California ISO

Bidding Rules Enhancements

FERC No. 809 update

June 19, 2015

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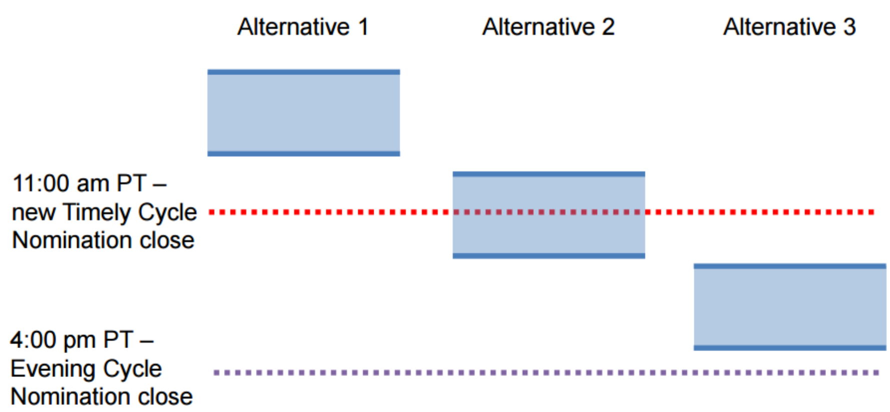
1. Background and summary

On April 16, 2015, the Federal Energy Regulatory Commission adopted a final rule – Order No. 809 - that revises the Commission's regulations relating to the scheduling of transportation service on interstate natural gas pipelines.[1] As part of Order No. 809, the Commission modified the timely nomination cycle for day-ahead scheduling of transportation service on interstate pipelines from 11:30 a.m. CCT (9:30 a.m. Pacific Time) to 1:00 p.m. CCT (11:00 a.m. Pacific Time).[2] Under separate section 206 proceedings initiated by the Commission for each ISO and RTO, the CAISO must: (1) make a filing that proposes tariff changes to adjust the time at which it posts the results of its day-ahead energy market and reliability unit commitment process to a time that is sufficiently in advance of the timely and evening nomination cycles to allow gas-fired generators to procure natural gas supply and pipeline transportation capacity to serve their obligations; or (2) show cause why such changes are not necessary.[3] The CAISO requested feedback from stakeholders on the following three proposed alternatives for the timing of the day-ahead electric market close in connection with Order No. 809:[4]



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[1] *Coordination of the Scheduling Processes of Interstate Natural Gas Pipelines and Public Utilities*, 151 FERC ¶ 61,049 (Order No. 809) (2015).

[2] Order No. 809 at PP 87-88.

[3] *California Independent System Operator Corp., et al*, order initiating investigation into ISO/RTO scheduling practices and establishing paper hearing procedures, 146 FERC ¶ 61,202 (2014) (Section 206 Order). These filings must be made within ninety days of the publication of Order No. 809 in the Federal Register, or by July 23, 2015.

[4] For a full description of the issue, see the Bidding Rules Enhancements initiative available at: http://www.caiso.com/informed/Pages/StakeholderProcesses/BiddingRulesEnhancements.aspx

Alternative 1 would move the close of the day-ahead market and publication of day-ahead market results to earlier in the day, before the close of the new timely nomination cycle for scheduling gas transportation services at 11:00 a.m. Pacific Time. Alternative 2 would keep the CAISO's current day-ahead market close time at 10:00 a.m. Pacific Time and market results publication at 1:00 p.m. Pacific Time. Alternative 3 would move the day-ahead market time close and market result publication times to later in the day, after the close of the new timely nomination cycle, but before the evening nomination cycle for scheduling gas transportation services at 4:00 p.m. Pacific Time.

Stakeholders overwhelmingly recommended eliminating Alternative 3, but were divided on the benefits of Alternative 1 versus Alternative 2. Based on the feedback received through its stakeholder process, the CAISO plans to maintain the current day-ahead market closing time under Alternative 2. The CAISO intends to brief its Board of Governors concerning this proposed approach at its July 16-17, 2015 meeting.

2. Arguments supporting Alternative 2

Arguments that support maintaining the current day-ahead market closing time and market results publication time address whether a change would enhance reliability, increase market efficiency, and avoid adverse impacts to existing operations.

2.1. Enhancing reliability

FERC Order No. 809 provides an opportunity to address reliability concerns arising from constrained natural gas pipeline capacity that limits generators' ability to procure enough gas transportation services to support a day-ahead schedule. California and the Western Interconnection do not have the same wide-spread capacity constraints as eastern ISOs and RTOs. For example, California intrastate pipeline companies maintain adequate capacity to serve core and noncore gas customers and undertake expansions based on specific reliability-based design criteria rather than in response to firm contract demand.[5] For low load factor customers such as peaking power plants, California gas pipeline companies offer firm or interruptible service options as well as firm service for small volume purchases.[6]

[5] *California Independent System Operator Corp.*, *Fuel Assurance Report of California Independent System Operator Corporation under AD13-7, et. al.*, page 6. See also PGE's comments on page 6 available at: http://www.caiso.com/Documents/PGEComments_FERCOrderNo809.pdf.

[6] *California Independent System Operator Corp.*, *Fuel Assurance Report of California Independent System Operator Corporation under AD13-7, et. al.*, page 6.

Capacity constraints that do exist on gas pipelines do not appear to be region-wide concerns but instead localized issues for which pipeline companies are planning expansion projects. In the Western Interconnection, curtailments of interruptible service on gas pipelines are generally considered low probability events.[7] The CAISO does not have any evidence that a lack of pipeline capacity exists when a resource is required to procure gas in any of the nomination cycles for gas transportation. In fact, the CAISO understands that some scheduling coordinators wait until after the CAISO publishes day-ahead market results, currently after the close of the timely nomination cycle, to procure gas transportation services.[8] Scheduling coordinators have another opportunity to schedule gas during the evening nomination cycle and then again in the intra-day market.

Scheduling coordinators have argued that the existing schedule for the day-ahead market close at 10:00 a.m. Pacific Time provides advantages to ensure more accurate load, hydro-electric, and variable energy resource forecasts. The CAISO's day-ahead market clears bid-in demand with bid-in supply. If scheduling coordinators experience reduced accuracy in load forecasting, this will create more variation in real-time, thereby increasing gas volume uncertainty.[9] Maintaining the current day-ahead market schedule therefore enhances reliability by allowing scheduling coordinators to use a more accurate load forecast closer to the trade date, in order to bid-in their demand.

While CAISO day-ahead market awards will signal gas volume requirements for individual resources, these awards do not always guarantee gas volume certainty. As stakeholders have quantified in reply comments, the real-time commitment for medium-, short-, and fast-start resources will require that these resources, if economically bid, procure or sell gas to support real-time conditions.[10]

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7 *See e.g.* Energy and Environmental Economics, Inc., Natural Gas Infrastructure Adequacy in the Western Interconnection: An Electric System Perspective, Phase 1 Report, March 2014 at 174-175. https://www.ethree.com/documents/E3_WIEB_Report_3-17-2014.pdf

8 See CalPeak Power, LLC's comments at page 4 available at: http://www.caiso.com/Documents/CalPeak_MalagaComments_FERCOrderNo809.pdf. See also NRG Energy, Inc.'s comments at page 1 available at: http://www.caiso.com/Documents/NRGComments_FERCOrderNo_809.pdf

9 See example provided by Southern California Edison on pages 4-5 available at: http://www.caiso.com/Documents/SCEComments_FERCOrderNo809.pdf .

10 See Pacific Gas and Electric's comments at page 6 available at: http://www.caiso.com/Documents/PGEComments_FERCOrderNo809.pdf. See Southern California Edison's comments at page 4 available at: http://www.caiso.com/Documents/SCEComments_FERCOrderNo809.pdf. See San Diego Gas & Electric's comments at pages 2-3 available at: http://www.caiso.com/Documents/SDGEComments_FERCOrderNo809.pdf.

The CAISO has experienced infrequent natural gas pricing and supply issues but moving the day-ahead market close and market results publication to earlier in the day will not directly address these issues. Specifically, the most significant gas-related event occurred on February 6, 2014 as a result of low gas supply rather than a lack of transportation capacity.[11] There were pricing related issues during this event which the CAISO is addressing through several stakeholder initiative efforts.[12]

The CAISO, however, has not identified reliability concerns that moving the day-ahead market close and market results publication to before the close of the timely nomination cycle will help resolve.

2.2. Increasing efficiency

FERC Order No. 809 attempts to enhance coordination between the electric and gas markets.[13] But the CAISO's current day-ahead electric scheduling practices provide more natural gas price certainty and allow for more load, hydro-electric, and variable energy resource forecasting accuracy (which leads to day-ahead results that align better with real-time expectations) for scheduling coordinators. Potential inefficiencies due to less accurate forecasting can be several million dollars as estimated by scheduling coordinators.[14]

According to scheduling coordinators, the entire bid formulation process requires approximately four to five hours.[15] During this time, scheduling coordinators process inputs such as gas prices, forecasts, imports, and other bilateral transactions through models to produce economic bids and demand that they submit to the CAISO's day-ahead market scheduling systems. For example, scheduling coordinators argue that the current day-ahead market close at 10:00 a.m. Pacific Time requires that the bid

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11 http://www.caiso.com/Documents/TechnicalBulletinGasEvents_MarketResults_Feb6_2014.pdf

12 Commitment Cost Enhancements Phases 1, 2, and 3 and the Bidding Rules Enhancements initiatives.

13 Order No. 809 at PP 23-24.

14 See Pacific Gas and Electric's comments at pages 7 available at: http://www.caiso.com/Documents/PGEComments_FERCOrderNo809.pdf. See Southern California Edison's comments at pages 4-5 available at: http://www.caiso.com/Documents/SCEComments_FERCOrderNo809.pdf.

15 See Southern California Edison's comments at page 4 available at: http://www.caiso.com/Documents/SCEComments_FERCOrderNo809.pdf. See NCPA's comments at page 1 available at: http://www.caiso.com/Documents/NCPAComments_FERCOrderNo809.pdf.

formulation process starts no later than 5:00 a.m. or 6:00 a.m. Pacific Time. Currently, the most liquid gas trading period is between 5:30 a.m. to 7:00 a.m. Pacific Time and scheduling coordinators can incorporate the final gas price resulting from this trading into their models. To better illustrate the magnitude of even small gas price uncertainties, scheduling coordinators have provided dollar estimates of the potential impact.[16]

If the CAISO moved its day-ahead market close to earlier in the day, scheduling coordinators assert they would not be able to use the actual gas prices from the early morning trading. Instead, they may need to forecast the gas price the night before or at minimum before actual trading begins to ensure there is enough time to run their bid formulation processes. This approach could add a risk premium on top of the gas price forecast to account for additional price uncertainty. As a result, changing the close of the day-ahead market to earlier in the day (*e.g.*, 7:00 a.m. Pacific Time) may actually decrease market efficiency.

Even supporters of Alternative 1 have noted that natural gas pricing in the real-time market is a major concern, but have not presented sufficient evidence to show how changing the day-ahead market close and market results publication times to before the timely nomination cycle would mitigate these concerns.

Lastly, electricity trading in the West also occurs early in the morning and the opportunity to secure imports in the day-ahead timeframe is important for CAISO load serving entities to optimize their bilateral procurement.[17]

The CAISO's own analysis did not identify any major data or forecasting degradation associated with moving to Alternative 1. For example, the gas price index and related bid parameters are provided before 5:00 a.m. Pacific Time, variable energy forecasts are provided to the CAISO as early as 5:30 a.m. Pacific Time, and load forecasts are developed at 6:00 a.m. and 8:00 a.m. Pacific Time. However, the key difference is that the CAISO does not have to run these inputs into a separate analysis like the bid formulation process before the day-ahead market run. In other words, the impact for the CAISO may be neutral but could reduce market efficiency and increase pricing for market participants.

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[16] See Pacific Gas and Electric's comments at pages 4-5 available at: http://www.caiso.com/Documents/PGEComments_FERCOrderNo809.pdf. See Southern California Edison's comments at page 5 available at: http://www.caiso.com/Documents/SCEComments_FERCOrderNo809.pdf.

[17] See Southern California Edison's comments at page 6 available at: http://www.caiso.com/Documents/SCEComments_FERCOrderNo809.pdf. See San Diego Gas & Electric's comments at page 2 available at: http://www.caiso.com/Documents/SDGEComments_FERCOrderNo_809.pdf.

2.3. Operating impacts

Supporters of Alternative 2 outlined several process and staffing changes that would negatively affect their operations if the CAISO moved the close of the day-ahead market to earlier in the day. They cite a loss in coordination between the day-ahead market staff and the rest of the procurement organization.[18] This negative impact is in addition to estimating certain necessary inputs for bid formulation.[19]

The CAISO's own analysis has identified the same operational and staffing changes associated with moving to Alternative 1. For example, staff supporting the day-ahead market currently iterate with other teams that do not have similar schedules. The day-ahead market team benefits from increased collaboration and overlapping resources.

Approved by the Commission on December 31, 2014, the newly implemented manual gas price spike adjustment mechanism relies on the publication of the Intercontinental Exchange (ICE) index currently published at approximately 10:00 a.m. Pacific Time.[20] Should the publication time change to track the new timely nomination cycle close, the CAISO would no longer be able to use this index to update the day-ahead market run before it publishes at 10:00 a.m. Pacific Time. This manual process was one of the mechanisms the CAISO adopted so that the day-ahead market results reflect significant gas price increases.

In addition, the CAISO has proposed a resource adequacy rule that requires scheduling coordinators to identify replacement resources by 8:00 a.m. Pacific Time for the next day. Closing the day-ahead market earlier in the day (e.g. 7:00 a.m. Pacific Time) will necessitate an earlier replacement deadline making it harder to replace for the next day.[21]

Lastly, the CAISO coordinates with external balancing authority areas to exchange outage information before the current day-ahead market close time. The CAISO would need to ensure that these external entities can meet an earlier market close with the same level of information exchange.

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[18] See Pacific Gas and Electric's comments at pages 7 available at: http://www.caiso.com/Documents/PGEComments_FERCOrderNo809.pdf.

[19] See NCPA's comments at page 1 available at: http://www.caiso.com/Documents/NCPAComments_FERCOrderNo809.pdf.

[20] *California Independent System Operator Corp.,* 149 FERC ¶ 61,284, Order Accepting Proposed Tariff Revisions and Directing Informational Filing.

[21] See San Diego Gas & Electric's comments at page 3 available at: http://www.caiso.com/Documents/SDGEComments_FERCOrderNo809.pdf.

Based on the materials it has reviewed, the CAISO does not believe sufficient benefits to gas-fired generators exist to justify the adverse impacts to existing operating practices that would result from moving the close of the day-ahead market and publication of day-ahead market results to earlier in the day.

3. Next steps

The CAISO plans to provide a briefing to its Board of Governors on its proposal to maintain its current day-ahead market timeline at the July Board of Governors meeting. The CAISO will then make a filing in response to the Commission's directives on or before July 23, 2015.