
**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
NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION**

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I. INTRODUCTION

The North American Electric Reliability Corporation (“NERC”)¹ is pleased to provide these comments in response to the Federal Energy Regulatory Commission’s (“FERC” or the “Commission”) Notice Assigning Docket No. and Requesting Comments on the Coordination Between Natural Gas and Electricity Markets² and FERC Commissioner Philip Moeller’s request for comments on a set of questions concerning gas-electric interdependence.³

NERC’s mission, as the FERC-designated Electric Reliability Organization (“ERO”),⁴ is to ensure the reliability of the bulk power system in North America, in part, by developing and enforcing mandatory Reliability Standards. NERC’s reliability mandate under Section 215 of the Federal Power Act (“FPA”)⁵ does not include authority to monitor and enforce market-based issues.⁶ Accordingly, NERC’s comments herein focus on the three pertinent questions related to the coordination between Natural Gas and Electricity Markets:

- 1. Specifically, what role should the Commission have in overseeing better coordination? What duties, if any, should be delegated to NERC, the North American Energy Standards Board (NAESB), or other entities?**
- 2. What will be the impact of the expected retirements of coal and oil-fired generation on the need for gas and electricity coordination?**
- 3. 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”?**

¹ This filing is supported by the Florida Reliability Coordinating Council, Inc., Midwest Reliability Organization, ReliabilityFirst Corporation, SERC Reliability Corporation, Southwest Power Pool Regional Entity, Texas Reliability Entity, Inc., and Western Electricity Coordinating Council.

² *Notice Assigning Docket No. and Requesting Comments*, Docket No. AD12-12-000 (February 15, 2012).

³ See <http://www.ferc.gov/about/com-mem/moeller/moellergaselectricletter.pdf> (February 3, 2012).

⁴ See *North American Electric Reliability Corporation, Order Certifying North American Electric Reliability Corporation as the Electric Reliability Organization and Ordering Compliance Filing*, 116 FERC ¶ 61,062 (2006).

⁵ 16 U.S.C. § 824o.

⁶ See *Mandatory Reliability Standards for the Calculation of Available Transfer Capability, Capacity Benefit Margins, Transmission Reliability Margins, Total Transfer Capability, and Existing Transmission Commitments and Mandatory Reliability Standards for the Bulk-Power System*, Order No. 729, 129 FERC ¶ 61,155 at P 109 (2009).

By this filing, NERC provides comments in response to the Commission's notice and Commissioner Moeller's request for comments.

II. NOTICES AND COMMUNICATIONS

Notices and communications with respect to this filing may be addressed to the following:⁷

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III. COMMENTS

On February 3, 2012, Commissioner Moeller issued a request for industry comment on the growing interdependence of the natural gas and electricity industries. Specifically, Commissioner Moeller sought comment on a set of questions regarding how to improve coordination between the two industries, given the increased use of natural gas to generate electricity. On February 15, 2012, the Commission issued a notice directing that comments in response to Commissioner Moeller's request be submitted in the above docket, by March 30, 2012.

⁷ Persons to be included on FERC's service list are indicated with an asterisk. NERC requests waiver of FERC's rules and regulations to permit the inclusion of more than two people on the service list.

In formulating comments, NERC requested feedback from the NERC Operating and Planning Committees, NERC Regional Entities, and NERC staff, and referred to NERC's December 2011 Special Reliability Assessment titled "A Primer of the Natural Gas and Electric Power Interdependency in the United States."⁸ Phase I recommendations from this assessment include:

- Future natural gas storage facilities will not only have to satisfy the traditional demands for fuel supply reliability, but it will also have to satisfy the significant and expanding swings in demand for gas that can only be accommodated by high performance, multiple cycle natural gas storage facilities.
- Vital information needed for the reliable operation of the bulk power system should be shared with system operators from both industries—increased transparency in both markets is needed. Examples of this include the sharing of maintenance issues (*e.g.*, the pipeline and the generators), new facilities perceived impact, load levels, dispatch principles and general patterns or forecasts for both industries.
- Communications between two industries are hampered by the incompatibility between the traditional gas day, traditional electric day, and the market day (in market areas), which increases the difficulty of the gas industry providing the needed services to its largest consumer. Contracting practices also make it difficult to plan the flexibility needed for both industries' reliable operation. A coordinated approach for engaging the two industries to come together and develop compromising solutions to address communication strategies, operational changes, and tariff changes is critical. The two

⁸See *NERC 2011 Special Reliability Assessment: A Primer of the Natural Gas and Electric Power Interdependency in the United States*, at p. 96 (December 2011), available at: http://www.nerc.com/files/Gas_Electric_Interdependencies_Phase_I.pdf.

industries must reconcile the divergent views such as firm contracting needed to build new pipeline capacity and how to secure day-to-day delivery of gas.

- Vulnerabilities should be identified. Mitigating strategies should be incorporated into the planning and operation procedures for both industries. The electric industry should evaluate which generators may be most susceptible to pipeline disruptions (*e.g.*, number of pipelines serving the generator, proximity to gas storage, and location relative to pipeline). The gas pipeline industry should consider electric system generation forecasts during the planning process. For operations, the sharing of real-time system information by both industries increases the ability for each to make informed decisions and reduce overall risk.

Based on feedback from NERC stakeholders and conclusions from the NERC special reliability assessment, specific responses are further set forth below.⁹

1. Specifically, what role should the FERC have in overseeing better coordination? What duties, if any, should be delegated to NERC, the NAESB, or other entities?

NERC's current authority under Section 215 of the FPA addresses the reliability of the bulk power system. In this role, NERC sets mandatory Reliability Standards, ensures compliance with these standards, and assesses the ongoing and future reliability of the bulk power system, subject to Commission review. With this charge, NERC seeks to establish standards of performance that address appropriate levels of visibility of operators to resource availability, including an electric generator's ability to support the operational reserves needed to

⁹ On March 23, 2012, NERC submitted comments in support of the Commission's Notice of Proposed Rulemaking ("NOPR") regarding Standards for Business Practices for Interstate Natural Gas Pipelines, issued on February 16, 2012, in Docket No. RM96-1-037.

support reliability. As part of interconnection standards, review of expected fuel availability that a generator will provide to support capacity and operational reserves may require more attention.

While NERC is particularly interested in assuring that fuel availability is considered for resources that provide the most critical level of reliability services (*i.e.*, operational reserves) NERC's current authority to develop and enforce Reliability Standards under the FPA are sufficient to further address these activities as needed. Furthermore, the process to develop Reliability Standards provides a framework to support bulk power system reliability and recommendations identified in NERC's Reliability Assessments.

Given the Commission's jurisdiction over gas pipelines, FERC has the opportunity to take additional steps to ensure that natural gas pipeline rules, regulations, and tariffs are designed in a way that provide flexibility and reliability to all existing and future pipeline customers notwithstanding the reliability implications of contracts relying on interruptible service. NERC believes many of the issues identified in its reliability assessment involve planning and operating the electric and gas pipeline system within the current framework of rules, regulations, and tariffs that do not recognize the contributions of gas-fired generation as the largest source of on-peak capacity in the United States.

Under the current approach, new gas pipeline capacity is built to primarily serve firm contracts. Yet, firm contracts are generally the minority of supply agreements among electric generation customers. Unless electric generation customers contract for firm service from the gas industry, the electric industry will have to rely on interruptible pipeline services that may or may not be available, by definition, when the electric industry requires pipeline capacity. This becomes a larger issue when both the electric system and the pipeline system peak during the same periods. When gas supplies to electric utilities are subject to interruptions, a greater

potential exists for adverse impacts to overall system reliability. Many stakeholders noted that in order to further adapt transportation services to improve reliability, additional costs related to such improvements also need to be recognized.

Under the current framework, generators within an ISO/RTO market structure are able to receive capacity and energy payments without fuel certainty. That is, bulk power system planners and operators assume fuel delivery. However, in order for a generator to be counted to meet reserve margin requirements in resource adequacy studies, firm electrical transmission service must be confirmed. A parallel requirement for confirmed fuel service does not exist representing a potential reliability gap for coordinated planning purposes.

Moreover, while ancillary services are fundamental to reliable electric service, there exists a parallel need for sufficient ancillary services on the pipeline system. As such, determining the amount of pipeline capacity needed to ensure electric reliability – and who will hold and pay for that capacity – are fundamental questions that should be addressed by the Commission.

While NERC believes that improved sharing of information and improved scheduling of existing pipeline capacity will help both the electric and gas industry harmonize their practices, a potentially larger issue is building the infrastructure (*i.e.*, pipeline capacity, bulk and local gas storage) that supports flexibility and provides sufficient capacity to all gas customers. As NERC cannot order the building of infrastructure, FERC's support of industry efforts in infrastructure development would be beneficial to the industry. Additionally, an enhanced framework may be needed for infrastructure development to support an integrated and coordinated planning approach that takes into account future needs of pipeline customers.

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

NERC's December 2011 gas and electric interdependency report, referenced earlier, details the challenges and reliability considerations to accommodate a significant change in the projected resource mix.¹⁰

With a shift to unconventional gas production in North America, the potential to increase availability of supply makes gas-fired generation a premier choice for new generating capacity in the future. However, increased dependence on natural gas for generating capacity can amplify the bulk power system's exposure to interruptions in natural gas fuel supply and delivery. Mitigating strategies, such as storage, firm fuel contracting, alternate pipelines, dual-fuel capability, access to multiple natural gas basins, nearby plants using other fuels, or additional transmission lines from other Regions, can contribute to managing interdependency risks and ensure reliability is maintained regardless of the fuel-mix.

With significant coal and oil-fired generation retiring over the next ten years, the primary choice of replacement capacity is expected to be gas-fired combined-cycle units. Additionally, the primary choice of new capacity to support demand growth will largely be gas-fired and renewable generation—each with its own inherent operating characteristics that must be considered to ensure reliability when both planning and operating the bulk power system. Approximately 100 GW of new gas-fired capacity (approximately 10 percent of the total current generating capacity in the United States) is projected to be added to the bulk power system in the next ten years. Furthermore, 80 GW of planned nameplate wind capacity is expected in the same

¹⁰ See also *NERC 2011 Long-Term Reliability Assessment*, available at: http://www.nerc.com/files/2011%20LTRA_Final.pdf.

time period, adding to the complexity of accommodating variable resources to the bulk power system.

Almost all of the future growth in natural gas demand will come from the electric sector. However, there is a wide range of views on the potential growth for electric sector gas demand, because gas-fired generation currently tends to be at the margin and is impacted by the actions of all other forms of electric power generation. Nonetheless, changes in the electric sector (*i.e.*, growth in gas demand, decrease in coal generation) will ultimately increase gas demand levels due to additional base-load functions that gas-fired generation is expected to provide in the near future. The range of potential growth in electric sector gas demand over the next two decades is between 30 and 41 BCFD, which equates to about 2.0 to 3.6 percent per annum growth rate.

Long-term growth of gas-fired generation needs to be taken into account in pipeline planning and operations. The combination of this growth in gas demand within the electric sector and its changing status among the gas consuming sectors has significantly increased the interdependencies of the electric and gas industries, causing many participants within both industries to focus sharply on their interface. A key element of focus between the two industries is the need for increased coordination, particularly at a regional level.

The retirement of oil units, while important, is not as critical as maintaining dual fuel capabilities at gas-fired dual fuel generation stations. Because of the just-in-time service of gas fuel delivery, maintaining dual fuel capabilities provides significant reliability benefits for gas-fired generators. If implemented, strict environmental regulations could potentially limit the use or eliminate (particularly in non-attainment areas) the ability of generating units to burn oil for back up purposes if gas service is interrupted, further increasing the dependence on pipeline service. While there are many different solutions for decreasing the interdependence on pipeline

service and mitigating the effects of gas fuel interruption, oil back-up has generally been the acceptable solution in a majority of areas; in some areas of the United States dual fuel capability on gas-fired units are a requirement.

Given the expected contributions of gas-fired generation to the resource portfolio, more coordination will be needed to ensure electric system operators have a sufficient level of certainty in the performance of gas-fired generation. Enhanced coordination should be reflected with integrated long-term planning, short-term operational planning, and day-ahead and real-time operations. An approach that enhances the coordination efforts of both industries across multiple planning and operation fronts can increase observability and performance expectations.

3. 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”?

Developing categories to address specific bulk power system reliability goals can support the development of appropriate standards. Coordinated assessment is critical, so each category must be viewed as including supply, pipeline and electric systems. Accordingly, NERC proposes the following policy “baskets” for consideration:

- Long-Term Planning:
 - Review of supply resource availability and firmness of capacity.
 - Contingency analysis and operational procedures.
 - Alignment and coordinated planning of electric resources and gas infrastructure.
 - Enhancements to contracting practices to support coordinated planning.

- Operations
 - Review Nomination scheduling for gas delivery.
 - Assess generator requirements for operational reliability reserves.
 - Coordination of operating procedures across electric and gas sectors.
 - Coordination of emergency procedures across electric and gas sectors.

NERC also notes that a common characteristic of these proposed policy “baskets” is communication. The sharing of vital information needed for the reliable operation of the bulk power system between both gas and electric industries should be a top priority. Moreover, NERC agrees that coordination and communication between the gas and electric industry, in order to maintain reliability during weather or outage events, is an important aspect of gas and electric interdependence that should be considered.¹¹

Furthermore, in studying these policy “baskets”, NERC recommends that FERC identify inconsistencies between the gas and electric industries and how the two industries plan, operate, and coordinate their respective systems. For example, contingency planning is a cornerstone for ensuring the bulk power system is resilient against disruptions of a certain threshold, whereas pipelines are not bound to a parallel requirement.

¹¹ See *Statement of Commissioner Cheryl A. LaFleur on Standards for Business Practices for Interstate Natural Gas Pipelines* (February 16, 2012), available at: <http://www.ferc.gov/EventCalendar/Files/20120224075207-G-1-LAFLEUR.pdf>.

IV. CONCLUSION

NERC is pleased to provide these comments in response to the Commissioner Moeller's request and NERC looks forward to working with the Commission to help ensure the reliable and efficient coordination of the natural gas and electricity markets.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the foregoing document upon all parties listed on the official service list compiled by the Secretary in this proceeding.

Dated at Washington, D.C. this 30th day of March, 2012.

/s/ Willie L. Phillips

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