Aliso Canyon Gas-Electric Coordination Phase 2 – Straw Proposal

Comments by Department of Market Monitoring
September 15, 2016

Summary

DMM generally supports the ISOs' proposal to extend the temporary Aliso Canyon provisions. The comments below explain some DMM recommendations for improving the Straw Proposal presented by the ISO on the September 9, 2016 stakeholder call. In particular, the ISO has indicated that exceptional dispatch will continue to be used as needed to manage Aliso Canyon gas limitations. Because of the potential for market power when gas system reliability issues are managed through exceptional dispatch, DMM recommends that incremental and decremental exceptional dispatches related to the management of Aliso Canyon gas issues be considered non-competitive and subject to exceptional dispatch market power mitigation.

I. Mitigation of exceptional dispatches needed for gas system reliability

Existing exceptional dispatch mitigation provisions

Exceptional dispatch is used to manage factors which are not reflected in or effectively managed through constraints or conditions incorporated in the market software. In some situations, Aliso Canyon related gas system limitations may not be effectively incorporated or managed by the market software, so that exceptional dispatch of electric generators may be required.

These exceptional dispatches may be *incremental* (i.e. to commit a unit or dispatch it at a higher level of generation) or *decremental* (i.e. to de-commit a unit or dispatch it at a lower level of generation). In some cases, DMM understands that ISO operators may manage gas issues by issuing decremental exceptional dispatches to one or more units, while issuing incremental exceptional dispatches to one or more other units.

Currently, exceptional dispatches for committing or de-committing units are subject to settlement provisions that provide some measure of *de facto* mitigation.

- Units committed through exceptional dispatch are guaranteed recovery of their full start-up and minimum load bid price through bid cost recovery. Thus, commitment cost bid caps provide some form of market power mitigation for these units. However, under the temporary Aliso Canyon measures currently in place, commitment cost bids can be up to about 200 percent of actual costs.[1]

[1] Temporary 75 percent gas scaler plus 125 percent markup on total commitment costs under normal rules.

- Units de-committed through exceptional dispatch are currently not charged anything for differences between day-ahead and real-time schedules at minimum load. This is equivalent to a $0/MWh settlement price for a day-ahead minimum load energy schedule that is "bought back" by the generator as a result of a decremental exceptional dispatch de-committing the unit.

For settlement purposes, exceptional dispatch of incremental energy (above minimum load for units already committed) may be mitigated or not depending on the reason for the exceptional dispatch. Current exceptional dispatch mitigation provisions in the CAISO tariff permit mitigation of exceptional dispatch energy only for the following four reasons:[2]

1. Addressing reliability requirements related to non-competitive transmission constraints;

2. Ramping resources with Ancillary Services Awards or RUC capacity to a dispatch level that ensures their availability in Real-Time;

3. Ramping resources to their minimum dispatchable level in real-time;

4. Addressing unit-specific environmental constraints not incorporated into the Full Network Model or the CAISO's market software that affect the dispatch of Generating Units in the Sacramento Delta and are commonly known as "Delta Dispatch".

In each of these cases a resource is considered to have market power for incremental energy. Current tariff provisions for mitigation of exceptional dispatch energy only apply to exceptional dispatch of incremental energy quantities, and only for the reasons outlined above. When subject to mitigation, exceptional dispatch of incremental energy are paid the higher of the LMP or the unit's mitigated bid price.[3]

No mitigation or alternative settlement price exists or has been proposed for decremental exceptional dispatch energy. Resources subject to decremental exceptional dispatches (i.e. to de-commit a unit or dispatch it at a lower level of generation) may also have market power in the case that they are among the only resources able to resolve a given condition.

Because unmitigated exceptional dispatch energy can be settled on a submitted bid price, these resources can exercise decremental market power by submitting very low

[2] California ISO Tariff Sec. 39.10, "Mitigation of Exceptional Dispatches of Resources": http://www.caiso.com/Documents/ConformedTariff_asof_Jul06_2016.pdf

[3] The mitigated bid price is the lower of the units market bid or the default energy bid.

real-time bids (e.g. as low as the -$150/MW bid floor) so that they can "buy-back" a day-ahead schedule at this bid price when exceptionally dispatched.

Potential market power in dispatches for gas system reliability

The management of gas limitations resulting from the Aliso Canyon situation has potential to create market power for generation resources on the SoCalGas system. This market power may arise in either the incremental or decremental direction. In order to effectively manage real-time gas system conditions while maintaining electric reliability, the ISO may coordinate with SoCalGas to determine the most effective set of electric generation resources which need to be dispatched up or down at a particular point in time.

The competitiveness of the gas system reliability constraint for which operators exceptionally dispatch a resource cannot be analyzed in advance like electric power transmission constraints are currently analyzed. This is because the gas system reliability constraint that any specific future exceptional dispatch will be issued to alleviate has not been modeled in the market software. Therefore, the ISO cannot calculate the residual supply index (RSI) of the constraint by calculating the residual supply after removing the three largest suppliers of counterflow and comparing it to the residual demand for counterflow.

Given the inability to calculate the RSI of the gas system constraint, DMM has assessed the market concentration of gas resources in each SoCalGas gas forecast zone using the Herfindahl-Hirschman Index (HHI). The HHI analysis below, based on the unlikely assumption that all resources in a gas zone would be available, shows that every SoCalGas gas forecast zone has a high degree of market concentration. The U.S. Department of Justice considers an HHI of greater than 2,500 to indicate a highly concentrated marketplace. As illustrated in Table 1 below, every SoCalGas gas forecast zone has an HHI that is significantly greater than 2,500.

Table 1. HHI for SoCalGas gas forecast zones

Gas Forecast Zone	Total capacity (MW)	HHI	HHI concentration rating
LA Basin	5,843	6,414	Highly concentrated
SDG&E	3,014	4,510	Highly concentrated
Inland	2,722	4,543	Highly concentrated
Coastal	2,286	8,727	Highly concentrated
EOM	2,104	4,698	Highly concentrated
SJV	384	4,436	Highly concentrated

DMM notes that this HHI likely underestimates the market concentration of the set of resources that operators would be choosing from when coordinating with SoCalGas to choose the resources to exceptionally dispatch for a gas system reliability issue. This is because operators are not likely to be able to choose from the full set of resources in a gas zone when issuing an exceptional dispatch to alleviate a gas system reliability issue in that zone. In fact, it is DMM's understanding that all exceptional dispatches for Aliso Canyon gas system reliability issues that have been issued to date were either *pro-rata* exceptional dispatches to all resources in the affected set of resources, or were specified by SoCalGas as being unit specific. Such exceptional dispatches are clearly non-competitive.

Current tariff provisions for mitigation of exceptional dispatch energy do not allow for mitigation of market power arising from these sources. Existing mitigation provisions for incremental exceptional dispatch energy do not include reasons or constraint types which would apply to management of gas system reliability. No provisions exist to settle decremental exceptional dispatch energy on a price that would limit the exercise of decremental market power when present.

Recommended mitigation

Because the ISO proposes to continue the use of exceptional dispatch as needed to manage Aliso Canyon gas constraints and the high concentration of market power in each of the relevant gas zones, DMM recommends that incremental exceptional dispatches issued to manage gas system limitations due to Aliso Canyon be deemed non-competitive and subject to mitigation. When subject to mitigation, exceptional dispatch of incremental energy are paid the higher of the LMP or the unit's mitigated bid price.[4]

The logic to support such mitigation is similar to that which allows for the mitigation of exceptional dispatch for other unit specific, non-transmission limitations such as environmental constraints not reflected in the market software, or "Delta Dispatch". For mitigation of incremental exceptional dispatch related to the Aliso Canyon gas constraints, existing mitigation measures for exceptional dispatch could apply. The required change would be to provide tariff revisions which allow for mitigation of incremental exceptional dispatch related to management of Aliso Canyon gas limitations.

DMM further recommends the ISO develop new provisions to settle non-competitive decremental exceptional dispatch energy on a price that limits the exercise of decremental market power. Due to the high concentration of market power in each of the relevant gas zones, DMM recommends that all decremental exceptional dispatches to manage gas system limitations related to Aliso Canyon be considered non-competitive and subject to these mitigation measures.

[4] The mitigated bid price is the lower of the units market bid or the default energy bid.

We note that such provisions could apply generally to all non-competitive decremental exceptional dispatches. In the broader ISO market, DMM has observed the exercise of this type of market power through submission of real time bids significantly below a resource's marginal cost, on which a resource with decremental market power was settled during a decremental exceptional dispatch. Settling such exceptional dispatches on a pre-determined price floor when deemed non-competitive would discourage and limit the gains from exercise of this type of market power.

For non-competitive decremental exceptional dispatches, the ISO would need to propose new settlement prices, as well as a list of tariff-defined reasons which deem a decremental exceptional dispatch non-competitive. As noted above, DMM recommends that decremental exceptional dispatches for management of Aliso Canyon gas limitations be included among the non-competitive reasons for decremental exceptional dispatch.

Given the extremely short stakeholder process and necessity to implement a mitigation measure quickly, DMM suggests that a $0/MWh floor might be used to mitigate bids in the settlement of non-competitive decremental exceptional dispatches of gas units as an initial, easily implementable approach to this type of mitigation. In other words, for decremental exceptional dispatches identified by operators as resolving a gas system reliability issue, the unit's mitigated bid price would be the higher of the unit's market bid or $0/MWh. The unit would buy back the decremental energy from the exceptional dispatch at the lower of the LMP or the unit's mitigated bid price.

This approach essentially imposes a $0/MWh price floor and would effectively mitigate extreme negative bids which may be submitted to exercise decremental market power during an exceptional dispatch. The ability to quickly implement such measures is important given the timeliness of the Aliso Canyon gas situation and continued use of exceptional dispatch to manage related constraints. Further refinements to this approach should be considered as future improvements to more accurately reflect resources' marginal costs.

II. Including minimum generation nomogram constraints in standard local market power mitigation procedures

On May 9, 2016, the ISO filed a request for tariff amendment to enhance gas-electric coordination to address risks posed by the limited operation of the Aliso Canyon Natural Gas Storage Facility. Among the requested tariff amendments, the ISO proposed to implement constraints which, "limit the maximum or minimum amount of natural gas that can be burned by natural gas-fired resources, based on anticipated limitations, in applicable gas regions anticipated by CAISO, during specific hours"[5]. On June 1, 2016,

[5] http://www.caiso.com/Documents/May9_2016_TariffAmendment_EnhanceGas-ElectricCoordination_LimitedOperation_AlisoCanyonNaturalGasStorageFacility_ER16-1649.pdf

FERC conditionally accepted these tariff revisions including the new constraints based gas system conditions[6].

In its September 9 presentation constituting the *Aliso Canyon Gas-Electric Coordination Phase 2 – Straw Proposal*, the ISO clearly indicated that it intended to extend the authority to use the maximum generation nomograms. It was not clear if the ISO intended to extend the authority to use the minimum generation nomograms. DMM requests that the ISO clarify if it is seeking to extend the authority to use the minimum generation nomograms.

If the ISO retains the authority to implement minimum generation nomograms, DMM notes that the ISO also needs to clarify that it has the tariff authority to include the minimum generation nomograms in the ISO's standard market power mitigation procedures. The minimum generation nomograms can create local market power in exactly the same way as flow-based constraints. Therefore, the minimum generation nomograms should be tested for competitiveness in the DCPA process and contribute to the non-competitive or competitive component of LMP of the relevant resources in the same way as flow-based constraints.

III. Improve day-ahead market gas price index using approximation of next day gas index

The ISO proposes to extend the temporary provision that would improve the gas price index used in the day-ahead market by using an approximation of the next day gas index as opposed to the next day gas index for the previous trade date. DMM recommends that the ISO file to make this improvement a permanent change to the tariff, rather than a temporary extension of the temporary Aliso provisions. The approximation of the next day gas index is a clear improvement over the next day gas index from the previous trade date. Therefore, the ISO should seek the permanent authority to use the approximation in any application of a gas index in the day-ahead market.

Moreover, this updated gas price index would provide a necessary foundation for any further changes the ISO may propose as part of a future stakeholder process to increase bidding flexibility. For example, DMM believes any approach allowing generators to submit their own gas costs will still require some form of automated pre-verification of submitted gas cost values in order to allow these costs to be used in the market software. This updated gas index would be an essential component of any automated or manual process for pre-verifying the reasonableness of gas costs. However, analysis

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6 http://www.caiso.com/Documents/Jun1_2016_OrderAcceptingTariffRevisions_Establishing_TechnicalConference_AlisoCanyon_ER16-1649.pdf

by DMM of ICE gas trade data indicates that use of this updated gas index should greatly reduce and almost eliminate the need for participants to request higher gas costs in the day-ahead market.

DMM also recommends that the ISO begin efforts to implement a similar process for automatically updating gas prices used in the real-time market based on observed trade prices in the same day market during the morning of each operating day. Specifically, by about 8:30 am of each operating day the ISO can calculate a weighted average of trade 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 extremely close to the final index for same day gas published by ICE, since much (67 percent) of the same day trading occurs by 8:30 am each day. On days that there is not a lot of trades in this market, we found that same day prices tend to be very close to next day prices, so that there would be no need to update the next day price normally used. We look forward to discussing the details of this approach with the ISO and stakeholders.

IV. Gas price scalers

Bidding by market participants indicates that the additional flexibility afforded by the gas price scalers have been utilized in varying degrees by different participants. The gas price adders provided generators with the ability to bid well in excess of costs. The flexibility may have been utilized by some participants to limit real-time commitments, energy dispatches and potential imbalance penalties.

However, in retrospect, the need for these special adders appears quite limited. DMM's analysis of same day gas prices relative to the next-day gas index used to set commitment cost bid caps and default energy bids indicates that even without the special gas cost adders, resources would have continued to recover their full natural gas costs under virtually all circumstances.

At the same time, however, DMM has not found that this additional bidding flexibility has had a significant impact in terms of increasing market costs or prices.

Going forward, DMM believes the scalars should continue to be included as a temporary measure to increase bidding flexibility. The ISO's Aliso Canyon filing indicates that the gas adders could be adjusted based on empirical information and market impacts. While there was much initial discussion about whether the adders were high enough, DMM believes these findings illustrate that – if anything -- the scalar adders could potentially be lowered in the future based on observed conditions and results.

V. Cost recovery

DMM supports provisions to allow generators 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 given the gas cost scalars in effect. However, we are encouraging the ISO – or FERC -- to develop more specific guidelines and details of these cost recovery provisions.

For example, 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) energy dispatches associated with bids that were capped by the ISO automated mitigation procedures or mitigation of some exceptional dispatches. In other words, gas cost 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 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 somehow be "baked into" gas costs used to calculate bid caps, since these do not typically reflect hourly marginal costs and cannot be reasonably estimated in advance. We realize this issue may be a bit 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.