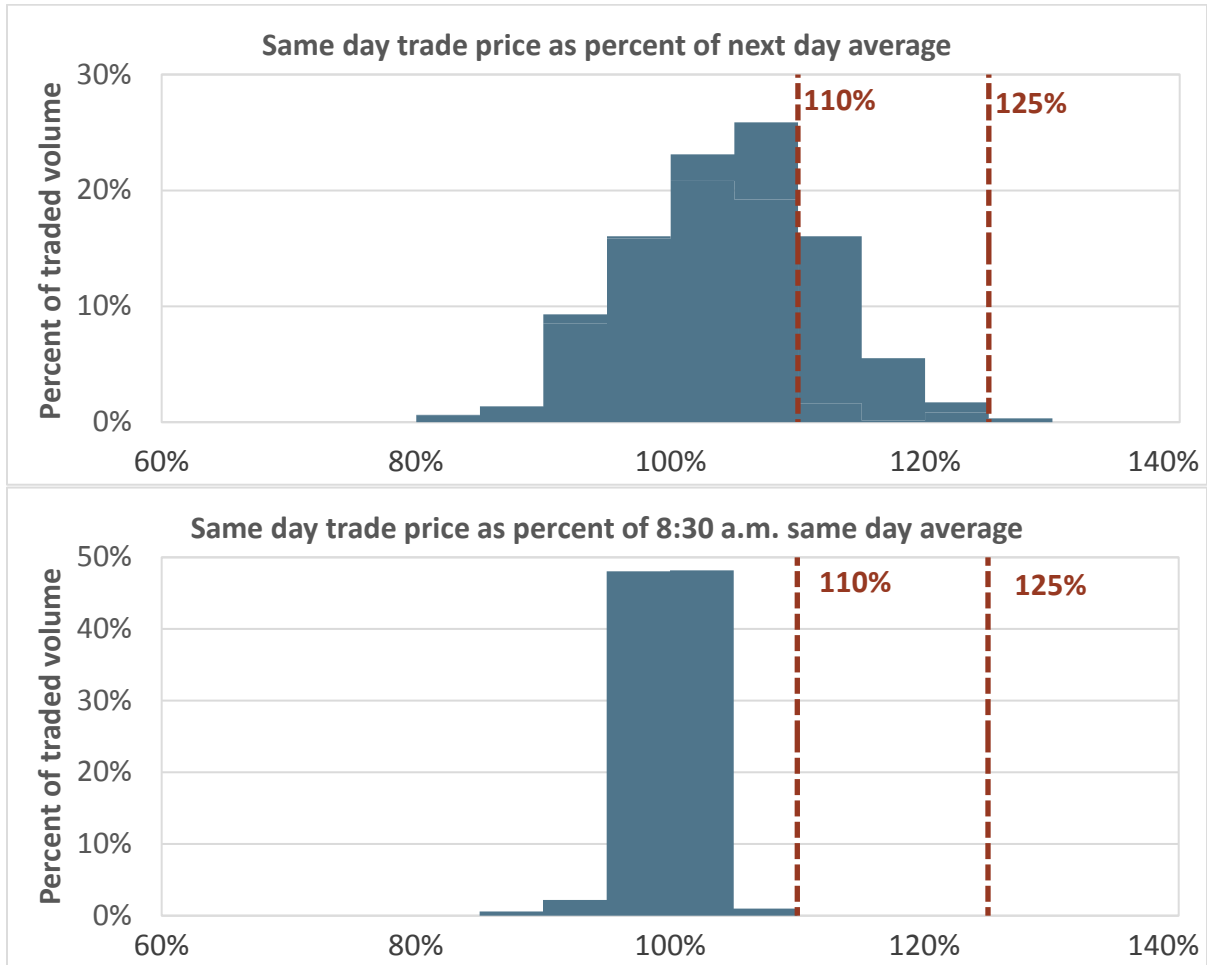
For the real-time market, DMM believes that the ISO could update real-time gas indices each morning based on observed trades in the same day natural gas market. This approach would be similar to that used to update next-day natural gas prices in the day-ahead market. Specifically, between 8 a.m. and 9 a.m. of each operating day the ISO could take a weighted average of prices for same day gas traded on ICE. This price can then be used to update bids in the real-time market for that day.

Recent analysis by DMM indicates that this approach would provide a price that is close to the final average for same day gas prices by ICE, since much (about 66 percent at the SoCal Citygate and 78 percent at the PG&E Citygate hubs from June through October 2016) of the same day trading occurs before 8:30 a.m. each day. The average absolute difference between the weighted average price of same day trades before 8:30 a.m. and the final weighted average same day price was less than 1 percent at both SoCal Citygate and PG&E Citygate during June through October 2016. The difference did not exceed 10 percent on any of these days.

Figure 2 highlights the reduction in variability that occurs if the ISO were to use a weighting of same day trades at the SoCal Citygate compared to the current approach of using the next day average. The top chart of Figure 2 shows same day trades as a percentage of the next-day index price used in setting default energy bids and some real-time commitment costs. This chart shows there can be several differences greater than the 110 percent threshold. The bottom chart in Figure 2 shows the same day trades compared to an average of the same day trades taken at 8:30 a.m. This chart highlights the dramatic reduction in variability when same day trades are compared to an average taken at 8:30 a.m.

On days that there is not a lot of trades in this market, we found that same day prices were generally closer to next day prices, so that there would be less need to update the next day price normally used. Furthermore, we believe that should same day prices shift dramatically after the time the ISO captures the same day price, the ISO should be prepared to update the index manually to reflect the changing market conditions. Based on our analysis, we would not expect this manual update to occur frequently.

Figure 2 Same day trade prices at SoCal Citygate (June through October)⁵



Concerns

Issue 1: The ICE natural gas trades could be manipulated to influence the ISO natural gas index.

Issue 2: The number of trades or the traded volume may be low.

Issue 3: The same day prices are lower than the prevailing natural gas index price used in the real-time market.

Issue 4: Participants are benefiting from higher natural gas index values, but are not actually transacting at higher levels.

Issue 5: Same day trades are not occurring on ICE but either on other platforms or bilaterally, such as on weekends.

⁵ Compared to the top chart, the bottom chart excludes 4 days with trades that only occurred after 8:30 a.m.

Options to address concerns

- Option 1:** To address issue 1, the ISO could develop metrics that look for outliers and refer to FERC.
- Option 2:** Includes same items as Option 1 but also gives the ISO the ability to suspend update if anomalies were identified in metrics.
- Option 3:** To address issue 1, issue 2 and issue 4, the ISO could request participants that use the additional head room afforded by these index adjustments to submit ex post information to validate that they in fact transacted at prices consistent with the trades observed on ICE that were used to modify the index. Should the ISO determine that no valid information existed, the participant could be temporarily disallowed from using the additional bidding flexibility in their commitment cost and negotiated default energy bids. This approach would be somewhat analogous to how the New York ISO validates use of higher gas values.
- Option 4:** To address issue 2, determine a level of liquidity that would be acceptable and replace the day-ahead index price with new price.
- Option 5:** To address issue 2, if liquidity was too low, ignore same day trades.
- Option 6:** To address issue 2, if liquidity was too low, modify the gas index by blending the information from the next day index price with the additional trades. The blending could use a volume weighted approach to mixing the information together.
- Option 7:** To address issue 3, only rerun if data indicate gas prices are higher.
- Option 8:** To address issue 3, update gas prices to reflect gas price declines in the same day market.
- Option 9:** To address issue 5, wait to later phase to develop an approach to deal with remaining items based on experience and data presented by market participants.
- Option 10:** To address issue 5, allow the ISO to have the flexibility to make their own judgement to what price and at what time to modify natural gas price indices.

Recommendations

DMM believes that the ISO should develop metrics to look for outlying results and refer them to FERC. Moreover, we believe that the ISO should also have the ability to suspend this provision if conditions warrant a change in status (Option 2). We also believe that should the

level of liquidity be sufficient enough to warrant an update to the gas price, the ISO should update the gas price outright (Option 10).

With regards to how to address periods of low liquidity or how to deal with periods of price declines, DMM is looking forward to feedback from stakeholders on which options would be most appropriate to address these situations as we can see both pros and cons in either approach.

Furthermore, we feel that it would be appropriate to allow the ISO to have the flexibility to make their own judgement on increasing prices (Option 10). There are times when our proposed approach would miss a potential shift in the market. For instance, this could have been very valuable on days in December 2013 and February 2014 when gas markets shifted based on changes in market dynamics. By allowing the ISO to update the price at a time and at a level when conditions warrant, we believe the ISO could address almost all historic situations with observed price variability in the gas markets.

D. Clarify details regarding after-the-fact cost recovery

Proposal

We recommended that suppliers be allowed to file for recovery of certain gas costs not recovered through market revenues. We believe that the need for such cost recovery filing should be very limited – especially if the three modifications described above are implemented.

While the ISO has filed for and FERC has granted permanent recovery of commitment costs and temporary recovery of incremental energy costs, we believe that recovery of both commitment costs and incremental energy costs should be permanent.

Furthermore, DMM recommends that gas purchases eligible for cost recovery be explicitly limited to gas for the following categories: (1) unit commitments made by the market software or through exceptional dispatches issued by ISO operators (versus self schedules); and (2) incremental energy dispatches associated with bids that were capped by the ISO's automated mitigation procedures or mitigation of some exceptional dispatches. In other words, natural gas costs for energy bids that were not subject to any mitigation should not be eligible for cost recovery, since these bids can reflect supplier's expectations of natural gas costs.

In addition, DMM recommends that the issues of gas penalties, imbalance charges, and "cash out" costs be explicitly addressed. DMM does not believe these factors should be included in natural gas costs used to calculate bid caps, because these do not typically represent hourly marginal costs and cannot be reasonably estimated in advance. We realize this issue may be controversial and will be subject to discussion in any stakeholder process. However, DMM believes rules and guidelines relating to these issues should be clarified in advance as much as possible.

Concerns

Issue 1: The after-the-fact recovery process may reduce the market participant's incentives to minimize gas procurement costs.

Issue 2: Participants view the process as cumbersome and do not take advantage of the recovery afforded through this process.

Options to address concerns

Option 1: To address issue 1, the ISO could develop metrics that review historic data to determine any anomalous patterns or changes in pricing. The ISO could file to suspend recovery mechanism if anomalous patterns were identified.

Option 2: To address issue 2, wait for examples of how the process works in real-life scenarios and refine process later, if necessary.

Option 3: To address issue 2, use an historic real world example and run it through a scenario to identify what recovery should be anticipated. The ISO could then refine and clarify process during this stakeholder initiative based on lessons learned from the historic scenario.

Option 4: Take no further actions at this time.

Recommendations

DMM believes that the ISO should develop metrics to look for outlying results and refer them to FERC (Option 1). Moreover, we believe that running this process through an historic real world example (Option 3) to identify what recovery should be anticipated would shine light on what necessary details need to be addressed and would help clarify for participants what recovery should be anticipated. This would help inform the development of policy upfront rather than after real world examples test the process and raise important questions.

V. Conclusions

The Department of Market Monitoring believes that the natural gas indices used in the ISO day-ahead and real-time markets can be further refined with information available on the InterContinental Exchange. We believe that it is very important to have bid caps for energy and commitment costs that allow generators to recover natural gas costs – while mitigating market power and other potential sources of unjust and unreasonable prices and uplift costs. These can range from gaming of bid cost recovery rules – to software or system issues resulting in inefficient dispatches – to settlement rules that simply have unintended consequences or outcomes.

DMM believes that – while the ISO’s current process allows generators to recover natural gas costs during all but a very few cases – the ISO could take a two phased approach to implementing changes to the market. The first phase – with four relatively simple steps outlined in these comments – would resolve most of the cases in which the current process may not allow generators to recover natural gas costs.

After implementing these four measures, DMM believes a second phase could be to develop an enhanced process by which generators can request use of a gas cost in excess of these updated gas indices – plus the 25 percent headroom for commitment costs and the 10 percent headroom for default energy bids already incorporated in ISO market rules. DMM believes that the need for this additional enhancement should be extremely low with the updated natural gas indices outlined in these comments and the headroom already incorporated in ISO market rules. Furthermore, we believe that this approach would be consistent with FERC Order No. 831.