UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Coordination between Natural Gas and Electricity Markets	**Docket No. AD12-12-000**

Comments of the California Independent System Operator Corporation

The California Independent System Operator Corporation files these comments in response to questions raised by Commissioners Moeller and LaFleur concerning coordination between wholesale natural gas and electricity markets.[1] The ISO supports the Commission's efforts to advance the coordination between wholesale natural gas and electricity markets. At this time, the ISO is not advocating the adoption of new rules or reliability standards. Instead, the ISO recommends that the Commission foster a dialog between industry sectors to identify how best to achieve the policy goals of increased coordination between these markets to ensure both systems operate in a reliable and efficient manner. For example, the Commission might consider exploring best practices to enhance communication between natural gas and electric industries to coordinate outage planning as well as prevent and manage emergency operations.

I. Natural gas is often the marginal fuel source for the California's ISO's resource fleet.

The ISO operates the bulk electric transmission system that makes up approximately 80 percent of California's power grid. Reliance on natural gas generation in California underscores the importance of coordination between natural

[1] Separately, the ISO is joining comments filed jointly in this docket by other ISOs/RTOs.

gas and electricity infrastructure operations and markets. Approximately 60 percent of the installed capacity in the ISO's balancing authority area uses natural gas as fuel. In 2010, natural gas-fired generating facilities interconnected to the ISO grid supplied approximately 35 percent of electricity to the ISO's balancing authority area and gas-fired generation is the predominate resource to respond in emergencies due to its ramping capabilities.[2] The ISO also imports power, a portion of which is also sourced from natural gas-fired electric generating units.[3] Natural gas-fired generating facilities generally increase production during the higher load months of the year and the higher load hours of the day. These resources are often the marginal resource in the ISO system.

II. The ISO currently coordinates with interstate, intrastate and international natural gas pipeline operators

Given the significant role that gas-fired generation plays in the ISO's balancing authority area, the availability of gas-fired generation is critical to maintaining ISO system reliability and avoiding involuntary loss of load. Accordingly, the ISO has taken steps to improve coordination with gas transmission providers to assist in identifying potential problems as well as resolving real time issues. The ISO meets annually with gas transmission providers[4], generally in the

---

[2] 2010 Market Issues and Performance Annual Report of ISO Department of Market Monitoring, April 2011 at 42. http://www.caiso.com/Documents/2010AnnualReportonMarketIssuesandPerformance.pdf

[3] Seasonal changes in demand served by the ISO as well as the amount of annual precipitation in California and in the Pacific Northwest may affect these average numbers. The exact fuel mix of import resources varies, with a significant portion provided by natural gas, hydro, and coal powered sources.

[4] The ISO meets collectively with the following transmission providers that may have California power plants as end users: Pacific Gas and Electric Company (PG&E); Southern California Gas Company (So Cal Gas); Trans Canada Gas; Gas Transmission Northwest, LLC; Kern River Gas Transmission; TRANSPORTADORA DE GAS NATURAL DE BAJA CALIFORNIA, S. DE R.L. DE C.V. (TGN), a subsidiary of Sempra Energy Mexico; and North Baja Pipeline, LLC.

spring, in advance of the ISO's summer peak seasons. The content of each of these meetings involves an array of subjects relevant to electric grid operations, including the level of gas inventory on hand, projected supplies, planned maintenance work on gas facilities, upcoming additions to the gas system, outages that could impact the availability or capacity of gas-fired generation, and long-range weather forecasts. In addition, the ISO confers with each of the gas companies in the fall to determine the winter assessment for fuel capabilities of the gas-fired generation.

Communications may also occur on a daily and real-time basis as needed. These discussions predominantly focus on more immediate operational concerns, such as changes to the electric grid that occur if the day ahead load forecast changes after the day-ahead market results are published, an unplanned outage of a generating facility that results in a need for additional gas-fired generation after the day-ahead market results are published, a weather forecast of extreme conditions in the form of either a heat wave or cold spell, an unplanned outage of major gas pipeline facilities that could impact gas supply and affect the capacity or availability of gas-fired generation, and local supply issues when gas turbine units are dispatched and remain on-line for extended periods of time. In addition, the ISO daily sends to the major gas companies the aggregate burn rate per hour for each company based on the day-ahead market results of gas-fired generation in California.

Last year, the Commission approved a tariff amendment providing the ISO with authority to exercise greater flexibility to share generation and transmission outage information with affected natural gas utilities to manage ongoing natural gas pipeline testing and maintenance along with gas supply shortages in a manner that

ensures a sufficient gas supply for reliable operation of the electric grid.[5] This tariff amendment will advance a greater degree of information sharing and will assist in California's efforts to coordinate operations and outages during a period in time in which PG&E and So Cal Gas are undertaking pressure testing of their natural gas facilities. The ISO has also adopted operating procedure 4120 to help guide the roles, communications and actions of ISO personnel related to natural gas transmission reductions or curtailments and impacts to the electric system in immediate and planned timeframes.[6] The ISO intends to continue to look for mechanisms to improve gas-electric coordination and monitor gas supply conditions in order to mitigate potential reliability issues for the electric system, and will propose appropriate reforms as the need is identified.

III. Comments in response to questions raised in this docket.

The California ISO provides the following short answers to selected questions of Commissioner Moeller and Commissioner LaFleur.[7]

A. What role should the Federal Energy Regulatory Commission have in overseeing better coordination? What duties, if any, should be delegated to the North American Electric Reliability Corporation, the North American Energy Standards Board, or other entities?

The ISO recommends that the Commission focus its inquiry on promoting a dialog about the appropriate level of coordination between electric and natural gas

---

[5] *California Independent System Operator Corp*., December 8, 2011 Letter Order Accepting Tariff Revisions to Permit Outage Information Sharing with Natural Gas Pipelines in Docket ER12-278.

[6] A copy of ISO operating procedure 4120 is available at the following Web site: http://www.caiso.com/Documents/4120.pdf

[7] The ISO is responding to questions raised by Commissioner LaFleur on natural gas and electric coordination in connection with the issuance of the Commission's Notice of Proposed Rulemaking to incorporate by reference the latest version (Version 2.0) of business practice standards adopted by the Wholesale Gas Quadrant of the North American Energy Standards Board applicable to natural gas pipelines. http://www.ferc.gov/media/statements-speeches/lafleur/2012/02-16-12-lafleur-G-1.asp

sectors. Technical conferences may help guide these discussions and identify specific actions that the natural gas and electric industries should explore. In terms of more immediate activities, the ISO believes the Commission could examine how to encourage the adoption of operating procedures by operators of natural gas and electric infrastructure to enhance communication in a manner that promotes safety and coordinated outage planning. The Commission's decision to approve the ISO's tariff amendment to permit outage information sharing with natural gas pipelines last year is an example of how the Commission can facilitate the sharing of information between electric system operators and the natural gas industry. At this time, the ISO does not believe it is necessary to delegate any responsibilities to the North American Electric Reliability Corporation or the North American Energy Standards Board. These entities, however, will have a role to help gather additional information on the development of best practices in the electric and natural gas industries to help guide the Commission's inquiry.

B. To what extent should FERC defer to various regions of the country in addressing these challenges? Should FERC view organized electricity markets differently from bilateral electricity markets? If regional deference is given, what role should FERC play to assure that regional agreements are adhered to?

The ISO believes that where significant regional differences exist in terms of infrastructure and fuel supply mix, the Commission should recognize those differences in any action it undertakes in this docket. Moreover, the Commission should recognize the role and authority of state public service commissions and other agencies with applicable authority over safety requirements as it explores mechanisms to improve coordination between natural gas and electricity markets. For instance, the California Public Utilities Commission, which regulates in-state transportation over the transmission and distribution pipeline systems as well as

storage facilities and has an oversight role in how natural gas utilities in California interface with the ISO.

C. The expanded use of natural gas for electricity generation is likely to change flows on the natural gas pipeline system. Does FERC need to address this issue?

At this time, the ISO has no comment.

D. Within each day, electricity trading differs significantly from gas trading. Similarly, on a day-to-day basis, the various gas markets may not be open on the same days as the corresponding electricity market, especially over Saturdays, Sundays, and Holidays. How should FERC help to harmonize these markets?

The ISO operates both day-ahead and real-time markets to manage California's electricity grid. In California the gas markets are run 7 days a week and there are multiple nomination windows per day. However, greater flexibility for gas nominations and adjustments may be valuable when system storage or gas pipeline transmission constraints are an issue. The ISO believes the Commission should consult with natural gas pipeline operators and their users, including electric generators, to explore this topic.

E. What will be the impact of the expected retirements of coal and oil-fired generation on the need for gas and electricity coordination?

As explained in Section II of these comments, natural gas already plays a significant role in California's electric resource mix and often is the marginal fuel source for setting prices in the ISO's market and is relied on during system emergencies.[8] California, moreover, has a need for additional flexible capacity (for which natural gas-fired plants are strong candidates) with the increase in renewable energy for the state. To the extent coal plants in the west retire, the ISO expects that

[8] A number of the load serving entities in California rely on coal-fired generation from other states in the West.

much of the replacement energy from those resources will come from resources supplied by natural gas. The ISO believes that pipeline operators are best suited to address the impacts of expected retirements of coal or oil-fired generation in other states, including what excess capacity they do or do not have in their transmission systems. In addition, generator developers and load serving entities may be best suited to address potential pipeline expansion opportunities and how they intend to offset coal-fired generation retirements.

F. To what extent should FERC consider modifying its existing Standards of Conduct with regulated utilities—either on an emergency basis or in a more fundamental manner—to assure greater coordination of these industries?

The ISO believes it is important for the Commission to recognize that there is a need to enable sharing of market sensitive information in some instances between natural gas pipelines and electric system operators. The Commission should consider what specific changes, if any, are necessary to its standards of conduct through a technical conference and explore whether the natural gas and electric industries have a clear understanding of what information sharing is permissible to mitigate emergency conditions.

G. Will progress on this issue be faster if policies are addressed in several "baskets", such as communication, operation, contracting, and planning/contingency analysis? If so, what are the appropriate "baskets"?

At this time, the ISO believes a subject-by-subject or basket approach to examine policies to increase coordination between natural gas and electric markets is reasonable. The ISO believes one basket should address communication protocols between natural gas and electric industries in manner that promotes safety, aligns outage planning and promotes real-time reliability.

H. How should the gas and electric industry coordinate and communicate to maintain reliability during weather or outage events.

The ISO believes operating procedures developed between pipeline operators and electric grid operators should govern coordination and communications during weather or outage events. Having written procedures in place will guide an expected level of coordination when weather or outage events occur. The Commission should consider exploring best practices in the context of a technical workshop to help operators refine their operating procedures. The ISO also believes the discussion could be informed if best practices across the United States were shared as an initial step in the workshop process.

I. What new pipeline and storage service and pricing structures might better meet the emerging needs of generators?

At this time, the ISO has no comment.

J. What scheduling protocols should exist for gas pipelines and electric generation facilities?

In 2011, the California Public Utilities Commission directed pipeline operators to pressure test or replace all transmission pipeline facilities that had not been pressure tested.[9] PG&E, accordingly, initiated increased testing of the integrity of its natural gas pipeline system. As a precaution, PG&E reduced gas pressure on their system. Reducing pressure required pipeline customers, including electric generators, to more closely match scheduled natural gas deliveries with actual deliveries. In connection with its pipeline testing activities, PG&E instituted operational flow orders, which penalized daily over- and under-usage of gas within a

[9] CPUC Decision 11-06-017 http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/137309.pdf

tolerance band.[10] The Commission may wish to examine whether additional flexibility for gas nominations for electric generators during high-low operational flow orders is valuable.

Another scheduling question involves the impact of long-term firm supply contracts for natural gas. The Commission should recognize in any inquiry into scheduling protocols that having more options than non-firm and firm supply may create more efficiencies. For example, firm supply contracts for natural gas that enable higher margins of reliability when needed may also create incentives for gas-fired generators to submit self–schedules as opposed to economic bids in organized electric markets in order to burn their gas commitments. This outcome adversely impacts the efficiency of electric markets.

K. Is there a need to include electric reliability standards about fuel supply to support reliability?

At this time, the ISO does not believe there is a need for electric reliability standards concerning fuel supply to support reliability. The Commission, however, may wish to examine this topic through a technical conference. Any examination of electric reliability standards should follow their normal course of development based on industry review and input.

L. How we can improve the Commission's work on pipeline and storage infrastructure to ensure that the gas infrastructure is in place to support the nation's growing reliance on gas for generation.

At this time, the ISO has no comment.

[10] More information about pressure reductions on PG&E's system is available in the following PG&E new release, dated July 6, 2011: http://www.pge.com/pipeline/news/20110706_1539_news.shtml

IV. Conclusion

Natural gas is a critical fuel for electric generation in California and often is the fuel for the marginal resource in the ISO's electricity market. The ISO supports the Commission's inquiry and believes the Commission can advance the coordination between wholesale natural gas and electricity markets by fostering a dialog between industry sectors to identify how best to ensure both sectors operate their systems in a reliable and efficient manner.

Dated: March 30, 2012

Respectfully submitted,

By: *Is/ Andrew Ulmer*

Nancy Saracino
General Counsel
Sidney Davies
Assistant General Counsel
Andrew Ulmer
Director, Federal Regulatory Affairs
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7182
Fax: (916) 608-7222
aulmer@caiso.com

Attorneys for the California Independent
System Operator Corporation

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service list in the captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 30th day of March, 2012.

/s/ Anna Pascuzzo
Anna Pascuzzo