

Gas Prices and Offer Price Flexibility in Other ISO/RTO Markets

Scott Harvey

Member: California Market Surveillance Committee

Folsom, California

May 19, 2014



Critical thinking at the critical time™

TOPICS

- ISO New England
- PJM
- MISO
- New York ISO
- Lessons

ISO NEW ENGLAND

ISO New England's LMP market implemented in March 2003 limited changes in minimum load and start-up cost offers to specified periods twice a month. ¹

ISO New England's market design also requires that offer prices be the same over all hours of the day and only permits changes in offer prices between the day-ahead market and real-time in the reoffer period following the posting of day-ahead market results. ²

1. See ISO New England Manual for Market Operations, Manual 11, February 5, 2003 section 2.5.3 (12) p. 2-11.
2. See ISO New England Manual for Market Operations, Manual 11, October 6, 2013 section 2.5.3 (7), (11), (13), and (15) pp. 2-15 to 2-16.

ISO NEW ENGLAND

The inability of gas fired generators in New England to submit offer prices reflecting their actual start-up and minimum load costs was likely the reason that most or all of the 2327 megawatts of capacity that declared on economic outage during the January 2004 cold snap did not offer their supply in the day-ahead market. ¹

The rule prohibiting these changes was changed as part of the settlement agreement in Docket ER05-508-000, filed September 8, 2005 (III.H.3.4(c) (ii)(5) and replaced with the current rule permitting daily changes. ²

1. ISO New England, Market Monitoring Department, “Final Report on Electricity Supply Conditions in New England during the January 14-16 2004 ‘Cold Snap’” October 12, 2004 .
2. See ISO New England, Manual for Market Operations, M-11, revision 15 December 2, 2005, Section 2.5.3 (12) and subsequent revisions. ISO New England has a variety of rules regarding these changes, such as a requirement that offers used to commit a resource remain in effect over the duration of its minimum run time.

ISO NEW ENGLAND

The inability of gas fired generators in New England to change their offer prices over the course of the operating day has:

- Made it uneconomic for gas fired generators to buy gas in the intra-day market when weather is colder than forecasted and intra-day gas prices are higher than day ahead gas prices. ¹
- Made it impossible for gas fired generators to manage their fuel supply by raising their offer prices to conserve gas. This has resulted in ISO New England using up the gas supply of generators early in the day, leaving too little supply for the generators to cover their day-ahead market schedules over the evening peak. ²

1. This has likely contributed to the many occasions on which gas fired generators have been unable to come on line when called upon by ISO New England. See ISO New England, Internal Market Monitor, 2012 Annual Markets Report, May 15, 2013 pp. 20-21.
2. See ISO New England, “Winter Operations Summary : January-February,” Feb 27, 2013 p. 5. ISO New England, Internal Market Monitor, 2013 First Quarter , Quarterly Markets Report, May 20, 2013 p. 9. Some gas fired generators use ISO New England’s limited energy generator rules to limit their dispatch to their day-ahead schedules. This keeps their output available for the peak but reduces ISO New England’s operational flexibility.

ISO NEW ENGLAND

The adverse reliability impact of these restrictions on changes in offer prices was recognized back in 2004. Changes allowing suppliers to offer supply at different prices from hour to hour in the day-ahead market and change their offer prices from hour to hour during the operating day were finally proposed by ISO New England in 2013. ¹

These changes have been approved by FERC and will be implemented prior to winter 2014-2015. ²

1. See ISO New England Filing, July 1, 2013, Docket ER13-1877.
2. 145 FERC ¶ 61, 014 .

PJM

PJM's single settlement LMP market implemented in April 1998 limited changes in price based minimum load and start-up cost offers to changes every six months. ¹

- Similar to the California ISO, PJM allows cost based minimum load and start-up offers to change daily. ²
- Cost based offers are determined by the market participant in accord with PJM Cost Development Guidelines. ³
- The methodology used to calculate cost based offers may be changed no more than once per 12 months, subject to review by the PJM market monitor. ³

1. PJM Energy and Ancillary Services Market Operations, Manual 11, January 21, 2014 section 2.3.3 p.16.

2. PJM Energy and Ancillary Services Market Operations, Manual 11, January 21, 2014 section 2.3.3 p.16.

3. PJM Cost Development Guidelines, Manual 15, August 1, 2013 section 2.3 p. 9.

PJM

PJM's market design also requires that offer prices be the same over all hours of the day and like ISO New England only permits changes of offer prices between the day-ahead market and real-time in the reoffer period following the posting of day-ahead market results. ¹

- These restrictions on offer price changes make it impossible for gas fired generators to adjust their offer prices during the operating day to manage their gas supply or to reflect the cost of buying gas in the intra-day market.
- These restrictions likely contribute to the high level of outages due to “lack of fuel” that the PJM market monitor has noted in recent years. ²

1. PJM Energy and Ancillary Services Market Operations, Manual 11, January 21, 2014 section 2.3.3 pp.15-16.
2. Monitoring Analytics, 2013 State of the Market Report for PJM, Vol. 2 March 13, 2014 p. 192; 2012 State of the Market Report for PJM, Vol. 2, March 14, 2013 pp. 163-165.

PJM

While the restriction to a single offer price over all hours in the day-ahead market may seem innocuous since gas is nominally purchased on a daily basis, this restriction in practice causes problems scheduling gas when the gas pipeline system is constrained.

- The electric day spans two gas days, which can have differing market conditions when gas pipeline daily balancing requirements are in effect;
- When gas pipelines are enforcing hourly takes, the actual delivered cost of gas will likely vary from hour to hour.

PJM

The adverse reliability impact of these offer price restrictions has not been material for PJM in the past. This is likely because:

- 1) PJM's coal fired generation was large relative to the winter peak;
- 2) The major pipeline constraints were north of the original PJM footprint.

This situation has changed in recent years as substantial amounts of coal generation have ceased operation in both PJM and MISO and will change more over the next few years.

MISO

The MISO provides considerable flexibility in offer prices:

- Start up cost offers can change daily. ¹
- Energy offer curves and no load costs can change hourly. ²

1. See MISO Energy and Operating Reserve Markets Business Practices Manual, Exhibit 4-10 p. 82-83, Feb 4, 2014, section 4.2.3.2.4 p. 88

2. See MISO Energy and Operating Reserve Markets Business Practices Manual, Exhibit 4-10 p. 82-83, Feb 4, 2014, section 4.2.3.2.1 pp. 85-86 and 4.2.3.2.4 p. 88.

NEW YORK ISO

The New York ISO has allowed resources to change their start-up and minimum load offer prices from day to day since its start-up in November 19, 1999. ¹

- Start-up and minimum load offer prices can also vary over the hours of the day. This flexibility is most often used to reflect the cost of starting units with multi-hour minimum run times late in the day. It can also be used by cogeneration resources to reflect the cost of changes to their normal operating schedule. ²
- However, minimum generation bids and start-up costs cannot be increased in real-time above the day-ahead market offer for any hour in which the resource received a day-ahead market schedule. ³

1. See New York ISO Services Tariff Attachment D

2. See New York ISO Services Tariff Attachment D

3. See New York ISO Transmission and Dispatching Operations Manual, October 2012 section 5.1.1 p. 52

NEW YORK ISO

Since November 19, 1999 the New York ISO has allowed offer prices for incremental energy to vary from hour to hour and has allowed resources to raise their offer prices on capacity not scheduled in the day-ahead market in real-time, with offer prices submitted 75 minutes prior to the start of the operating hour. ¹

1. See New York ISO Transmission and Dispatching Operations Manual, October 2012 section 5.1.1 p. 52

NEW YORK ISO

Beginning on October 1, 2010, the New York ISO also allowed resources to raise their energy offer prices in real-time for capacity that was scheduled in the day-ahead market. ¹

- There are a variety of rules governing the calculation of bid production cost guarantees when offer prices are raised.
- There are a variety of rules regarding the submission of virtual bids by market participants controlling resources that raise their offer prices in real-time.

In parallel, the New York ISO implemented changes basing real-time offer price mitigation on gas prices submitted by the market participant. ²

1. See docket ER10-1977 July 26, 2010
2. See docket ER10-2062 July 30, 2010

NEW YORK ISO

The ability of New York suppliers to adjust their offer prices over the operating day allows gas fired generators to manage their gas supply by:

- raising their offer prices if they are dispatched too far above their day-ahead market schedules and need to conserve gas; and
- lowering their offer prices if they are dispatched below their day-ahead market schedules and they need to burn more gas.

The offer price can also be aligned with the current cost of buying gas in the intraday market to cover output in excess of the day-ahead market schedule.

NEW YORK ISO

In June 2014 the New York ISO plans to implement rules changing the way offer prices mitigation is applied to units in the day-ahead market. ¹

- Mitigation will be based on a gas price submitted by the market participant;
- The submission of inaccurate fuel cost information is subject to penalties.

1. See Mark French, “Generator Submittal of Alternative Fuel Type or Price for DAM Energy Bids,” New York ISO Management Committee, December 18, 2013; Giacinto Pascazio, “Modification of DAM Submittal Deadline for Fuel Type/price Changes on Generator Bid Forms,” Market Issues Working Group, March 4, 2014.

LESSONS

Restrictions on changes from day to day in minimum load and start-up costs reduce the availability of gas fired generation and can result in inefficient commitment of gas fired generation based on out of date gas prices.

Restrictions on changes in incremental energy offer prices during the operating day prevent gas fired generating resources from adjusting their offer prices to balance their dispatch with their gas supply or to reflect the cost of buying gas in the intra-day gas market.

Mitigation of offer prices based on out-of-date gas prices can make it uneconomic for gas fired generators to buy gas and lead to uneconomic dispatch of gas fired generation, potentially undermining gas system reliability.

-
- Scott Harvey – scott.harvey@fticonsulting.com
 - 617-747-1864