



**UNITED STATES OF AMERICA  
BEFORE THE  
FEDERAL ENERGY REGULATORY COMMISSION**

**2023 Annual Reliability  
Technical Conference**

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**Docket No. AD23-9-000**

**PRE-CONFERENCE PAPER SUBMISSION**

**Natural Gas & Power Industries’ Reliability Alliance:  
*Exploring Real-Life Challenges with Ensuring Natural Gas Availability for Power and  
Joint Industry Suggested Mitigation Strategies***

In advance of the 2023 Annual Reliability Technical Conference being convened by the Federal Energy Regulatory Commission (“FERC,” “Commission”) on November 9, 2023, three national trade organizations herein submit a joint paper developed this year addressing gas-electric interdependence and operational challenges. Those organizations - Natural Gas Supply Association (“NGSA”),<sup>1</sup> Interstate Natural Gas Association of America (“INGAA”),<sup>2</sup> and Electric Power Supply Association (“EPSA”),<sup>3</sup> – represent natural gas suppliers and marketers, interstate natural gas pipelines, and competitive natural-gas fired generators. The trade associations and technical experts

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<sup>1</sup> The Natural Gas Supply Association (NGSA) represents integrated and independent companies that supply natural gas. Founded in 1965, NGSA is the only national trade association that solely focuses on producer-marketer issues related to the downstream natural gas industry. NGSA advocates for well-functioning markets that foster a growing, competitive market for natural gas. NGSA is dedicated to achieving a cleaner future through strong partnerships with renewables and supporting innovative technologies and market solutions that reduce emissions.

<sup>2</sup> The Interstate Natural Gas Association of America (INGAA) represents the majority of interstate natural gas transmission pipeline companies in the United States. Its 26 members operate approximately 200,000 miles of interstate natural gas pipelines, transporting the majority of the country’s natural gas and serving as an indispensable link between natural gas producers and consumers.

<sup>3</sup> The Electric Power Supply Association (EPSA) is the national trade association representing competitive power suppliers in the U.S. EPSA members provide reliable and competitively priced electricity from environmentally responsible facilities using a diverse mix of fuels and technologies. EPSA seeks to bring the benefits of competition to all power customers. This pleading represents the position of EPSA as an organization, but not necessarily the views of any particular member with respect to any issue.

from their memberships met numerous times in the immediate aftermath of Winter Storm Elliott to identify the operational problems caused by or impacting gas-electric coordination experienced during that extreme cold weather event. The group further explored solutions to challenges to maintaining reliable fuel for power generation.

To assist in the discussion highlighted for Morning Panel 1 of the November 9<sup>th</sup> conference, the joint paper is being submitted for the record in the instant proceeding. We thank the Commission for inclusion of these issues on the agenda and look forward to working with the Commission, additional jurisdictional entities, policymakers, and industry to identify the challenges of gas-electric interdependence and taking the timely action necessary to implement solutions and mitigation approaches to improve the reliability of these integrated systems.

Respectfully submitted,

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## Natural Gas & Power Industries' Reliability Alliance:

### *Exploring Real-Life Challenges with Ensuring Natural Gas Availability for Power and Joint Industry Suggested Mitigation Strategies*

#### **INTRODUCTION**

Following Winter Storm Elliott, trade associations representing natural gas-fired generators, natural gas suppliers, and interstate pipelines (“the Reliability Alliance”) met to explore solutions to the operational challenges to maintaining reliable fuel for power generation.<sup>1</sup> Based on gas generators’ experiences, the vast majority of problems occur when both the natural gas and electricity systems are stressed by high demand. During Elliott, most gas generator outages occurred when RTOs/ISOs called generators to run in Real-Time. In fact, PJM found that *nearly 90%* of fuel-related outages happened in the Real-Time Market.<sup>2</sup> Accordingly, the Alliance prioritized Real-Time challenges and identifying ways to better manage gas procurement during extreme events.

The challenges to meeting Real-Time Market dispatches largely occur during extreme weather, but we expect these challenges to become more common as RTOs/ISOs increasingly rely on natural gas-fired generators to dispatch on short notice in response to reduced wind and solar generation. Members of the Reliability Alliance (and nearly all voters in the NAESB Gas-Electric Harmonization Forum<sup>3</sup>) agree that it is important to assess whether this country has sufficient natural gas infrastructure to support the level of real-time flexibility that electric system operators need to respond quickly to intermittent resource fluctuations, such as wind and solar. While this paper primarily focuses on real-time challenges during winter events, the Alliance also acknowledges that policies must support gas infrastructure that is critical for the nation’s evolving and diverse generation resources.

This consensus document discusses the challenges with real-time dispatches and hurdles to building gas infrastructure and suggests the following approaches to address unexpected challenges. The Reliability Alliance invites regulators, policymakers, RTOs/ISOs, and other market stakeholders to further discuss these solutions.

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<sup>1</sup> The Reliability Alliance is composed of the Electric Power Supply Association (“EPSA”), Interstate Natural Gas Association of America (“INGAA”), and Natural Gas Supply Association (“NGSA”) and was formed through a series of in-person member meetings that resulted in frank discussions and dialogue among industry providers and power customers that depend on natural gas to run their units. These discussions helped to peel back the layers and the rhetoric often found on both sides to allow us to develop a better understanding of the challenges each industry faces and to prioritize the key challenges to gas-electric coordination that must be overcome to maintain reliable operations. The Reliability Alliance welcomes all gas industry providers and power customers to work together to raise greater awareness and find consensus on the various incremental steps that, when taken together, should provide for significant improvements in the availability of natural gas for power, especially during cold winter events.

<sup>2</sup> See Slide 15 of Presentation from March 9, 2023, PJM Operating Committee Meeting, Winter Storm Elliott Continued Outage Analysis.

<sup>3</sup> See voting matrix for Recommendation 20, *North American Energy Standards Board Gas Electric Harmonization Forum Report*, July 28, 2023 (pp. 63-66).

**Real Time Market Challenges:**

- Improving Pricing in Power Markets, Especially the Real-Time Market.
- Improving Certainty in Power Markets to Encourage Advance Gas Purchases.
- Considering Ways to Facilitate Gas Purchases During Intra-Day Periods, Weekends, and Holidays.
- Allowing Updates to Generator Offer/Operating Parameters in Real-Time.
- Accounting by RTOs/ISOs for Gas System Limitations in Generator Commitment and Dispatch.
- Considering Enhanced Pipeline Notices and Services to Address Power System Needs.

**Gas Infrastructure Challenges:**

- Considering ways that generators can financially support investment in gas infrastructure required to serve power demand and increased ramping requirements.
- Developing mechanisms for wholesale electric market participants to anchor additional pipelines.
- Considering whether increasing pipeline capacity is commercially viable as part of complying with new emissions mandates.
- Supporting legislation that removes hurdles in the permitting process and asking FERC to rescind pending draft policies that add uncertainty and investment risk.
- Encouraging RTOs/ISOs and NERC to advocate for specific projects, particularly storage, which will enhance reliability of gas supply and provide flexibility.

**1. ADVANCE FUEL PROCUREMENT AND SCHEDULING WITHOUT CERTAINTY OR COMPENSATION.** There are two primary types of uncertainty that can deter gas generators from purchasing and scheduling gas in advance of dispatch (for real time, day ahead, monthly, or long-term):

- (1) uncertainty regarding how often and when the ISO/RTO will dispatch the generator; and
- (2) uncertainty as to whether the generator can recover their fuel cost if not called upon to run.

These uncertainties increase reliability risks in the Real-Time Market when pipeline capacity is constrained and when most gas supply has been purchased. Reliability risks are highest in these circumstances because most entities serving end-users purchase gas in the monthly or Day-Ahead Markets for their weekend (Saturday through Monday) gas requirements and schedule this gas during Friday's Timely Nomination Cycle. As a result of these advance capacity and supply arrangements, there may be less availability and flexibility in the market for meeting generator needs over the weekend. This issue can be further compounded when end-users who otherwise might release gas are unavailable over extended holiday weekends. Moreover, Platts does not publish price indices for individual weekend days due to lower liquidity, so generators typically must enter into fixed price transactions with suppliers or use ICE to acquire a single day or intra-day purchase. Prices typically will reflect scarcity in critical periods. For these reasons, generators must be able to procure their gas needs as early as possible.

#### **POTENTIAL IMPROVEMENTS:**

##### **A. Improve Pricing in Power Markets, Especially the Real-Time Market.**

- i. Develop market-based mechanisms to better signal expected power dispatch, avoid uplift, and include fuel costs to reflect the cost of reliability in the market price. These mechanisms would encourage advanced gas procurement with less risk of unused supply, more timely pipeline nominations, and the ability to purchase fuel in more liquid periods. The development of market-based solutions—such new energy/ancillary service products or more robust reserve requirements—should be the first line of focus.
- ii. *In the absence of market-based solutions*, consider the need for last resort backstop mechanisms that would cover net losses from advanced gas purchases in limited, critical event circumstances. These mechanisms would limit potential cost shifting on load because early procurement reduces risk of purchases in most volatile (and expensive) periods during critical events (to be defined) and increases the reliability for load as “insurance.” Possible mechanisms for consideration include:
  - a. Multi-day clearing mechanisms that, following issuance of a cold weather alert by ISO/RTO based on objective criteria (to be defined), compensate generators for net losses (and offset net profits) from advance gas purchases necessary to allow these generators to be “on call” during the alert. Mitigation must reflect generators’ increased risk for multi-day scheduling and fuel procurement.
  - b. Increased certainty that a generator will be made whole when not cleared in the Day-Ahead Market but then called upon to run during critical events and thus procuring gas for the remainder of the 24-hour gas day or pursuant to a generator’s contractual ratable commitment based on the timing of the gas day.

##### **B. Improve Certainty in Power Markets to Encourage Advance Gas Purchases.**

- i. RTOs/ISOs should notify generators as early as possible of the need to run (or at least the need to be prepared to run). Early notification allows a generator to procure gas supply when the market is sufficiently liquid and schedule gas transportation pursuant to the NAESB Timely Gas Day timeline. This could include multi-day clearing as noted in A above.
- ii. Shift the start time of regional Power Days to better align with the existing national standard Gas Day, which (1) reduces the need for intra-day gas purchases and intra-day pipeline nominations, (2)

limits pipeline imbalances, and (3) allows generators to address their evening power peak or calls to run late in the day/night.

- a. If necessary, evaluate changes to the Gas Day after implementing changes to the Power Day.
- iii. RTOs/ISOs should reconcile their forecasts and load bids in the Day-Ahead Market and fill any gap with supplemental market-based merit order clearing as soon as possible to reduce calls on generation in Real-Time.
  - a. To improve the operator's ability to forecast and dispatch sufficient resources in the Day-Ahead Market, our groups would like to work with RTOs/ISOs to identify more opportunities for information sharing, where sharing is practical, and adds value for situational awareness, and appropriately protects sensitive data.
  - b. As recommended in the NAESB Forum, RTOs/ISOs might also improve visibility into gas industry conditions once Argonne's tools are in place to provide near real-time data, though data access and reliance issues need to be addressed.
  - c. RTOs/ISOs may also want to expand the scope of their forecasting assessments to include an examination of the forecast models used by other gas users in their region, such as LDCs.

#### **C. Consider Ways to Facilitate Gas Purchases During Intra-Day Periods, Weekends and Holidays.**

- i. Advocate for standardized postings on ICE for single-day options instead of only reflecting 3- or 4-day weekend strips. While this option already exists as a customizable option, single day options on the initial screen may encourage parties to consider these options.
- ii. Promote the development of daily indices for individual weekend days with index publishers. Such a single day index may encourage more market participation and liquidity on weekends and holidays. Until then, the prevailing prices on ICE during weekend events should be considered the best measure of single day weekend pricing.
- iii. Encourage generators to expand their pool of suppliers by (1) entering into credit/collateral approvals with many gas sellers on ICE or (2) obtaining pre-approvals for transactions with a diverse set of suppliers that they can contact directly, especially during weekends and holidays.
- iv. Incentivize pipeline firm shippers to post excess capacity as soon as possible or to enter into AMAs that maximize efficient use of shippers' capacity. Support state policies that encourage LDCs to take these actions, although it is unlikely that LDCs will release any substantial amounts of their firm reserved capacity during critical events.

#### **2. REAL-TIME DISPATCH REQUIREMENTS CONFLICT WITH NAESB TIMEFRAMES FOR GAS FLOW OR RATABLE TAKES THAT ARE ENFORCED DURING CRITICAL PERIODS.**

The existing NAESB timeline recognizes that there must be sufficient time to match flows with nominated volumes. Some pipelines provide services that allow for nominations outside the NAESB timeline while others use best-efforts to accommodate shippers' needs for flexibility. But the time to balance a system makes it difficult to formally compress the time between nominations and flows.

While best-efforts flexibility is more available during normal operating conditions, during critical periods, pipelines may not have the operational flexibility to enable generators to meet unexpected Real-Time dispatches (that require a generator to run in 30 minutes or less) by flowing gas outside NAESB cycles or by allowing non-ratable flows, regardless of contract. When considering its commitments to the RTO and the gas tariff restrictions, generators are left in an untenable position. Inaccurate power demand forecasting will exacerbate this problem by not clearing sufficient resources for reliability in the Day-Ahead Market, which would allow generators to arrange fuel supply in a timely manner.

Generators' operating parameters are much more limited when a pipeline has issued an Operational Flow Order (OFO) and gas supply and pipeline capacity is not readily available. Therefore, it is critical that generators have the ability to revise their parameters in their energy market must-offer bids during the Real-Time Market—supported by documentation from pipelines—to reflect changing gas market conditions and to provide the RTO/ISO with advance notice of their operating limitations.

**POTENTIAL IMPROVEMENTS:**

**A. Allow Updates to Operating Parameters in Real-Time.** RTOs/ISOs should allow generators to update their operating parameters in the Real-Time Market to reflect gas system limitations. Stakeholders must resolve whether current FERC rules permit this practice. Generators should be allowed to update their operating parameters as soon as possible when pipelines impose restrictions that impact the typical flexibility afforded to the unit.

**B. Consider Enhanced Pipeline Notices and Services to Address Power System Needs.**

- i. Encourage more pipelines to accept nominations after ID3 on a “best efforts” basis when the generator has procured gas supply and capacity is available. Explore how to provide these opportunities even when an OFO has been issued.
- ii. Ensure pipeline notices, such as OFOs, are clear and provided as far in advance as possible for gas generators to justify/support real time offer parameter changes to the RTO/ISO.
- iii. To the extent possible using existing infrastructure, pipelines should be encouraged to design enhanced services that (1) align/match power market usage patterns, (2) do not require 365-day ratable use, and (3) do not put costs on other shippers.
- iv. Pipelines should review what incremental infrastructure would be required to offer more no-notice or non-ratable services and develop a rough estimate of the costs so that regional operators, generators, and regulators have a general idea of what they would need to pay to have these services.

**3. ORGANIZED POWER MARKETS DO NOT SUPPORT THE LONG-TERM COMMITMENTS NEEDED TO EXPAND GAS INFRASTRUCTURE.** RTO/ISO market design often does not incentivize generators to make the long-term commitments that can support the development of additional pipeline capacity. Constant changes, reevaluations and out-of-market actions have created instability in capacity markets that have eroded the certainty that it was intended to provide to generators. RTOs/ISOs should study and FERC should convene a workshop to explore ways for wholesale electric market participants to anchor additional pipeline infrastructure. Also, pipelines should consider if capacity increases are commercially viable when they undertake required upgrades to comply with new emissions mandates.

**4. INFRASTRUCTURE PERMITTING DELAYS.** Unduly burdensome permitting processes and protracted litigation increase investment risk and obstruct or delay natural gas infrastructure expansion.

**POTENTIAL IMPROVEMENTS:**

**A. Support Legislation that Removes Hurdles in the Pipeline Permitting Process and Ask FERC to Rescind Pending Draft Policies that Add Uncertainty and Investment Risk.**

**B. Encourage RTOs/ISOs and NERC to Advocate for Specific Gas Infrastructure Projects, Particularly Storage, that Enhance Reliability of Gas Supply and Provide Increased Flexibility.** The coalition study that asks DOE to look at whether there is sufficient natural gas infrastructure to support fuel availability for ramping may be helpful to pinpoint where such needs exist.