

MARKET SURVEILLANCE COMMITTEE

Market Power Mitigation Issues

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ISO Public



California ISO

WESTERN ENERGY IMBALANCE MARKET

Topics

- Gas Hub Price Determination
- Gas Price Index Evaluation
- CCDEBE
- Alternatives

Gas Hub Price Determination

Over the past decade we have discussed a variety of issues that arise in the determination of reference prices for gas fired generation.

- Within the CAISO BAA, there are reported prices for transactions at locations from which most gas fired generation can take delivery.
- In the Western EIM, however, there are gas fired generating resources that are located remote from liquid gas trading points and gas storage. For these generators, when the gas system is constrained, the cost of purchasing gas delivered to the location of the generator can be materially different from the price at a nearby gas trading point.

Gas Hub Price Determination

The CAISO provides that BAAs associated with more than one gas trading hub will have a reference price calculated based on the minimum of the BAA's fuel region values.

- The CAISO suggests that “These options are considered reasonable because in competitive conditions, reasonable and prudent gas resources will seek out the cheapest source of fuel they have access to. A single fuel region serves as a competitive benchmark, and the minimum of all BAA-level values is a reasonable representation of these resource’s costs under competitive conditions.”¹
- However, gas prices would only differ across gas hubs because those buying gas at the higher priced hub cannot access gas from the lower priced hub.
- Indeed, the CAISO notes in the issues paper that “these assumptions may not hold when a resource is not able to access the least cost source of fuel associated with their fuel region.”²

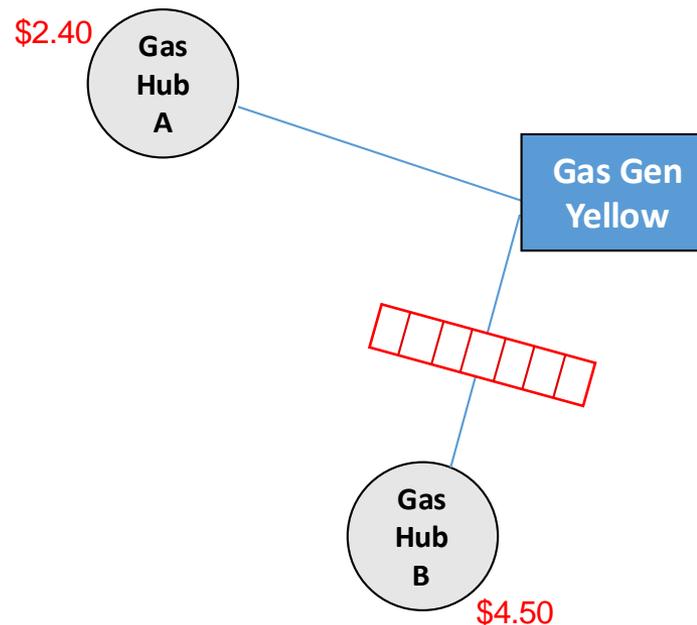
1. See California ISO, “Gas Resource Management, Issue Paper,” January 23, 2025 (the document says 2024 in some places) pp. 45-46.

2. See California ISO, “Gas Resource Management, Issue Paper,” January 23, 2025, p. 46

Gas Hub Price Determination

The graphic below portrays a constrained gas pipeline system. We know it is constrained somewhere between Gas Hub A and Gas Hub B or the gas prices would not differ materially between the Gas Hubs.

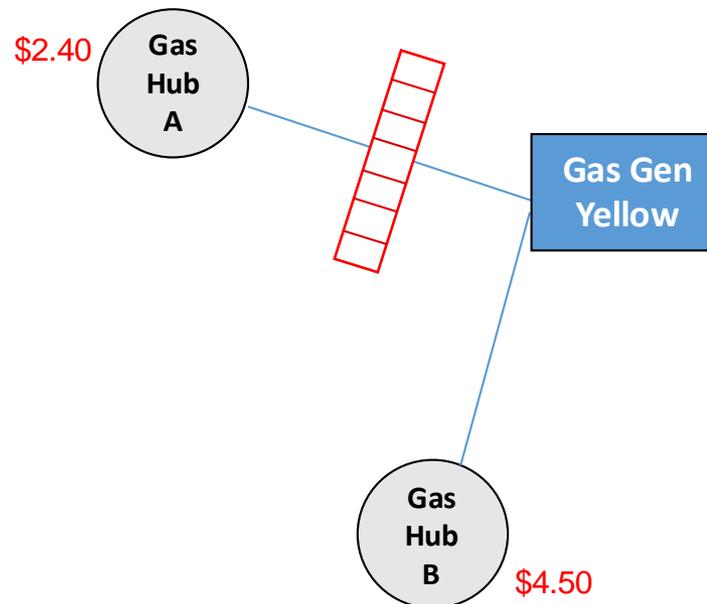
- If the gas pipeline system was constrained between Gas Gen Yellow and Gas Hub B, but not between Gas Hub A and Gas Gen Yellow, then it would be reasonable to use the \$2.40 gas price at Hub A to calculate a default energy bid for Gas Gen Yellow.



Gas Hub Price Determination

Suppose, however, that the pipeline is constrained between Gas Hub A and Gas Gen Yellow, with the result that Gas Gen Yellow must buy incremental gas at Gas Hub B.

- In this case, a default energy bid calculated based on the Gas Hub A price would materially understate the costs of Gas Gen Yellow.



Gas Hub Price Determination

One might take the view that this mis-statement of gas costs should not have a material impact because mitigation would only be applied when Gas Gen Yellow is inside a transmission constrained region.

- However, Gas Gen Yellow's commitment costs are always calculated based on the default energy bid, so any time the default energy bid materially understates the cost of gas, Gas Gen Yellow could be committed at a loss.
- CAISO states that its rules would allow Gas Gen Yellow to recover its actual gas costs through after the fact cost recovery. This apparently refers to the ability to make a FERC filing.

Gas Price Calibration

The CAISO provided data on the range of prices at several trading hubs over a selected set of days in the past two years in the Gas Resource Management Issue Paper. ¹ A few observations:

- The data in Figure 3 provides a systematic comparison of prices and indexes but it is limited to CAISO trading hubs from 2016-2018. ² That was a long time ago, and is not relevant to Western EIM or EDAM generator locations.
- For the more recent period, the CAISO Issue Paper only provides data on gas prices on 23 days at 3 WEIM trading points. On some of those days and hubs it appears that many gas transactions during the timely trading window occurred at prices more than 10%, and even more than 25%, above the index price but this is hard to accurately assess from the figures. Data in the same format as Figure 3 would help assess the accuracy of day-ahead market DEB price calculations at EDAM and WEIM locations.

1. See California ISO, “Gas Resource Management, Issue Paper,” January 23, 2025. p. 35.

2. See California ISO, “Gas Resource Management, Issue Paper,” January 23, 2025 Figures 4, 5, 6 and 7 pp. 39-44.

Gas Price Calibration

All of the data reported for these 23 days relates to price dispersion at trading hubs during the day-ahead timely gas trading window.

- It would be more relevant in the context of EDAM to compare the DEBS calculated using the gas index value, with the reasonableness threshold adjustment, to gas prices during the afternoon gas trading for the evening nomination cycle.
- In the context of WEIM, it would be more relevant to compare DEBS based on the day-ahead market gas price, with the reasonableness threshold adjustment, to real-time gas purchase costs.

Gas Price Calibration

The CAISO noted that

“Intra-day gas price information may not meet the same standards as the next day gas GPI as a widely applicable benchmark for fuel costs. The ISO understands that these gas cycles support only a fraction of what is traded during the timely nomination cycle today, and are notoriously volatile and illiquid. **Prices during these trading cycles typically carry premiums relative to the standard next day gas price index and can be relatively illiquid.**” ¹

These considerations suggest that it is not appropriate to base the calculation of default energy bids for intra-day dispatch on next day gas prices without an adjustment that explicitly accounts for these premiums and illiquidity.

1. See California ISO, “Gas Resource Management, Issue Paper,” January 23, 2025 p. 33.

Gas Price Calibration

All of the data reported for these 23 days relates to price dispersion at the gas hubs.

- It is also relevant to compare the index price at the hub used to calculate the default energy bid for a generator to the actual cost of gas to the generator.
- It is understood that this involves resource specific data, but this is the relevant criterion for assessing the accuracy of the gas price used to calculate default energy bids.

Gas Price Calibration

An important difference between CAISO and WEIM gas trading points is the lack of local gas storage at many WEIM gas trading points.

- This difference has the consequences that the gas market is more tightly constrained by pipeline balancing rules at WEIM gas generator locations than generators served by SoCal Gas or PG&E.
- Gas purchases on interstate pipelines typically flow for the remainder of the gas day, not just the hours in which the generator is scheduled to run.
- It can be very expensive to buy gas for a day to run for 4 hours at locations lacking storage. One way to recover these costs is in the startup offer, but start-up DEBs do not reflect these costs.
- These factors are also very complex to account for in DEB calculations. They are a reason not to apply DEBs to start up costs of resources lacking market power.

CCDEBE

The CAISO mentions concerns the Department of Market Monitoring had with the CCDEBE designs, but does not consider ways to address those concerns.¹

- The DMM expressed concern with a large all at once increase in the commitment cost bid cap. That concern could have been addressed with a smaller initial increase to 150% of the estimated costs followed by some assessment, then further increases as appropriate.
- DMM had a concern with mitigation of resources committed out of market by the CAISO. Every ISO has rules to apply mitigation to commitment and energy cost offers for such units.² This should not be a huge problem for the CAISO to address. The CAISO already applies mitigation to the energy offers of exceptionally dispatched resources.

1. See California ISO, “Gas Resource Management, Issue Paper,” January 23, 2018 p. 49 and Department of Market Monitoring, “Comments on Revised Draft Final Proposal for Commitment Cost and Default Energy Bid Enhancements,” February 28, 2018 pp. 16-20..

2. NYISO Services Tariff, Attachment H, section 23.3.1.2.3; MISO Module D 64.2.1; ISO New England, Market Rule 1, IIIA5.5.3.2 and IIIA5.5.6.2; SPP Attachment AF, sections 3.3.1 and 3.3A. See also Scott Harvey and Susan Pope, Single Schedule Market Pricing Issues, Module G; Market Power Mitigation Appendix, June 29, 2017 Toronto Ontario <https://impmarketdesign.com/papers/SSM-20170629-Module-G-Mitigation-Appendix.pdf>

CCDEBE

- DMM had a concern with resources raising their offer prices after being committed in STUC. This could be addressed by restricting changes in offer prices after a long-start or long-minimum run time resource is committed in STUC.
- DMM concerns with mitigation of units that are not committed could be addressed by applying mitigation to resources that relieve critical constraints whether or not they are committed. This would be better than applying commitment cost mitigation all the time without regard to whether any constraint could conceivably have impacted the unit commitment.

CCDEBE

Absent analysis showing that reference prices are almost always accurate both for day-ahead and real-time gas market conditions at WEIM locations, reflect the cost of purchasing gas intra day and for the evening cycle, and enable gas generation lacking local storage to account for the cost of purchasing gas over the day, the CAISO needs to reconsider working on implementation of the CCDEBE design, develop modifications that address reasonable market power mitigation concerns, with the objective of lessening the market and rate payer impact of flaws in the calculation of default energy bids for gas fired generation in the Western EIM outside California.